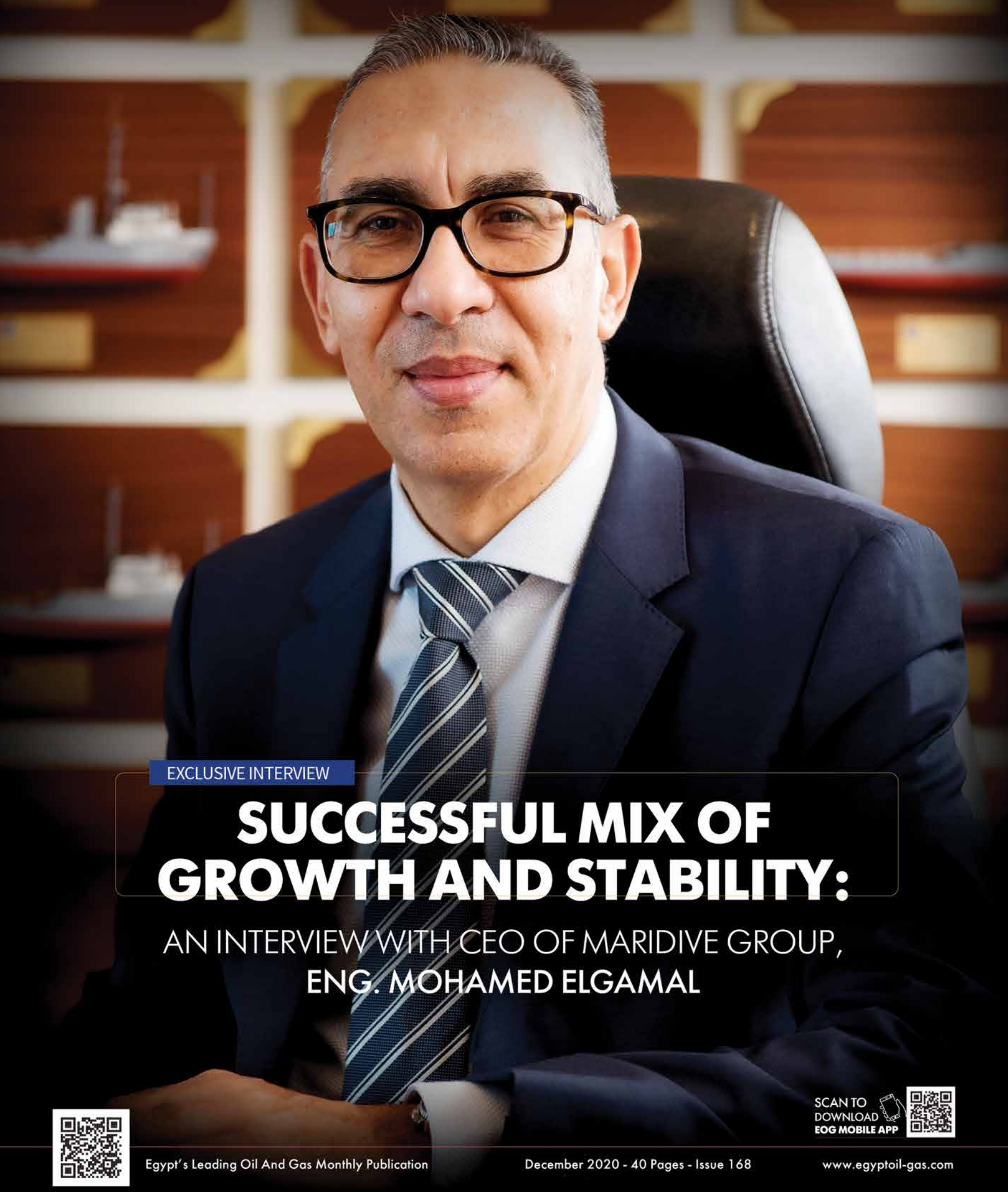
EGYPT
OIL&GAS
NEWSPAPER



EXCLUSIVE INTERVIEW

SUCCESSFUL MIX OF GROWTH AND STABILITY:

AN INTERVIEW WITH CEO OF MARIDIVE GROUP, ENG. MOHAMED ELGAMAL

CONTENTS

EDITOR'S **LETTER**

A Year of Challenges and Changes.

Finally, 2020 is coming to an end. It has been an unusual year full of revolutionary changes and unexpected challenges. We started using new terminologies more frequently, such as "pandemic", "lockdown", "new norm", "digitalization", "mobilization", etc. Most of us faced hard times on personal, professional, and even health levels. We worked from distance and we found new ways of communication.

The oil and gas industry faced many fluctuations in prices, production rates, and trade flows. We witnessed negative oil prices for the first time in history. The Organization of the Petroleum Exporting Countries (OPEC) and OPEC+ decided to reduce the oil production rates several times during the year to boost the prices and rescue their economies during the pandemic. A million words are not enough for me to describe how 2020 was a challenging year for the industry. Yet, I am having positive expectations for 2021.

Our December issue discusses one of the most affected activities by the pandemic, which is downstream. Our remarkable footprints section tracks the changes happened in Egypt's petrochemical sector, while the industry insights section includes different downstream related topics.

One of the features discusses the Egyptian will to rely more on using compressed natural gas (CNG) for vehicles. A second feature highlights the changes in the petroleum trade agenda 2020 in the light of the pandemic. A third feature presents the current challenges and opportunities of liquefied natural gas (LNG) storage and transportation.

In the research and analysis section, we provide our readers with an analytical report about Egypt's petroleum sector economic contribution over fiscal years (2014/15- 2018/19).

Our politics section outlines the Egyptian-Iraqi ties and reviews the planned energy projects during the upcoming period.

We conducted an exclusive interview with Mohamed El Gamal the CEO of Maridive Group. He shared with us the details of the current organization structure in the company in addition to the company's future plans.

The issue also includes a featured interview with Ahmed Saad, Assistant General Manager, the Egyptian Petrochemicals Holding Company (ECHEM). He talked with us about the cooperation between ECHEM and Methanex in the local methanol market.

MAHINAZ EL BAZ Acting Editor-In-Chief - Research & Analysis Manager

Bulding 130, 2nd District, Fifth Settlement, New Cairo – Egypt

(+20) 2 25602193 (+20) 2 25602194 (+20) 2 25650489

/EgyptOilandGas /EgyptOilandGas /Egypt-Oil-&-Gas /EgyptOilandGas /EgyptOilandGas

EGYPT OIL&GAS NEWSPAPER

EGYPT'S LEADING OIL AND GAS MONTHLY PUBLICATION

Research & Analysis Manager
MAHINAZ EL BAZ

Managing Editor
IHAB SHAARAWY

Senior Editors
RANA AL KADY
MAI EL GHANDOUR

Staff Writers
FATMA AHMED
JASMINE SHAHEEN
JACK BECKFORD

Research Analysts
AMINA HUSSEIN
REHAM GAMAL
TASNEEM MADI

Statistician
NADA ABBAS

Chief Reporter
WAEL EL-SERAG

Business Development Director
AYMAN RADY

Marketing Manager
TAMARA EWISS

Creative Art Director
OMAR GHAZAL

Art Director
MAGED KHATTAB

Graphic Designers
MARIAN WAEL
MERNA WILLIAM

3D Visualizer
TAMER GAMAL

Photographer
AMIR WILLIAM

Operations & Financial M.
ABDALLAH ELGOHARY

Managing Director Assistant
NOHA HESHAM ZAYED

Senior Digital Marketing Specialist
MAMDOUH ABDELHAMID

Web Master
OLFAT KAMEL

Administration
TAGHREED MOUNIR

Accountants
MAHMOUD KHALIL
MOHAMED NAGY

Distribution Officers
MAHSOUB KENZI
MOHAMED EL-SAYED
MAHMOUD NABIL
OSAMA MOHAMED

PUBLISHER MOHAMED FOUAD

This publication was founded by
MOHAMED FOUAD AND **OMAR DONIA.**

PRODUCTION

GEMPETCO ACHIEVES RECORD OIL PRODUCTION OF 10,000 BBL/D

Gemsa Petroleum Company (Gempetco) achieved a new record by producing 10,000 barrels per day of oil (bbl/d) despite coronavirus pandemic.

The company reached this production rate while observing all health, safety and environment (HSE) rules and without any incidents, the statement mentioned.

Gempetco's production from Gamasa concession reached 4,000 bbl/d and its production from Zaafarana concession amounted to 6,000 bbl/d.

Gempetco has planned to drill more wells in Zaafarana and Gamasa to preserve these production rates.

PHARAONIC PETROLEUM'S NATURAL GAS PRODUCTION JUMPS TO 450 MMCF/D

The Pharaonic Petroleum Company's natural gas production significantly increased during the current period to 450 million cubic feet per day (mmcf/d), in addition to 8,000 barrels of condensates.

An anonymous official petroleum source said that the company is intensifying its efforts to maintain the production rates and compensate the normal reduction of its fields' productivity.

The source who preferred anonymity pointed out that Atoll well is expected to produce about 100 mmcf/d of natural gas while Qatameya well is predicted to produce 40 mmcf/d.

He noted that the company is intending to exert more efforts to start production from the two wells of Atoll and Qatameya with investments ranging between $270-280 million.

ASORC'S OCTANE COMPLEX TO PRODUCE 800,000 T/Y

Assuit Oil Refining Company's (ASORC) Octane complex aims to produce 800,000 tons annually of all octane types in addition to increasing butane production to meet the demand of Upper Egypt's governorates, Tarek El Molla, Minister of Petroleum and Mineral Resources, said.

The project is an added value to Assuit refinery; which provides 60-65% of the petroleum products needed to Upper Egypt and the South Valley. The $450 million-project aligns with Egypt's Vision 2030's sustainable development plan. The minister highlighted that the refining strategy has attracted several investments from major international financing institutions.

El Molla also convened a meeting with the Supreme Committee for Petroleum Projects to review the progress of the Assiut National Oil Processing Company's (ANOPC) Hydrocracking Complex. The project has a production capacity of 2.8 million tons of diesel per year, 400,000 tons of Naphtha to produce high-value octane, and 100,000 tons of butane, 300,000 tons of coal, and 66,000 tons of sulfur per year.

El Molla also met with Technip's President of Operations, Marco Villa, and Francisco Kamarta, Vice President for Business Development, denoting the cooperation between the two parties and the company's keenness to present outstanding results in the joint petroleum projects in Egypt.

INVESTMENTS

GPC INVESTS EGP 195 MM FOR FY 2019/20 DISCOVERIES

The General Petroleum Company (GPC) invested EGP 195 million for the discoveries made during the fiscal year (FY) 2019/20, Nabil Abdel Sadek, Executive Chairman of the Board of Directors, said.

The new discoveries varied between four exploration wells and three development wells in the company's concession areas, totaling the test rates at about 6,700 barrels per day of crude oil (bbl/d) and 4.21 million cubic feet of gas (mmcf).

Abdel Sadek pointed out that the company aims to keep up with the high productivity rates it achieved for the first time in its history. As for FY 2020/21, the company previously stated that it targets drilling 40 exploratory and developmental wells with investments of EGP 2.6 billion.

EL MOLLA: EUG TO TRANSFORM EGYPT'S E&P INVESTMENTS

The Minister of Petroleum and Mineral Resources, Tarek El Molla, referred to the Egypt Upstream Gateway (EUG) and how it will reflect positively on the exploration and production (E&P) investments in Egypt.

El Molla added that it will increase the attraction of new international oil companies (IOCs) as well as enhance the investments of the existing companies. He described the project as a new quantum leap in the marketing mechanism for petroleum investments opportunities.

The minister pointed out that the gateway which is implemented in cooperation with Schlumberger, includes all the E&P technical data. He elaborated that it will develop and market these data to IOCs in addition to promoting international bid rounds being offered by the petroleum sector.

El Molla said that this mechanism will help take rapid investment decisions in Egypt, adding that it will be launched soon and all international bids will be presented through it. Mohamed Radwan and Ahmed Sameh, the managers of the EUG, noted that the gateway facilitates technical data for any concession without companies having to come to Egypt.

DOWNSTREAM

IDKU PLANT TO EXPORT FIRST LNG SHIPMENT SINCE JULY

Idku plant is preparing to export its first liquified natural gas (LNG) shipment after its three-month halt since July, according to data issued by data intelligence firm Kpler company.

Rebecca Chia, an analyst at Kpler, said that LNG tanker Cape Ann arrived on October 26 and is expected to be the first cargo that would be exported by the plant.

Additionally, a data released from Kpler and Refinitive Eikon showed that even before the last cargo in July, there were no loadings from the plant since March.

Chia attributed this halt to the oil prices drop, which led to the declining number of shipments from the plant. She elaborated that the total cargoes from Idku reached seven with total loadings of 0.45 million tons this year versus 57 shipments with total loadings 3.66 million tons in 2019.

GASTEC LAUNCHES NEW NATURAL GAS STATION IN QENA

The Egyptian International Gas Technology (Gastec) began operational trial for a new natural gas supply station in Qena.The new station is Gastec's second station in the governorate. Per the statement, the station includes a compressor with a capacity of 1450 m3/hour and is equipped with six points of supply.

The project was conducted in cooperation with the Armed Forces' National Service Projects Organization (NSPO) and part of an agreement between the Ministry of Petroleum and Mineral Resources (MoP) and the Ministry of Defense. The Egyptian Natural Gas Holding Company (EGAS) and Natural Gas Vehicles Company (Car gas) represent MoP, and Wataniya Petroleum and NSPO represent the Ministry of Defense.

Establishing of the new station aligns with Gastec's plan to expand the usage of natural gas supply services and contribute to development projects in Upper Egypt. The new station brings the total number of Gastec's natural gas stations to 101 stations across Egypt.

COOPERATION

EGYPT, IRAQ SIGN ENERGY COOPERATION MOU

Minister of Petroleum and Mineral Resources, Tarek El Molla, signed a memorandum of understanding (MoU) with his Iraqi counterpart, Ihsan Abdul Jabbar.

Prime Minister, Mostafa Madbouly, remarked that Egypt will support Iraq in a number of major projects in several sectors such as; infrastructure, energy, electricity, oil, and gas. Madbouly urged Egyptian companies to implement such projects as soon as possible through the "oil-for-reconstruction" mechanism.

The MoU is one of the 15 signed agreements between Egypt and Iraq aiming to enhance the bilateral ties between the two countries.

EL MOLLA DISCUSSES COOPERATION WITH HUNGARY'S AMBASSADOR

The Minister of Petroleum and Mineral Resources, Tarek El Molla, discussed with the Hungarian Ambassador to Egypt, András Kovacs, ways of cooperation in the oil and gas sector.

This came in the light of the Memorandum of Understanding (MoU) in energy, which was signed between the two countries at the beginning of October to boost the bilateral relations.

During the meeting, El Molla affirmed that the success achieved by Egypt lately in the petroleum sector attracted giant international companies to operate in Egypt.

Additionally, El Molla welcomed Hungary's readiness to send a delegate of experts and companies' chairmen to Egypt for finding ways of cooperation and available investment opportunities. He also referred to the virtual meetings which have been conducted in the past period between the working teams of the two sides to define the working priorities.

For his part, Kovacs confirmed the European Union (EU) interest in diversifying the energy resources, adding that the Hungarian companies are interested in investing in Egypt's petroleum industry and presenting scholarships for Egyptian students.

TBPSCO, NOMP SIGN COOPERATION PROTOCOL

Tharwa Breda Petroleum Service Company (TBPSCO) and the National Organization for Military Production (NOMP) signed a joint cooperation protocol to provide technical services, maintenance, repair and technical inspections for projects, as well as training.

Minister of Petroleum and Mineral Resources, Tarek El Molla, indicated that this cooperation provides an opportunity to expand the production and manufacture of some oil and gas-related projects, which will reduce costs and time and increase their economic viability.

El Molla stated that the protocol aligns with the ministry's interest in expanding cooperation and integration with the Ministry of Military Production benefiting from its manufacturing and engineering capabilities. He added that the agreement also aligns with the ministry's plan to increase the proportion of the local component in its new projects.

For his part, Mohamed Ahmed Morsi, Minister of Military Production, stated that the protocol aims to increase joint cooperation between the NOMP and TPBSCO in a number of manufacturing fields. Not only that, but hopes to provide technical services, maintenance, repair and tests, as well as training to maximize the benefit of local products and to improve Egypt's economy.

AGREEMENTS

AL-SISI PERMITS ABU SENNAN CONCESSION AGREEMENT AMENDMENT

President Abdel Fattah Al-Sisi ratified law No. 155 of 2020 allowing for the amendment of the petroleum exploration agreement in the East Abu Sennan concession in the Western Desert.

Under the new law, the Minister of Petroleum and Mineral Resources will have the authority to amend the aforementioned contract with the Egyptian General Petroleum Corporation (EGPC) and Tharwa Petroleum Company.

CABINET APPROVES THREE E&P AGREEMENTS

The Egyptian Cabinet approved three draft laws for three exploration and production (E&P) agreements.

The first draft law is regarding an agreement signed between the Egyptian General Petroleum Corporation (EGPC), IEOC Production B.V., and Lukoil Overseas Egypt ltd for E&P activities in Meleiha concession in the Western Desert.

The second agreement is between the EGPC and BP company for E&P practices in South Offshore Ghareb concession in the Gulf of Suez.

Regarding the third agreement, it was signed between EGPC, Ganoub El Wadi Petroleum Holding Company (Ganope), and the Egyptian National Petroleum for Exploration and Development Company (Enpedco) for E&P in Wadi Deb concession in the Eastern Desert.

NATURAL GAS-BASED INDUSTRIES TO OPERATE IN FREE ZONES

The House of Representatives gave the final approval on amending Article 34 of the Investment Law No. 72 for 2017 allowing the licensing of natural gas-based industry projects, especially fertilizers and petrochemicals, to work under the free zones systems.

The amendment stipulated that it should not conflict with Law No. 133 of 2010 on licensing of petroleum refining projects. Additionally, projects in the fields of iron and steel, alcohol industries, weapons, ammunition and explosives industries, and others related to national security are all prohibited operate in the free zone.

The amendment aims to encourage other projects operating in these activities to work under the free zone system. It will also create new areas for investment in addition to attracting large capital investments that reflect positively on the state's public treasury.

MOP INKS PROTOCOL TO DELIVER NATURAL GAS TO BAKERIES

The Ministry of Petroleum and Mineral Resources inked a protocol with the Ministry of Local Development and the Ministry of Supply and Internal Trading to deliver natural gas to local bakeries.

Tarek El Molla, Minister of Petroleum and Mineral Resources, stated that utilizing natural gas in local bakeries will relieve the state's budget by reducing subsidy on bread.

The minister elaborated that the project will be carried out through two phases. The first phase will connect natural gas to 5,625 bakeries that already use diesel as fuel and will take about six months. The second phase will include remote bakeries from the natural gas grid.

Ali Al-Moselhi, Minister of Supply and Internal Trade, stated that this project will achieve great advantages on both environmental and economic levels taking into consideration the price gap between diesel and natural gas. The protocol will also improve the efficiency, quality and economic cost for local bakeries.

Mahmoud Shaarawy, Minister of Local Development, regarded that this project is part of the state's plan towards utilizing clean energy, which succeeded in converting 3,500 diesel-based public transport buses to natural gas-based ones in Cairo and is currently doing the same in Alexandria.

CABINET APPROVES MECHANISM TO SETTLE DEBT OWED TO MOP

The Cabinet approved to settle the debt owed to the Ministry of Petroleum and Mineral Resources by some companies affiliated with the Ministry of Public Business Sector for their natural gas withdrawals.

According to the statement, in order to settle the debt, companies will transfer ownership of some of their real estate assets to the Ministry of Petroleum and Mineral Resources. This also aligns with the state's strategy to end financial disputes between ministries and government agencies.

BP COMMENCES NATURAL GAS PRODUCTION FROM QATTAMEYA, ATOLL FIELDS

BP company announced it has started natural gas production from the Qattameya gas field in the North Damietta offshore concession and Atoll-4 field.

The company elaborated that it is expected for the Qattameya field to produce around 50 million cubic feet per day (mmcf/d) of natural gas. BP added that Atoll-4 includes an estimated production of 105 million standard cubic feet per day (mmscf/d) of natural gas and 3,500 barrels of condensates.

Atoll-4 will be tied back to Atoll facilities and will help maintain the production rate of Atoll field at 360 mmscf/d of natural gas, noting that all produced gas will be directed to the Egyptian national grid.

DANA GAS TO SELL EGYPT ONSHORE ASSETS TO IPR FOR $236 MM

Dana Gas and IPR Wastani Petroleum Ltd have entered into a binding agreement for the sale of Dana Gas's onshore Egyptian producing oil and gas assets valued at $236 million including contingent payments.

Dana Gas will proceed with the sale of its 100% working interests in El Manzala, West El Manzala, West El Qantara, and North El Salhiya onshore concessions and associated development leases. Dana Gas remarked that throughout H1 2020, these concessions have produced 30,950 barrels of oil equivalent per day (bbloe/d) in addition to adding about $38 million to the company's earnings before interest, Taxes, Depreciation, and Amortization (EBITDA). Dana Gas Egypt will continue to hold its interests in El Matariya (Block 3) onshore concession and North El Arish (Block 6) offshore concession and maximize their value.

The terms of the sale include cash consideration of $153 million, including the net working capital associated with the assets and before any closing adjustments. Additionally, the sale will include $83 million of contingent payments depending on the average Brent prices and production performance between 2020-2023. The agreement currently awaits the approval of the Ministry of Petroleum and Mineral Resources and expected to be completed by early 2021.

DANA GAS PAYS OFF OUTSTANDING SUKUK IN FULL

Dana Gas has finally paid off its outstanding Sukuk of $309 million.

The original total of the Sukuk was estimated at $503 million and was issued in 2017. Since then, the company has repurchased $221 million of that amount over the past three years. Currently, Dana Gas is free of any financial obligations except for the recent $90 million credit facility with an initial annual interest of 3% added to LIBOR.

DANA GAS RECORDS NET PROFIT OF $31 MM IN NINE MONTHS

Dana Gas has generated a net profit of $31 million during the first nine months of 2020, excluding one-off non-cash impairments and other income items.

The company elaborated that its continued operations contributed $29 million to its net profit reflecting the profitability of the remaining business in 2020. As for the company's revenues, they have reached $262 million during the first nine months of 2020 against $357 million in the same period in 2019.

The company's average production during this period reached 63,000 barrels of equivalent per day (boe/d) and has preserved operating expenses efficiently to reduce the general and administrative costs by 18% year-on-year (YoY). The company reported that a total non-cash impairment worth $243 million was taken through the operating assets in Egypt in addition to another impairment reduction of $163 million as non-cash impairment of Goodwill following the sale of the company's onshore assets in Egypt.

TRANSGLOBE PRODUCTION REBOUNDS BY 1% IN OCTOBER

TransGlobe's production in October showed significant progress with approximately 12,162 barrels per day (bbl/d), a 1% increase from Q3 2020 and below the revised budget expectations, with Egypt producing 10,303 bbl/d.

Production in Q3 2020 averaged 12,044 boe/d (Egypt 9,812 bbls/d, Canada 2,232 boe/d), a decrease of 2,256 boe/d (16%) from the previous quarter primarily due to deferred well interventions in Egypt during low oil prices and natural declines. The company also sold 259,200 barrels of crude (bbl) to the Egyptian General Petroleum Corporation (EGPC) for net proceeds of $10.2 million in Q3 2020 with an average realized price of $37.15/bbl.

Production from the Eastern Desert amounted to 9,635 bbl/d in Q3 2020, denoting an 18% decrease from Q2 2020, while it averaged around 10,161 bbl/d in October. The company has also deployed a workover rig to perform well interventions at West Bakr in September and will continue to work during Q4 2020. As for the Western Desert, production reached 177 bbl/d during Q3 2020, decreasing by 24% from Q2 2020 and 142 bbl/d in October.

TransGlobe has also concluded its almost-year long negotiations with EGPC to amend, extend, and consolidate the company's Eastern Desert concession agreements. The company expects to gain EGPC's approval in the near term, following that, the merged concession will require parliamentary ratification.

ATON TO DRILL ABU GAHARISH CONCESSION IN 2021

Aton Resources has announced plans to drill Abu Gaharish concession by January 2021.

The Abu Gaharish is believed to be of similar quality to the world-class Sukari deposit. Aton also stated that the second phase of exploration drilling at Rodruin will begin soon after the excellent results it received from the first program. The company's main focus in the Rodruin area is to get a mineral resource estimate (MRE) as soon as possible.

As for the Hamama West area, Aton plans to begin the first phase of development with the establishment of "a starter open-pit mine on the uppermost oxide portion of the deposit and a heap leach processing facility." Later on, the company will expand the development project to include additional resource delineation and definition drilling, further metallurgical, geotechnical and hydrological studies, and water well drilling leading to the establishment of a process water supply borefield.

Aton's new investor, Mining and Manufacturing Company (MEDAF), has made an investment of $7 million. Through the new funding, Aton will be able to expand its exploration activities at the Abu Marawat Concession as well as funding Aton's working capital requirements.

ATON CLOSES FIRST TRANCHE OF PRIVATE PLACEMENT AT $160,000

Aton Resources has closed the first tranche of $160,000 from its previously announced non-brokered private placement.

The first tranche included a total of 400,000 units issuing each unit for $0.40. Per the statement, the total amount will be used to fund exploration activities at the Abu Marawat Concession, located in Egypt. Part of the funds will also be used to fund Aton's working capital requirements.

Aton anticipates that the second tranche closing of the offering will take place in mid to late November.

ENERGEAN TO CLOSE EDISON E&P ACQUISITION BY DECEMBER

Energean's long-running acquisition deal of Edison E&P is expected to be finalized in December of this year.

Energean increased the facility size of its Egypt Reserve Based Lending (RBL) by $60 million to $280 million, in which the sum will be directed towards Edison's acquisition. The company was granted several government approvals in Italy, Greece, and the UK. Currently, Energean awaits governmental approval from Egypt and France.

Additionally, Energean's Egypt production recorded 36,600 barrels of oil equivalent per day (bbloe/d) in the first nine months of 2020, approximately 86% of which was gas of about 1.4 billion cubic meters (bcm). Production remains within the company's 2020 guidance of 34,000 – 37,000 bbloe/d in Egypt. Net receivables amounted to $213 million on September 30, while the company received $10 million in October.

ARAMCO AWARDS ENPPI LTA FOR BROWNFIELD DEVELOPMENT

Aramco awarded the Engineering for The Petroleum and Process Industries (Enppi) a long-term agreement (LTA) for its oil and gas brownfield projects.

The agreement between Aramco and Enppi is one of eight LTAs signed between Aramco and other contractor companies. The agreement's period lasts for six years and could be extended for six more. Enppi is expected to do the engineering, procurement, construction (EPC) work as well as the installation of the upgraded facilities in the designated operating areas. The contract focuses on improving Saudization, local content, and supply chains through Aramco's In-Kingdom Total Value Add (IKTVA) program.

Per the contract, at least 39% of local content and supply chains should be implemented initially, and gradually increasing to 60% within six years.

By awarding LTAs, Aramco wishes to improve cost efficiency as well as the quality and safety of the projects. The company also awarded seven more LTAs to a Consortium of Nasser Saeed Al-Hajri And Contracting/Samsung EPC, Daelim Saudi Arabia, GS Construction Arabia, Snamprogetti Engineering and Contracting Company (Saipem), JGC Gulf Engineering Company, Branch of Technip Italy S.P.A., and Branch of Hyundai Engineering and Construction Company.

EXPLORING CHALLENGES...**PRODUCING SOLUTIONS**

EGYPT
OIL & GAS
COMMITTEE

FOUNDED BY EGYPT OIL&GAS NEWSPAPER

UAE

The United Arab Emirates (UAE) has announced that the country's crude oil reserves stood at 97.8 billion barrels of oil in 2019. On top of this, it was also revealed that the country's production of crude oil stood at 3.058 million barrels per day (mmbbl/d) during the same period. In terms of natural gas production in the UAE, it reached 109.8 billion cubic feet (bcf). In terms of refining, the country's overall refining capacity reached 1.127 mmbbl/d, which was made up of Al-Ruwais Refinery's contribution of 817,000 bbl/d, a further 85,000 bbl/d at Abu Dhabi Refinery, 140,000 bbl/d from Jebel Ali, and 85,000 bbl/d from Fujairah.

Abu Dhabi National Oil Company (ADNOC) has awarded three onshore field contracts worth $324 million to enhance onshore field operations and enhance efficiencies. Within the three contracts awarded, there are procurement and construction (PC) contracts of flowlines and wellhead installations across the Emirates as well as engineering, procurement, and construction (EPC) contract of a new bypass system to provide critical backup for the existing crude receiving stations at the Jebel Dhanna and Fujairah export terminals. The beneficiaries of the contracts are Galfar Engineering & Contracting and Robt Stone.

ADNOC LNG has signed two strategic supply agreements with Vitol and Total. The two agreements are significant in size with Vitol purchasing 1.8 million tons per year (mmt/y) of post-2022 liquefied natural gas (LNG) volumes as well as a two-year supply agreement with Total for 0.75 mmt/y of 2021 and 2022 LNG volumes. This news was announced at the Abu Dhabi International Petroleum Exhibition and Convention (ADIPEC) 2020. These are strategic deals signed at a time when LNG is showing signs of prominence; it is expected LNG global demand will grow by up to 5% annually over the next 20 years.

ADNOC and ADQ, one of the region's largest holding companies, have launched TA'ZIZ as the new name of the new joint venture (JV) established by both companies. TA'ZIZ will drive the development of industrial projects within the planned Ruwais Derivatives Park and act as a catalyst for the UAE's economic diversification and technology-led growth. There is plenty of planned investment with potential investment projects for the first phase likely to amount to more than $5 billion at the Ruwais Derivatives Park.

LIBYA

Libya's National Oil Corporation (NOC) has announced on November 7 that its crude oil production has reached 1.036 million barrels per day (mmbbl/d). This is a landmark production figure following an 8-month oil blockade that saw heavily diminished oil production. This feat was achieved despite the very difficult circumstances, particularly the current financial circumstances, that the sector is going through. Due to the financial restraints and a huge shortage of its budgets, NOC has led to an accumulation of debts on the sector's companies meaning a significant delay for the salaries of its service companies.

NOC's Chairman of the Board of Directors, Mustafa Sanallah, met with the Executive Director of Operations at Eni, Alessandro Politi, to discuss the future development of the second phase of Al-Buri offshore field. The meeting reviewed all issues related to the development of the project from a financial, legal, technical, and logistical point of view. The aspects were affected at the Al-Buri offshore field after operations came to a standstill following the period of Force Majeure. NOC and Eni Group's cooperation dates back nearly 50 years, with NOC hoping to extend this relationship for the development of the oil and gas sector in Libya.

OMAN

The Sultanate of Oman's average daily production of crude oil reached 718,700 barrels per day (bbl/d) during September. This represents an average daily production drop of 0.18% month-over-month (MoM) as compared with August. On top of this, the exported quantities of Oman Blend crude oil were reported at 736,165 bbl/d, dropping by 1.21% compared with August. The Asian market for Omani crude is starting to show recovery with China's imports climbing by 1.90% MoM, compared to August. Similarly, India's import percentage has surged by 7.4% MoM, however, Japan's share has fallen slightly.

BP in partnership with OQ, Petronas, and the Ministry of Energy & Minerals in Oman have announced that production has commenced from its Block 61 Phase 2 Ghazeer gas field. Production was spurred 33 months after the commissioning was approved and is ahead of schedule, with production from this field initially expected in 2021. Total production capacity from Block 61, comprising both Khazzan and Ghazeer, is expected to rise to 1.5 billion cubic feet of gas per day (bcf/d) and more than 65,000 bbloe/d. With an estimated 10.5 trillion cubic feet (tcf) of recoverable gas resources, the block has the capacity to deliver approximately 35% of Oman's total gas demand.

EOG Resources has entered into an agreement with Tethys Oil's subsidiary, Tethys Oil Monstasar, that sees EOG receive Tethys 50% working interest in Block 49 onshore Oman. The Exploration and Production Sharing Agreement (EPSA) in Block 49 comprises 15,439 square km. This deal means that EOG will have the option to further assume operatorship of the block and increase its interest to 85% for any operation relating to unconventional hydrocarbon resources. The block comes with a range of pre-existing infrastructure including several thousand kilometers of 2D seismic grids, two recently acquired seismic surveys (2D and 3D), and nine exploration wells. As part of the deal, EOG will refund all costs incurred on the block and fund the Thameen-1 exploration well, up to a combined amount of around $15 million.

Sweden's Tethys Oil has acquired a majority interest in Block 56, an onshore concession located in the southeastern part of the Sultanate of Oman. The deal allows for Tethys Oil to acquire an additional 45% interest in the license covering Block 56, up from 20% originally. If approved by the necessary authorities, Tethys' interest will rise to 65%, making the company the majority shareholder. Block 56 is spread over an area of 5,808 square km and is located some 200 km south of the adjoining Blocks 3 and 4 in which Tethys Oil has a non-operating 30% interest. The output from the two aforementioned blocks presently averages around 45,000 bbl/d.

IRAQ

Iraq's Minister of Oil, Ihssan Abdul-Jabar, confirmed that the Kingdom of Saudi Arabia and Iraq are keen to strengthen energy ties with regard to gas and electricity projects. This announcement comes in the wake of an Iraqi-Saudi meeting which was held in the capital, Baghdad. What's more, there was an overwhelming sense of reciprocity on the Saudi side, with Saudi Energy Minister Abdulaziz bin Salman stressing their keenness. The opening of dialogue with Saudi Arabia is not solely restricted to the realms of oil and gas, as there were also officials from the ministries of industry, environment, and several Saudi companies.

French international oil and gas company, Total SE, is considering investing in Iraq's natural gas sector as the Iraqi government met with Total. The meeting took place in Paris and the potential projects discussed pertained to Western Iraq and near the southern energy hub of Basra, with an agreement expected to be reached soon. This is part of Iraq's efforts to develop its huge wealth of gas reserves. Iraq is almost entirely dependent on oil as a source of revenue and as a result, the country is trying to revitalize the oil and gas sector by means of attracting investment. Total SE has operated in Iraq for almost a century and holds stakes in the southern Halfaya oil deposit and the northern Sarsang exploration block in Kurdistan.

Russia's state-run oil company, Lukoil PJSC, is looking to set up new oilfield projects in Iraq despite the Organization of the Petroleum Exporting Countries and its allies' (OPEC+) production cuts and a slump in oil demand. Lukoil, who has a substantial presence in Iraq, pumped on average 400,000 barrels per day (bbl/d) which has now been reduced to 280,000 bbl/d. This is a measure to help Iraq comply with its OPEC production quota, despite Lukoil originally planning to boost production at the West Qurna 2 project in southern Iraq. At present, the company is expected to keep output levels unchanged but Lukoil will soon submit proposals to the Iraqi authorities to develop a new area in Southern Iraq known as Block 10. Iraq's current output is limited to about 3.6 million barrels per day (mmbbl/d) under the OPEC+ deal.

Iraq, OPEC's third-largest oil producing nation, increased its exports to 2.876 mmbbl/d in October up from 2.613 mmbbl/d in the previous month. When the exports are broken down, the country's southern Basra terminals exported 2.77 mmbbl/d in October, up from 2.5 mmbbl/d the month before. Furthermore, oil shipments from Kirkuk through Ceyhan averaged around 92,484 bbl/d in October. Iraq's October revenue from oil stood at $3.43 billion with an average price per barrel of $38.48.

Iraq's state-run Oil Marketing Company (SOMO) has announced its intentions to launch a third strain of crude oil export-grade known as Basra Medium. This new strand of medium-sour crude will be procured by splitting the existing Basra Light production into two grades. Basra Light will have an API gravity of around 33 degrees after the split, while Basra Medium's gravity will be about 29 degrees. The existing Basra Heavy crude, created in 2015, has an API of around 24 degrees. The three grades are expected to provide more stability to the quality of Iraqi crude; however, it could also see a spike in the price of Iraqi exports. Basra Light is the main source of Iraqi exports and subsequently the country's source of income.

NORWAY

US supermajor, ConocoPhillips, has announced a new significant gas condensate discovery in Norway. After an initial survey, the gas discovery well is predicted to hold between 50 and 190 million barrels (mmbbl) of recoverable oil equivalent, located 22 miles northwest of the Heidrun Field and 150 miles from the coast of Norway in the Norwegian Sea. The discovery well, 6507/4-1 (Warka), was drilled in 1,312 feet of water to a total depth of 16,355 feet. After completion of this well, exploration well 6507/5-10 S will be tackled in production license 891, which is located 14 miles north-northeast of the Heidrun Field.

Equinor has awarded three of the largest service providers, Halliburton, Schlumberger, and Baker Hughes, contracts for drilling and well services for the Bacalhau field in Brazil. The three contracts are estimated at $455 million in total. In terms of longevity, the contracts have a firm period of four years and two two-year options. The contract awarded to Baker Hughes covers drilling services and completion. Halliburton's scope of work will include intervention services and liner hanger, while Schlumberger will deliver wireline services. Although the contracts were awarded by Equinor (40% operator), it was a joint decision with its partners ExxonMobil (40% operator) and Petrogal Brasil (20% operator).

Equinor has announced its ambition to become a net-zero energy company by 2050. This strategy is in line with Equinor's value-driven strategy for significant growth within renewables. Despite this net-zero pledge, Equinor still expects to deliver an average annual oil and gas production growth of around 3% from 2019 to 2026. In order to achieve net-zero emissions, it will require a well-functioning market for carbon capture and storage (CCS) and natural sinks, as well as the development of competitive technologies for hydrogen. Earlier this year, Equinor announced its plans to achieve carbon-neutral global operations by 2030 and to reduce absolute greenhouse gas (GHG) emissions in Norway to near zero by 2050.

CANADA

Canada's most prolific oil-producing province, Alberta, is set to increase its crude production in December ahead of schedule as coronavirus-related shutdowns ease pipeline congestion. This is a decision that comes a month ahead of schedule and has been influenced by the provincial economy's downturn in the wake of the pandemic. Nearly 16% of crude production in the province is currently offline. The production curbs were set to expire on December 31 but production had been coming in well below provincial limits. Production limits were initially introduced last year to help drain an oil glut. Since then, the United Conservative Party government has steadily eased curtailments as inventories drained. The province's oil output dropped by as much as 880,000 barrels per day (bbl/d), or 22%, at the peak of the production cuts.

Canadian producers are rigorously producing extra crude in an attempt to try and offset a dire year for the Canadian oil industry. This increase in production follows Alberta's government decision to lift production restrictions as demand for heavy oil surged. In the peak of the cuts, producers reduced production by 972,000 bbl/d in spring when prices hit new lows, dropping production down to about 4 million barrels per day (mmbbl/d). They have since restored all but 270,000 bbl/d, a significant recouping of losses all things considered. Suncor, another Canadian enterprise, is looking to raise output by 10% in 2021 from the expected total 2020 production of 680,000 bbl/d to 710,000 bbl/d, further highlighting the Canadian sector's revival.

Canadian oil and gas producer, Tourmaline Oil Corporation (Tourmaline), has acquired oil and gas company, Jupiter Resources, in an all-stock deal reported at approximately $476 million, inclusive of debt. Tourmaline has further added to its portfolio another acquisition of Modern Resources Incorporated for $109 million in a cash and stock deal. With these two new additions, Tourmaline is expected to lift an average annual output next year to about 400,000 bbloe/d, a 25% increase from previous forecasts. The acquisitions are rich in resources with over 900 net sections of prospective land and over 445 mmbbloe of 2P reserves in the most prolific and economic area of the Alberta Deep Basin. This is accompanied by meaningful facilities and infrastructure.

THE PETROCHEMICAL SECTOR AT A GLANCE

PETROCHEMICAL INDUSTRY IN EGYPT

Egypt's House of Representatives gave the final approval on amending Article 34 of the Investment Law No. 72 for 2017 allowing the licensing of natural gas-based industry projects, especially fertilizers and petrochemicals, to work under the free zones systems. The amendment stipulated that it should not conflict with Law No. 133 of 2010 on licensing of petroleum refining projects. Additionally, projects in the fields of iron and steel, alcohol industries, weapons, ammunition and explosives industries, and others related to national security are all prohibited to operate in the free zone. The amendment aims to encourage other projects operating in these activities to work under the free zone system. It will also create new areas for investment in addition to attracting large capital investments that reflect positively on the state's public treasury.

The Egyptian Petrochemicals Holding Company (ECHEM) announced on September 15 that the company is rapidly working on implementing a number of seven new projects to the national plan for the period of 2020-2035. These projects include one by Wood Technology Company for producing medium-density fibreboard (MDF) wood which is being installed and implemented by Petrojet; a methanol derivative production project which produces a capacity of 140 tons per year and is worth $117 million; and a project by the Egyptian Ethylene and Derivatives Company (Ethydco) for producing rubber polybutadiene at a capacity of 36,000 tons per year with costs of $183 million. The company is finalizing the procedures for the Al-Alamein project which costs $7.5 billion, in addition to a complex for medium and small industries relying on the production of the Al-Alamein complex. A detailed feasibility study for the Suez refining and petrochemical project is being prepared worth $7 billion.

BGS Energy Services has completed its pre-commissioning and commissioning activities for the "U-3000 Project" at the Alexandria Petroleum Company (APC) refinery, now operating at its optimal production rate of around 100,000 barrels per day (bbl/d); saving $85 million annually. BGS began the U-3000 Project in July of this year and concluded the works by mid-September. The Egyptian Projects Operation and Maintenance's (EPROM) Project Manager praised BGS for its work on the project.

MENA EXPORTS

Saudi Arabia's crude exports have risen over two consecutive months from a historical low in June. Exports have risen by 1.49 million barrels per day (mmbbl/d) from 5.5 mmbbl/d in June to 6.99 mmbbl/d in August. In terms of just crude oil exports, they rose month-on-month (MoM) to 5.97 mmbbl/d in August, up from 5.73 mmbbl/d in July. This compares to the Kingdom's crude output which rose by 500,000 barrels per day (bbl/d) to 8.98 mmbbl/d in August. Saudi domestic crude refinery throughput rose by 23% to 2.58 mmbbl/d in August, while direct crude burn rose by 57,000 bbl/d to 702,000 bbl/d. Domestically, total oil product demand rose by 170,000 bbl/d in August to 2.55 mmbbl/d.

Iraq, OPEC's third-largest oil-producing nation, increased its exports to 2.876 million barrels per day (mmbbl/d) in October up from 2.613 mmbbl/d in the previous month. When the exports are broken down, the country's southern Basra terminals exported 2.77 mmbbl/d in October, up from 2.5 mmbbl/d the month before. Furthermore, oil shipments from Kirkuk through Ceyhan averaged around 92,484 bbl/d in October. Iraq's October revenue from oil stood at $3.43 billion with an average price per barrel of $38.48.

Iran's Persian Gulf Star Refinery (PGSR)'s exported products from March 20 to September 21 were 120% higher than the products exported in the same period in 2019. These high levels of exports can be attributed to a decrease in consumption and an increase in production. PGSR, located in the southern province of Hormozgan, is the first of its kind designed based on gas condensate feedstock received from the South Pars gas field. Seeing as PGSR is the largest processing facility for gas condensate in West Asia, it has revolutionized Iran

into a major gasoline exporting hub. After the inauguration of the third phase of the Persian Gulf Star Refinery project, it added 120,000 barrels of oil equivalent per day (bbloe/d) to production.

DISTRIBUTION

The Egyptian International Gas Technology (Gastec) has delivered the first shipment of over 9 tons of lubricants to Agiba Petroleum Company's production field in the Meliha, Western Desert. The shipment included Eni Turbine Oil products which are approved by major turbine manufacturers such as Siemens and General Electric (GE), in addition to delivering Eni ITE 600 for electrical transformers and Eni Mu Ep 0 for high-performance greases. Gastec has also utilized these lubricants in natural gas compressors, the company's station equipment, and centers in various governorates. The company has also expanded its distribution centers for Eni's lubricants to 15 centers in seven governorates nationwide. It should be noted that in 2018 Gastec and Eni signed an exclusive distribution agreement allowing Gastec to distribute Eni's lubricant products on an exclusive basis.

Natural Gas Vehicles Company (Car Gas) has begun trial operation of a natural gas supply station and commenced two centers for car-conversion and cylinder testing in Port Said. This brings the total number of natural gas supply station in Port Said to seven stations and brings the total number of car conversion centers to two. The company has also increased the capacity of its 10th of Ramadan's station to 1,400 m3/h in addition to establishing another supply station in the area, bringing the total number of supply stations to eight. It should be noted that Car Gas has recently begun a trial operation to the first natural gas supply station in collaboration with the National Service Products Organization's (NSPO) Watanya in Hurghada.

GLOBAL PRODUCTS

Aramco and the Institute of Energy Economics Japan (IEEJ), in partnership with SABIC, have successfully produced and shipped the world's first batch of blue ammonia from Saudi Arabia. Forty tons of high-grade blue ammonia have already been dispatched to Japan for use in zero-carbon power generation. Ammonia, a compound consisting of three parts hydrogen and one part nitrogen, is a landmark step towards the world's transition to Hydrogen fuel. Ammonia contains approximately 18% hydrogen by weight and is already a widely traded chemical on the world stage. It releases zero carbon dioxide (CO2) emissions when combusted in a thermal power plant. This is part of the concept Circular Carbon Economy, whereby CO2 emissions are reduced, removed, recycled, and reused.

Iraq's state-run Oil Marketing Company (SOMO) has announced its intentions to launch a third strain of crude oil export-grade known as Basra Medium. This new strand of medium-sour crude will be procured by splitting the existing Basra Light production into two grades. Basra Light will have an API gravity of around 33 degrees after the split, while Basra Medium's gravity will be about 29 degrees. The existing Basra Heavy crude, created in 2015, has an API of around 24 degrees. The three grades are expected to provide more stability to the quality of Iraqi crude; however, it could also see a spike in the price of Iraqi exports.

Ryazan Oil Refining Company (RORC), the largest refining asset of Rosneft, has produced in excess of 1 million tonnes of environmentally-friendly Euro 6 gasoline. The refined products from the refinery are delivered to Moscow, Ryazan, Tula, Kaluga, and Krasnodar Regions. The mass-production of this fuel is possible due to the recent upgrades at the RORC in 2019. The plant's catalytic reforming unit was upgraded and the volume of the commodity storage of the enterprise was increased. Also, new production technology has been developed and the more stringent requirements for six key indicators were set. The Euro 6 motor fuel is a form of gasoline that has fewer environmental consequences when burned in comparison to common fuels. In terms of the environmental benefits, the fuel contains less sulfur, benzene, and aromatic hydrocarbons that help mitigate corrosion activity and reduces the toxicity of exhaust fumes by 30%.

DETECTING THE PATH OF EGYPT'S PETROLEUM SECTOR ECONOMIC CONTRIBUTION OVER FYS (2014/15- 2018/19)

BY AMINA HUSSEIN, REHAM GAMAL, AND TASNEEM MADI

The petroleum sector is considered one of the engines of the Egyptian economic growth. Over fiscal years (FYs) 2014/15-2018/19, the petroleum extraction's contribution to the gross domestic product (GDP) significantly amounted to about EGP 342 billion, on annual average. Meanwhile, the sector outstandingly succeeded to attract average investments of about EGP 70 billion annually, representing more than one-eighth of the total investments, according to the Ministry of Planning and Economic Development's (MPED) data. This was a result of the ministry of petroleum's (MoP) plan to encourage and promote the Exploration and Production (E&P) activities in different regions. From the country's Balance of Payments (BOP) side, the petroleum sector's exports accounted for $8.5 billion (EGP 143.31 billion), on annual average, exceeding one-third of the total exports, according to the Central Bank of Egypt's (CBE) data.

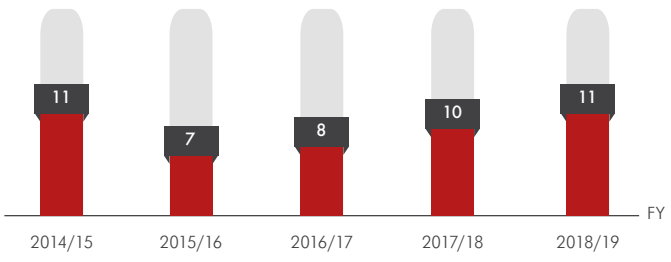
This report sheds light on the economic contribution of the Egyptian petroleum sector by addressing different angles during the above-mentioned period.Within the report, all numbers in dollars are converted to their equivalent in EGP on the basis of 2019 average exchange rates.

1. PETROLEUM EXTRACTIONS GDP

Over FYs 2014/15-2018/19, petroleum extractions GDP- crude oil and natural gas extracts - contributed a total of EGP 1,711 billion, representing about 9% of the total GDP. Petroleum extractions GDP severely declined by 37% from EGP 282.1 billion in FY 2014/15 to EGP 178.2 billion in FY 2015/16. Yet, the extractions have witnessed an increasing trend since FY 2016/17 to hit the highest value in FY 2018/19 at EGP 545.9 billion, according to the MPED's data.

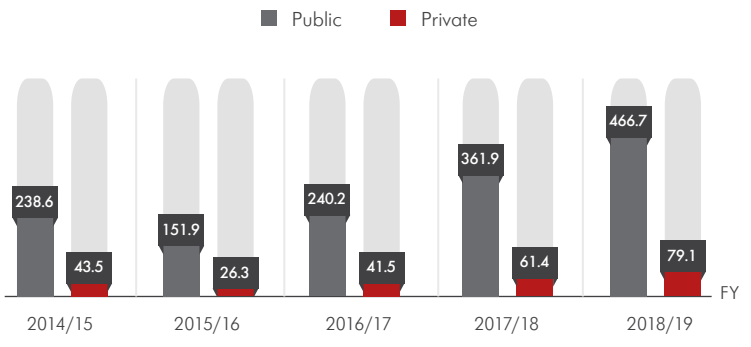
Despite the increasing value of the petroleum extractions GDP since FY 2016/17, the extractions' share in the total GDP has declined. The share dropped from 58% in FY 2016/17 to 50% and 29% in FYs 2017/18 and 2018/19 respectively, according to the MPED's data.

Petroleum Extractions Share in Total GDP (%)



The public sector dominates petroleum extractions GDP. Thus, over the referred period, the public sector contributed a total GDP of EGP 1,596 billion, representing 85% of total GDP. On the other hand the private sector contributed only EGP 252 billion, representing 15% of total GDP, according to the MPED's data.

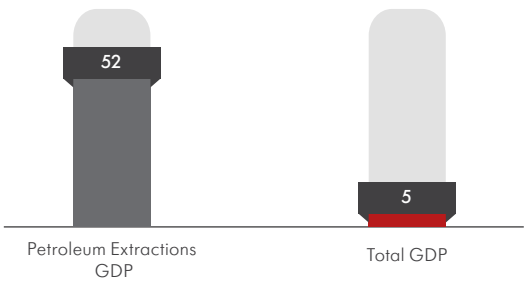
Petroleum Extractions GDP per Sector (EGP billion)



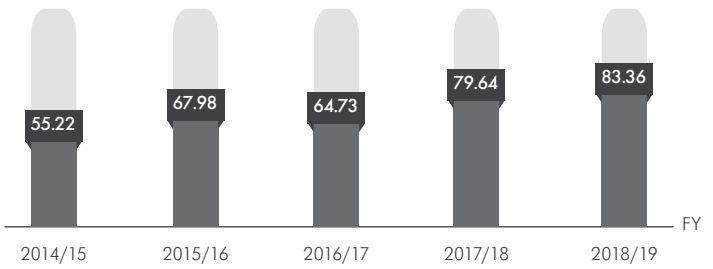
A. NATURAL GAS SHARE IN THE GDP

Natural gas extracts contributed a total of EGP 897.9 billion in the GDP over FYs 2014/15 to 2018/19. Natural gas extraction activities tracked an increasing trend since FY 2015/16, with an average annual growth rate of 52%. FY 2018/19 remarked the highest growth rate for natural gas extraction activities, with a 35% increase, while FY 2015/16 represents the lowest rate recording a decline of 40% in comparison to the previous year, according to the MPED's data.

Natural Gas Extractions Share in GDP over FYs (2014/15-2018/19) (%)



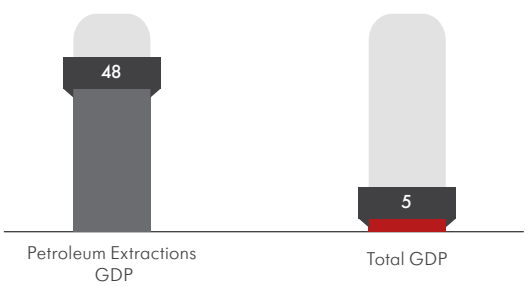
Petroleum Extractions Investments (EGP billion)



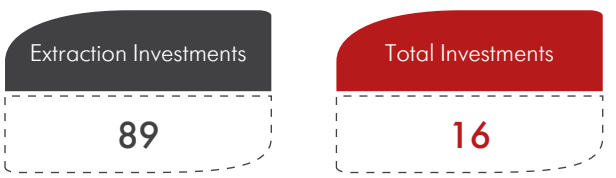
B. CRUDE OIL SHARE IN THE GDP

Crude oil extracts contributed a total of EGP 813.4 billion in the GDP over the referred period. Since FY 2015/16, crude oil extracts remarked an increasing trend of about 39% as an annual average increase. Thus, FY 2018/19 recorded the highest year for crude oil extractions, with 22% increase. FY 2015/16 represents the lowest year for the extraction activities, with a decline of 34%, according to the MPED's data.

Crude Oil Extractions Share in GDP over FYs (2014/15-2018/19) (%)



Petroleum Extractions Share in Investments over FYs (2014/15-2018/19) (%)



A. NATURAL GAS SHARE IN THE INVESTMENTS

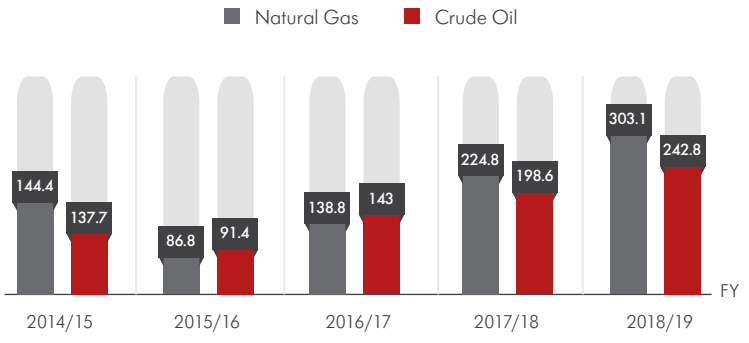
Thanks to the giant Zohr field discovery, the natural gas sector is considered more active than the crude oil sector. The total investments in natural gas extraction activities over the period from FY 2014/15 to 2018/19 recorded EGP 214.4 billion, which is one and a half times crude oil investments.

On an annual average, EGP 42.9 billion are invested in Egypt's natural gas extraction activities. From FY 2014/15 to 2018/19, the sector witnessed an increasing trend that reached a maximum of EGP 75.01 billion in FY 2017/18, according to the MPED's data.

On an annual basis, the public sector dominates natural gas and crude oil extraction activities' GDP. Over the referred period, the public sector contributed 85% of total natural gas extraction activities, which is equivalent to EGP 761.7 billion. Furthermore, the public sector's share of the total crude oil extraction activities recorded 86%, reaching EGP 697.8 billion, according to the MPED's data.

On the other hand, the private sector contributed a total of 15% of the natural gas extraction activities, which is equivalent to EGP 136.3 billion, while it contributed 14% of total crude oil extraction activities, worth EGP 115.6 billion, according to the MPED's data.

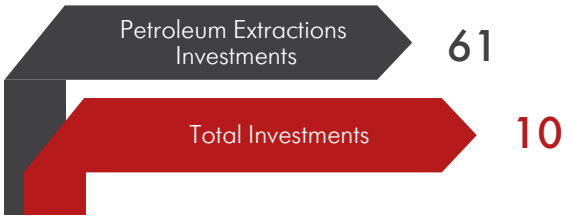
Petroleum Extractions GDP per Product (EGP billion)



2. PETROLEUM EXTRACTIONS INVESTMENTS

Egypt launched a plan in 2014 to implement a set of major investment projects to push the economy and attract more foreign investments to different sectors. This led to a boom in crude oil and natural gas investment activities, as they grew by 51% from a low level of EGP 55.2 billion in FY 2014/15 to a high of EGP 83.6 billion in FY 2018/19, according to the MPED's data. Over the period from FY 2014/15 to 2018/19, petroleum extraction investments recorded a total of EGP 350.9 billion.

Natural Gas Extractions Share in Investments over FYs (2014/15-2018/19) (%)

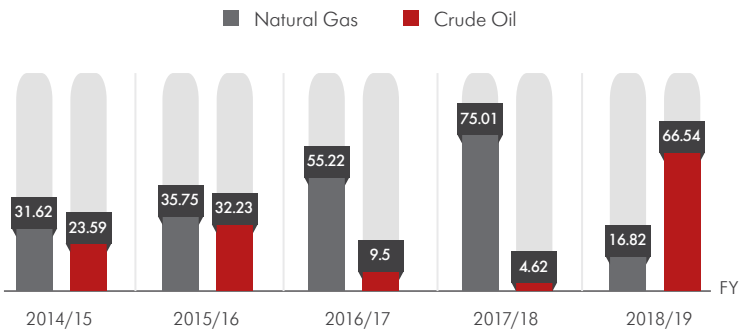


B. CRUDE OIL SHARE IN THE INVESTMENTS

Crude oil extraction investments over the mentioned period amounted to EGP 136.5 billion, with annual average investments of EGP 27.3 billion. The investments in crude oil activities witnessed a highly fluctuating trend over the years over the referred period. However, the investments exhibited an overall growth rate of 182% from EGP 23.6 billion in FY 2014/15 to EGP 66.5 billion in FY 2018/19, according to the MPED's data.

Crude Oil Extractions Share in Investments over FYs (2014/15-2018/19) (%)

Petroleum Extractions Investments per Product
(EGP billion)



C. PETROLEUM FOREIGN INVESTMENTS

Over FYs 2014/15-2018/19, the petroleum sector's Foreign Direct Investments (FDI) totalled $40.4 billion (EGP 681.14 billion), according to the MoP's data. This was a result of the efforts exerted by the MoP's to encourage IOCs to invest in the petroleum sector through reducing arrears, implementing projects and launching bid rounds for exploiting crude oil and natural gas fields.

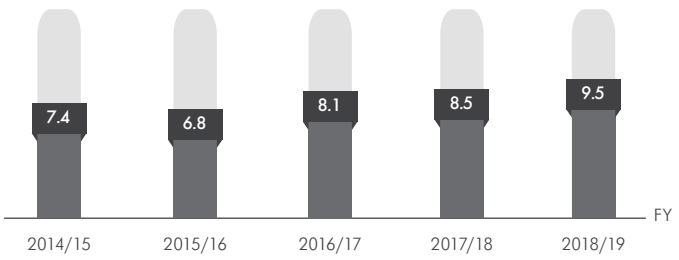
In this line, the number of FDIs have increased remarkably due to the discovery and development of fields in the Western Desert, the Mediterranean Sea, and the Nile Delta. Furthermore, the development of the Zohr field also attracted a flood of investments.

As a result, petroleum FDI in FY 2018/19 increased to $9.5 billion (EGP 160.17 billion), marking the highest level over the referred and contributing 75% of the total FDI inflows to Egypt, according to the MoP's data.

Pre-FY 2014/15, arrears to IOCs witnessed an increasing trend. The economic slowdown in 2011 led the arrears to reach its highest value at $6.3 billion (EGP 106.22 billion) in FY 2011/12. However, in FY 2014/15, the arrears significantly dropped by 41%. Since then, the arrears have been steadily declining, according to the MoP's data.

Arrears considerably declined by 74% between FY 2014/15-2018/19. Correspondingly, the sector's foreign investments increased by 28%, according to the MoP's data.

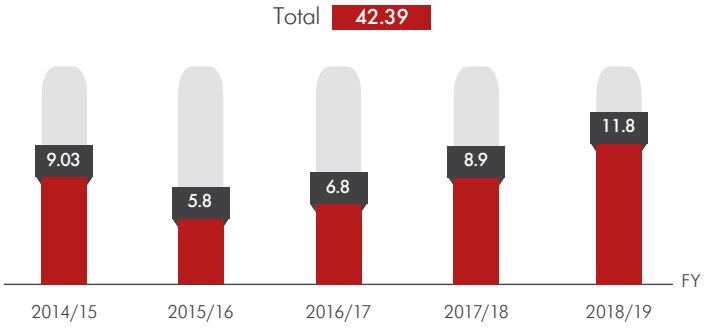
Petroleum Foreign Investments ($ billion)



3. PETROLEUM EXPORTS

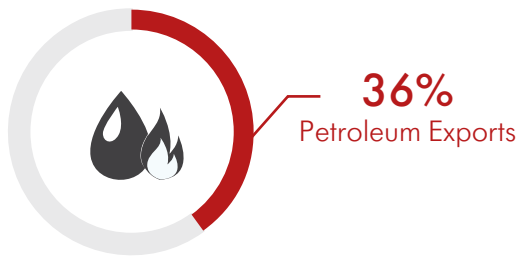
The CBE's data showed that petroleum exports declined by 36% in FY 2015/16. Yet, the development of fields, especially natural gas, drove petroleum exports to outstandingly rise by 74% over FYs 2016/17-2018/19. Thus, FY 2018/19 witnessed the highest exports of about $11.8 billion (EGP 198.95 billion).

Petroleum Exports ($ billion)



Over FYs 2014/15-2018/19, petroleum trade greatly affected the Egyptian BoP. The rise in petroleum exports in FYs 2016/17 and 2017/18 created a BoP' surplus of about $13 billion (EGP 219.18 billion), on average. On the contrary, the decline in FY 2015/16 caused a BoP's deficit of $2.8 billion (EGP 47.21 billion). Despite FY 2018/19 having the highest exports however, the drop in the non-petroleum exports caused a slight deficit of $0.1 billion (EGP 1.69 billion), as explained by the CBE's data.

Petroleum Sector Share in Total Exports over FYs (2014/15-2018/19)



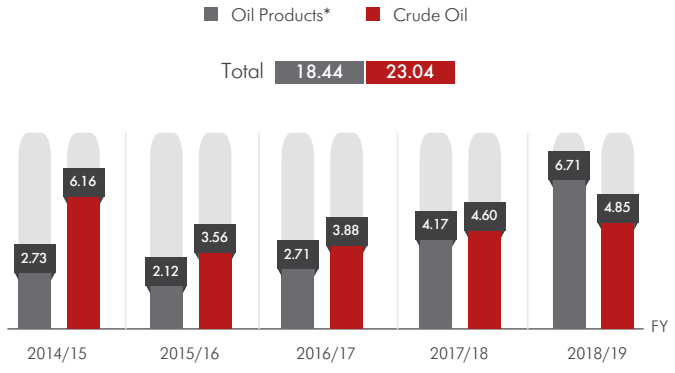
A. OIL PRODUCTS EXPORTS

Over the referred period, oil products, including natural gas, bunker and jet fuel- exports' share in the petroleum exports totalled 44%, which is worth $3.7 billion (EGP 62.38 billion), on average. Corresponding to the petroleum exports, the oil products exports declined in FY 2015/16 then exceptionally increased to hit its highest value in FY 2018/19 at $6.7 billion (EGP 112.96 billion). This came in line with the boost in natural gas production by 42% over FYs 2016/17-2018/19. It is worth mentioning that the oil products exports surprisingly rose by 145% in FY 2018/19 compared to those in FY 2014/15, stated by the CBE' data.

B. CRUDE OIL EXPORTS

Over FYs 2014/15-2018/19, crude oil exports represented 54% of the petroleum exports, averaging at $4.6 billion (EGP 77.56 billion). Similarly, they followed the petroleum exports' trend with a considerable drop in FY 2015/16 and slight increases starting from FY 2016/17 until FY 2018/19. The exports increased by 36% in FY 2018/19 compared to FY 2015/16. Yet, FY 2014/15 represented the year of the highest crude oil exports worth $6.2 billion (EGP 104.53 billion), according to the CBE' data.

Petroleum Exports per Product ($ billion)



*Natural gas, bunker and jet fuel.

Since 2014, the Egyptian government has undertaken ambitious reforms for modernizing the petroleum sector. The socio-economic reforms, in general, along with the sector's modernization program, in particular, transformed the sector from a highly regulated industry to a free market economy, creating an optimistic outlook towards the sector. This has led to the 2035 Integrated Sustainable Energy Strategy, which drove the sector's contribution to the GDP to rise to 27%. Moreover, amending investment legislations has made Egypt a top investment destination, bringing over $30 billion (EGP 505.8 billion) in the past four years, as stated by the Minister of Petroleum and Mineral Resources, Tarek El Molla during CERAWeek's annual energy conference.

All these steps have helped Egypt achieve self-sufficiency of natural gas and become a net exporter. Furthermore, with more investments flowing in, higher production rates and exports made by the sector, the government is able to move towards its goal of transforming Egypt into a regional energy hub in the Eastern Mediterranean region.

SUCCESSFUL MIX OF GROWTH AND STABILITY:

AN INTERVIEW WITH CEO OF **MARIDIVE GROUP, ENG. MOHAMED ELGAMAL**

IN LIGHT OF MARIDIVE'S CURRENT ORGANIZATIONAL RESTRUCTURE AND CULTURE REVAMP, WHAT ARE THE MAIN PRIORITIZED AREAS OF DEVELOPMENT?

Well, I believe that we have to adopt a few approaches simultaneously. That should happen without losing focus upon the business continuity and the level of services we provide to our valued customers. With that being done, we shall focus upon organizational rightsizing and internal business process transformation while developing innovative efficiency approaches to reduce the overall cost of service delivery.

In a nutshell, our restructuring program is in progress; reaching a much leaner, agile, and customer-focused organization that can deliver fully-integrated projects in an efficient and hence lower cost manner.

> *OUR RESTRUCTURING PROGRAM IS IN PROGRESS. WE STRIVE TO BECOME A MUCH LEANER, AGILE, AND CUSTOMER-FOCUSED ORGANIZATION THAT CAN DELIVER FULLY-INTEGRATED SOLUTIONS IN AN EFFICIENT MANNER.*

WHAT IS YOUR PLAN FOR A SMOOTH INTERNAL TRANSFORMATION IN MARIDIVE?

I am relying upon our people's maturity and understanding of the challenges the industry is experiencing to lead this drastic change in the company's culture and operational methodology. This helps us reach a structure that is more responsive and adaptable to the new norm, matching our corporate vision.

THE OIL AND GAS INDUSTRY IS FACING EXTRAORDINARY CHALLENGES SUCH AS COVID-19 AND THE FLUCTUATING OIL PRICES. WHAT IS YOUR VISION FOR MARIDIVE TO COPE WITH THESE CHALLENGES?

No doubt, the global pandemic and the resulting collapse in demand have upended many businesses namely in the oil and gas industry. However, we can clearly see that the global economy is slowly emerging from lockdowns and the oil pricing stabilizing. With those challenges, we remain focused upon flawless execution while capitalizing upon our integrated and value proposition, which is the main differentiator of Maridive Group.

In the meantime, we are continuously working upon maximizing the return on available assets bearing in mind that this is the "New Norm". Moreover, in response to the continuously evolving market conditions, we shall focus upon reducing the overall cost of service delivery through:

EFFICIENCY:

Adopt innovative approaches in order to drive the overall efficiency gains in the cost of service delivery, base cost, and people productivity.

TRANSFORMATION:

Internal processes transformation to match the current industry challenges to drive operational efficiency, enhance service delivery to our business partners, and support growth.

GROWTH:

Increasing market share while prioritizing focused growth in lower risk and expanding markets.

> *OUR PEOPLE'S DEEP UNDERSTANDING AND EXPERIENCE IN THE INDUSTRY DRIVES ANY CHANGE TOWARDS OPTIMIZING THE COMPANY'S PERFORMANCE. THIS HELPS US REACH A STRUCTURE THAT IS MORE RESPONSIVE AND ADAPTABLE TO THE NEW NORM, MATCHING OUR CORPORATE VISION.*

WHAT IS THE COMPANY'S APPROACH TO INCREASE ITS MARKET SHARE?

Actually, we are looking at improving profitable market share to outperform the market. This would capitalize upon our integrated and diversified services along with the value proposition that the Maridive Group can present. Simultaneously, we aim to regain focus upon the stable and newly emerging markets such as the East Mediterranean, United Arab Emirates (UAE), Saudi Arabia, Oman, and Kuwait. In the meantime, we are in the process of establishing technical alliances with key players that shall enhance our footprint in those markets.

Providing fully integrated fit-for-purpose solutions while developing efficient approaches will finally reduce the overall cost of those projects allowing our clients to achieve their ambitious production targets.

WHAT ARE THE COMPANY'S INVESTMENT PLANS IN THE UPCOMING PERIOD? AND ARE YOU AIMING TO ENTER NEW MARKETS?

Investment is an ongoing exercise both in people's training and development. To ensure the highest competency levels and in upgrading our assets, we emphasize the group image as the partner of choice along with strengthening our market position where we operate. We are still looking at improving the Group's footprint in the East Mediterranean, the Red Sea, Gulf region, and South East Asia. Despite their pricing pressure and excess capacity nature, we can easily overcome these challenges with our newly introduced processes and efficiencies. West Africa, on the other hand, is becoming increasingly attractive.

ARE THERE ANY PLANS TO PROVIDE NEW SERVICES SOON?

In Maridive, we are proud to be able to provide the full scope of marine services along with fully integrated engineering and construction solutions. However, we are working to improve the fabrication part of business utilizing our newly built ICAD II state-of-the-art base in Abu Dhabi which is in the commissioning phase.

> *FLAWLESS EXECUTION WHILE EXPLOITING OUR INTEGRATED VALUE PROPOSITION, WHICH MAKES MARIDIVE AT THE FOREFRONT OF THE INDUSTRY.*

> *WE ARE CONTINUOUSLY WORKING ON MAXIMIZING THE RETURN ON AVAILABLE ASSETS BEARING IN MIND THAT THIS IS THE "NEW NORM".*

Furthermore, given the current challenging situation and in line with our efforts to drop the overall operating cost for our clients, we are looking into streamlining the crew change for production platforms. This will be done via speed crew vessels that grant safe and efficient means of transportation for the offshore teams.

MARIDIVE GROUP IS THE LARGEST COMPANY PROVIDING OFFSHORE MARINE AND OIL SUPPORT SERVICES IN EGYPT AND THE REGION IN TERMS OF FLEET SIZE. WHAT ARE THE COMPANY'S EFFORTS TO EMBRACE NEW ASSETS AND MAXIMIZE ITS FLEET?

Indeed, but this does not stop us from the continuous improvement and investment both in our people and our fleet to match the market dynamics and to fulfill our commitments toward the newly awarded contracts. For that reason, we are acquiring new barges for our Saudi operations and low fuel consumption vessels with specs matching our vision.

WHAT DO YOU HOPE TO ACHIEVE AS THE CEO OF MARIDIVE GROUP?

To build a creative, fully-engaged, and agile team that is capable of delivering sustainable profitable growth. We look forward to achieving that through streamlined processes and efficient business systems with full dedication and the highest level of service delivery to our customers.

WHAT IS THE COMPANY'S PLANS FOR 2021?

With the anticipation that the oil market will show a partial rebound in 2021 and with the oil price expected to average of $50 per barrel compared to an average of $43 per barrel in October, still, there is an uncertainty expected as excess capacity situation shall remain. However, the outlook for natural gas is more optimistic matching our corporate vision for the East Mediterranean and GCC growth. Moving forward in 2021, we shall continue our focus on our "Building for the Future" initiative, ensuring business continuity while emphasizing on growing our market share and improving margins. In doing so, we will be able to emerge out of the current market crises a much leaner and efficient organization.

METHANEX: EGYPT'S DOMESTIC METHANOL MARKET SUPPLIER

When Methanex Egypt started production from its state-of-the-art facility in Damietta almost 10 years ago, the Egyptian domestic methanol market depended solely on imported product to feed the growing demand for methanol, an essential ingredient used to produce hundreds of everyday industrial and consumer items. Today, through a partnership with Egypt's Petrochemicals Holding Company ECHEM, Methanex, the global leader in methanol production, the world's largest producer and supplier of methanol to major international markets in North America, Asia Pacific, Europe and South America, has successfully satiated the market with locally produced methanol, dispensing with the need for imports, and supporting HE the Minister of Petroleum and Mineral Resources Eng. Tarek El-Molla's own vision for enriching the value of the country's resources through a robust and interdependent chain of value-adding industries.

In Egypt, Methanex operates its state-of-the-art methanol production facility, situated in Damietta, with a production capacity of 1.3 million tonnes per year. One of the key joint venture success stories within the petrochemicals sector, the Egyptian Methanex Methanol Company S.A.E. is a joint venture of Methanex Corporation which holds a 50% interest, together with the Egyptian government partners: Egyptian Petrochemical Holding Company (ECHEM), which holds 12%, Egyptian Natural Gas Holding Company (EGAS), which holds 12%; Egyptian National Gas Company (GASCO), which holds 9% and the Arab Petroleum Investments Corporation (APICORP), which holds 17%.

In addition to the successful JV partnership between ECHEM and Methanex, ECHEM is also the sole marketer of methanol produced by the company. Egypt Oil and Gas sat with Ahmed Saad Kamel, Assistant General Manager, ECHEM, who leads the team responsible for delivering the domestic methanol sales plan. According to Kamel, the goal of ECHEM is to "satisfy the local market demand from methanol to produce related downstream products such as urea-formaldehyde, solvents, coatings, and other applications that use methanol as a feedstock. Also, replacing imported methanol with locally produced with the same specifications and quality and accordingly decreasing pressures on the foreign currency used for importing."

The local market currently consumes up to 15% of Methanex's Egypt total production. In addition, ECHEM is building a methanol derivatives plant next to Methanex's plant in Damietta, a direct realization of HE the Minister's vision for the petrochemicals' sector. "The methanol production process in the petrochemical industry is based on using natural gas as a feedstock, which adds value to our natural resources. The government's vision/goal also aims to establish high-tech projects with the global leaders in each industry to add other values through technology and experience transfer. Methanex is an example of such global leaders," Kamel explains.

According to Kamel, the current success of the methanol sales team comes after years of diligent work, growing trust between partners and the overcoming of a number of challenges. "Methanol local sales started in July 2011 with a small monthly quantity because most of the local consumers of methanol were committed to annual importing contracts with other producers" he explains. The challenges also included two revolutions and gas supply challenges, but these problems were soon overcome, opening the way to a stronger partnership and a robust, growing, healthy domestic market.

This is also owed to the creativity of the methanol marketing team. Kamel explains:

" In July 2017 ECHEM started a "loyalty program" to motivate major players in the local market and also give the locally produced methanol a competitive edge," he says. As a result, in 2018 Methanex and ECHEM celebrated the achievement of 500,000 tonnes of local sales. The occasion was celebrated during the visit of John Floren, Methanex Corporation CEO, and attended by ECHEM and Methanex leadership

and key stakeholders in the country. One of the main highlights of the event was the celebration of the ongoing successful collaboration with the country's top methanol buyers, including Sprea, MRI, Al Mohandes, Life Chemicals, Africa, Al Alamiya and Rawan, in addition to SGS. ECHEM and Methanex in Egypt acknowledged the customers' loyalty, presenting them with awards in recognition of safe lifting, distribution and delivery.

A clear example that highlights Methanex's support for the domestic market can be seen in Methanex Egypt's MoU with Suez for Methanol Derivatives (SMD). Signed in 2018, the MoU enables future cooperation between the two companies, whereby Methanex Egypt would supply SMD with methanol feedstock for the production of formaldehyde products.

The project is the first of its kind in Egypt with total investments of circa $50 million and aims to produce eight products including urea-formaldehyde concentrate 85; urea-formaldehyde 65; and sulfonated naphthalene formaldehyde.

Furthermore, Methanex Egypt will be supplying the project with the needed methanol as part of its continuous contribution and support to the Egyptian economy and the Petrochemicals sector, in alignment with its strategy that aims to create a more robust and informed local market for methanol.

CONTINUING TO SUPPORT THE MARKET IN 2020 AND BEYOND

The partnership between ECHEM and Methanex has gone from strength to strength, with 2020 turning out to be a particularly successful year for the partnership. It has endlessly benefitted the sector with some of the highlights including:

This year represents the first year to fulfill 100% of the local market needs since loading began in 2011. The new highest monthly sales volume was set during August 2020 with about 16,700 tons sold. Another welcome new record is of the daily loaded quantity of 588 tons for 15 trucks. Also, the annual quantity for 2020 reached new record levels with more than 150,000 metric tons loaded safely and successfully.

RESPONSIBLE CARE AND PRODUCT STEWARDSHIP

Methanex also partners with ECHEM in the field of health, safety, and environmental (HSE) protection, termed Responsible Care within the petrochemicals industry. A key pillar of Responsible Care (RC) is Product Stewardship, through which Methanex strives to maintain the highest safety standards, protect the environment and share methanol safe-handling knowledge with all stakeholders in the supply chain and beyond. These stakeholders include methanol consumers and their downstream end-users, emergency responders, industry associations and government partners.

In Egypt, methanol destined to the domestic buyers is lifted in trucks. Following careful protocol, every truck undergoes the necessary inspections in order to ensure that the loading of methanol is safe and organized. With the help of Methanex, more than 20,000 safe trips by large trucks transported methanol to many destinations over the Egyptian roads; new truck convoys were added to the Egyptian market applying the highest safety standards, and run by highly trained drivers who are prepared to handle with dangerous chemicals and deal with accidents if occurred.

Methanex's enduring commitment to HSE in Egypt can be epitomized by Methanex's signing of a Memorandum of Understanding (MoU) with the Ministry of Petroleum and Mineral Resources, to promote process safety management (PSM) within the Egyptian oil and gas sector. PSM is a set of interrelated principles to managing the hazards associated with process industries and is designed to reduce the frequency and potential severity of process incidents that could result from the accidental release of hazardous fluids (oil, gases, chemicals) and other energy sources. To help spread awareness, in 2018 and 2019 Methanex Egypt and ECHEM sponsored the first PSM conference which included key international PSM speakers and was attended by hundreds of leaders and executives of the petrochemicals and downstream oil & gas industry in Egypt. This proactive approach demonstrates Methanex Egypt's commitment to Egypt and the ministry's 2030 modernization vision.

COVID-19 RESPONSE

Product Stewardship was of particular importance during 2020 in view of the current pandemic, as Methanex adapted its operations to ensure protection against the virus.

An example of how Methanex adapted their operations to overcome the challenges that COVID-19 presented was during the shipping and trucking processes: all agreements are now done remotely and during the loading arm connection, team members wear disposable PPEs and alternate on the tanker with the crew to maintain social distancing, limit the number of people on the tanker and prevent face to face meetings with non-Methanex teams. For truck loading, drivers get a daily checkup, and disinfection takes place for each truck. Several arrangements are done with ECHEM to ensure truck deliveries meet the curfew timings (if in place).

However, a testament to the adaptability of Methanex is that despite the coronavirus outbreak and the new work mitigations, the operations team successfully achieved a new truck loading record of 16,699 megatonnes (MT) during August, the highest monthly record in 2020 compared to 16,277 MT in July 2020.

In terms of production during coronavirus, Methanex played a vital role to ensure that all the domestic needs were met during the pandemic. During the lockdown, one saw a significant increase in demand for agricultural products, meaning an increase in the need for Ureaformaldhyde. These demands were met by Methanex without compromise.

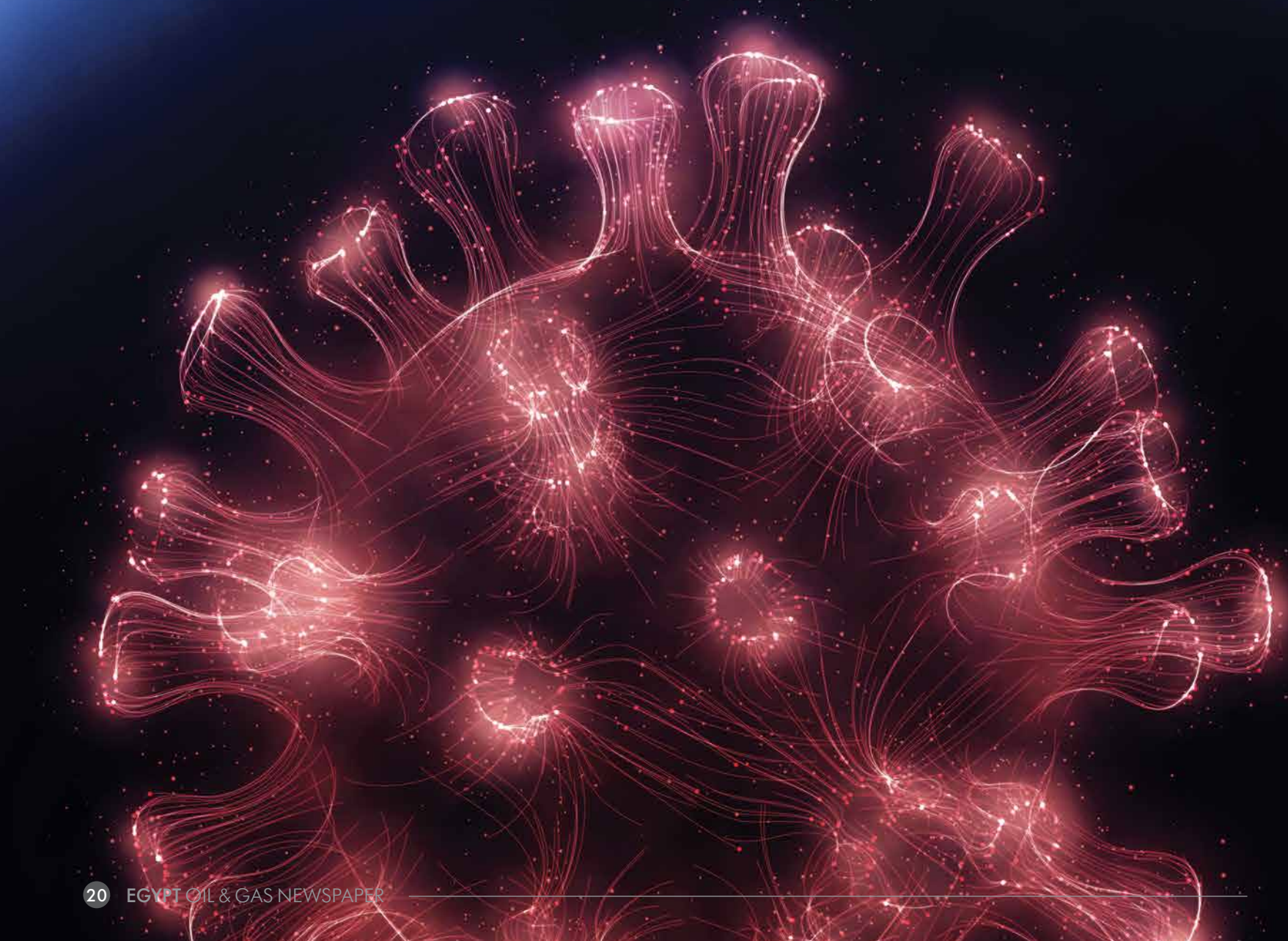
CUSTOMERS ARE KEY

Methanex, in cooperation with ECHEM, places a strong emphasis on customer relations. At the end of 2019, they held a customer's day to share updates and market outlook, which enhanced the relationship between the customers, Methanex, and ECHEM. Recalling the event, Kamel said: "One of the main highlights of the event was the celebration of the ongoing successful collaboration with the country's top methanol buyers, including Sprea, MRI, Al-Mohandes, Life Chemicals, Africa, ACPA, Al-Alamiya and Rawan."

WHAT DOES THE FUTURE HOLD?

According to Kamel, the future partnership between Methanex and ECHEM looks bright. With regard to the domestic methanol market, Kamal points to the perpetual growth of the sector since its inception and also the significant sum of investments poured into the sector to help develop new plants with methanol as a feedstock. More importantly, Kamal believes that "with ECHEM and Methanex in partnership, we will be ready to fulfill any additional quantities needed by the local market".

NAVIGATING THE PANDEMIC'S NEXT WAVE



BY RANA AL KADY

To begin with, the year had started with, what seemed like a temporary change in plans, as a result of the Coronavirus (COVID-19) pandemic. In fact, experts had thought that the declining oil prices and excessive storage of oil and gas products were an unpredictable phenomenon. However, it took nearly 6 months after the impact of the global pandemic (Q3 2020) for experts to hypothesize that COVID-19 is here to stay for another couple of years. Not only that, but there is an expected 2nd wave of the COVID-19 pandemic that is expected to hit between Q4 2020 and Q1 2021. The difference between the 2nd wave and the 1st wave of the pandemic is that this time, industry experts are ready for whatever comes their way.

GENERAL OVERVIEW

It could be said for a fact that the aftermath of the COVID-19 pandemic on the oil and gas industry has been messy. During the early stages of the pandemic, there were two main issues that resulted in the exponentially decreasing oil prices and a reduction in oil demand. The first issue was that there was a battle between Russia and the OPEC regarding cutting production in order to be able to increase oil prices again; as a result, the oil supply was curbed by nearly 20% worldwide. In fact, this was said to be the largest oil curb as it was curbed by nearly 4 times more than that in the 2008 financial crisis. The second issue, being the more obvious one, was that economies were forced to hold all operations due to the COVID-19 pandemic.

Additionally, it was found that the financial state of the market became highly dependent on whether oil prices will drastically change shortly. However, it should be noted that if the price of oil decreases further, this would be an opportunity to re-introduce natural gas and renewable energy sources into the dynamic global energy mix.

LESSONS LEARNED

Despite this, there are some major lessons learned that the oil and gas industry can use to overcome the expected second wave of the pandemic at minimal cost and mitigated negative impacts. For example, some key industry experts found that it was better for companies in the oil and gas industry to work on projects with a high volume of discovery that require low-cost production rates and operations, as well as to also avoid more complex projects that require a higher level of technical input and higher investment costs.

Additionally, another lesson learned is that companies have taken this time to reflect and analyze all their projects and programs in order to determine the relevance as well as their profitability. Also, this gives companies an opportunity to become more selective in the way the products are chosen in the event that there is a consistent low oil price in the long run.

From a Health and Safety (H&S) perspective, companies have taken drastic measures to ensure that the second wave of the pandemic does not negatively or fatally impact their workforce. Over the course of the first wave, the economy had taken a huge hit as employees were laid off in numbers that were larger than those during the financial crisis that happened over a decade ago. An HSE expert, who preferred anonymity, has noted that "the reason that employees were laid off so quickly was that the company was not ready. If a company is more ready for a problem like the coronavirus, then less staff will be laid off and the work will not stop so fast and for long times."

Now, companies have a better understanding of the virus' symptoms and have conducted meetings and awareness workshops to better educate their employees on ways to avoid risks of getting sick, ways to remain healthy and sanitized at all times in addition to encouraging one another to not shy away when early symptoms are at bay.

Additionally, companies have to re-introduce the option for employees to work from home, where possible. While it is difficult for field-based employees to work offsite, desk-based employees are now not only asked but encouraged to work from home to mitigate face-to-face engagements. This is where the technology sector has strived over the past few months.

With online communication applications becoming a social norm, employees are now more familiar and have adapted to working more efficiently when offsite. Employees that work on site have been through workshops and awareness sessions to better understand the ways in which health risks could be avoided without compensating the efficiency and effectiveness of their work. The anonymous HSE expert suggested that "we need to make everyone know that the coronavirus is not over yet and that we need to continue to be cautious with our staff and our operations so that things don't become as bad as they were at the beginning of the year". These are examples of some of the many lessons learned over the course of the last year.

CASE STUDY

Some oil and gas companies have taken it upon themselves to effectively analyze and assess the COVID-19 pandemic's effect on their respective companies. In other words, they have found the key lessons learned and are using them throughout the course of the pandemic so that they will be ready in the event of a second wave. For example, Halliburton has developed its very own COVID-19 response based on the World Health Organisation's (WHO) suggestions. Within their COVID-19 response, they have discussed the health and safety of their employees, supply chain, the business continuity, as well as a tiered crisis response in the event of a second wave.

When discussing their employees, Halliburton has discussed several key points. For example, any employee with suspected COVID-19 symptoms is directed to self-quarantine and stay at home for the safety of the remaining employees. Additionally, a set of precautionary measures have been implemented to ensure social distancing as well as consistent sanitisation of employees as well as their workspace. The company has also suggested that any employees or customers who are not needed on site should work remotely using the communication tools provided.

Furthermore, when discussing their supply chain, Haliburton has ensured that they will continue to work with their suppliers and stakeholders. In order to do so, an assessment has been carried out within each service line to better understand if there are any adverse implications that could result from working so closely with others; in the event of a pandemic related issue that causes difficulty in dealing with their current suppliers or internal stakeholders, then other solutions will be adapted. Additionally, the company has adapted to using air travel for shipping less frequently due to the recent difficulties associated with the availability of air shipping.

Finally, one of the most important features of this is the newly formed tiered crisis response. With this tiered crisis response, the corporate crisis team is able to offer a detailed analysis of the relevant impact on the company in all branches across the world. Also, this team is able to provide more information on any potential consequences that could impact the company in the event of a second wave or potential crisis. Finally, and most importantly, updated precautionary measures on COVID-19 risks are provided to each country based on the respective local plans.

In conclusion, there are various lessons learned that should be seriously considered in the event of a second wave during this pandemic. One of the smartest business moves during this time is for companies to properly analyse and understand the impact that this pandemic had on the business and the ways in which the company can better prepare for any unexpected global concerns.

CNG: DRIVING ON THE ROUTE TO SUCCESS

BY MAI EL GHANDOUR

President Abdel Fattah El-Sisi announced last July that all cars in Egypt will have to run on compressed natural gas (CNG), saying that new cars will not be licensed until they are converted. The president's remarks were then followed by an array of amplifications to the government's directives; all of which guarantee that CNG is optimum for all vehicles.

ADVANTAGES OF CNG FOR VEHICLES

The Ministry of Petroleum and Mineral Resources (MoP) has recently released a report laying out the advantages of CNG and positioning it as the best fuel for all vehicles.

The report serves as a guide for the actual conversion process which, per the report, takes only two to four hours depending on the car's model. Additionally, the report ensures that all health, safety, and environment (HSE) measures are being adhered to throughout the process, indicating that the engine's power should not be less than 70% to ensure the best performance of the car and to determine the appropriate conversion method and volume of the cylinder capacity.

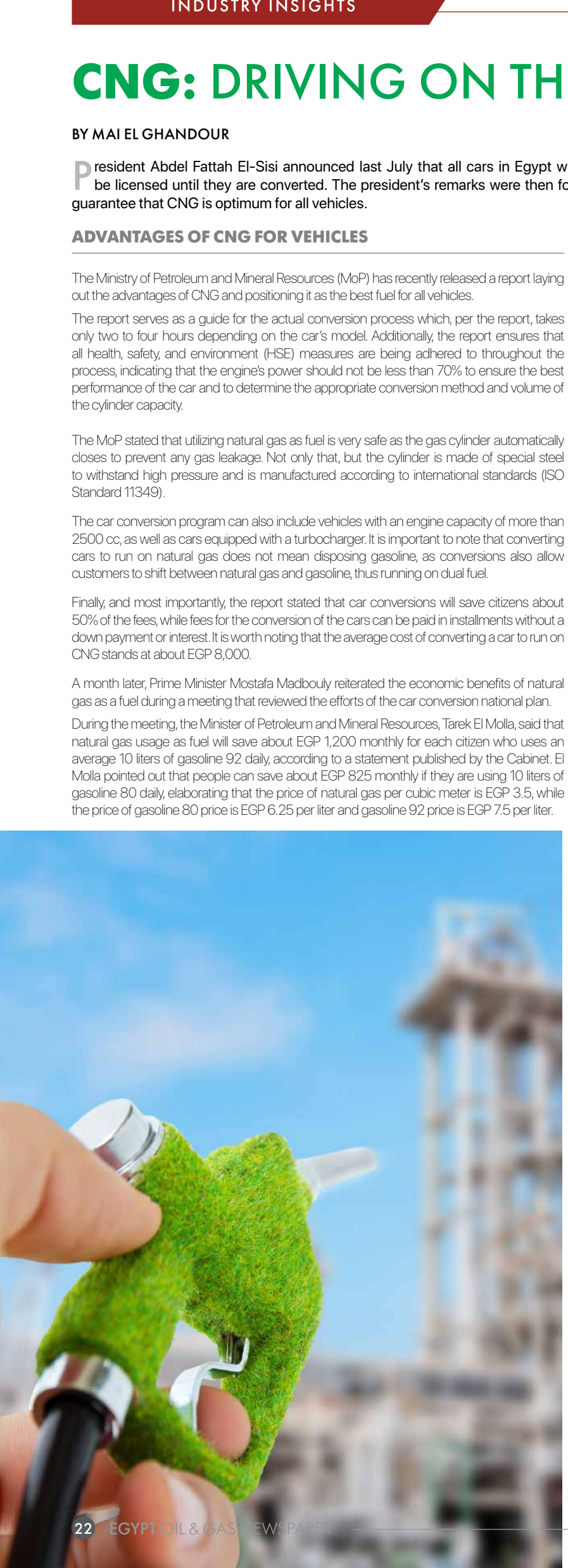
The MoP stated that utilizing natural gas as fuel is very safe as the gas cylinder automatically closes to prevent any gas leakage. Not only that, but the cylinder is made of special steel to withstand high pressure and is manufactured according to international standards (ISO Standard 11349).

The car conversion program can also include vehicles with an engine capacity of more than 2500 cc, as well as cars equipped with a turbocharger. It is important to note that converting cars to run on natural gas does not mean disposing gasoline, as conversions also allow customers to shift between natural gas and gasoline, thus running on dual fuel.

Finally, and most importantly, the report stated that car conversions will save citizens about 50% of the fees, while fees for the conversion of the cars can be paid in installments without a down payment or interest. It is worth noting that the average cost of converting a car to run on CNG stands at about EGP 8,000.

A month later, Prime Minister Mostafa Madbouly reiterated the economic benefits of natural gas as a fuel during a meeting that reviewed the efforts of the car conversion national plan.

During the meeting, the Minister of Petroleum and Mineral Resources, Tarek El Molla, said that natural gas usage as fuel will save about EGP 1,200 monthly for each citizen who uses an average 10 liters of gasoline 92 daily, according to a statement published by the Cabinet. El Molla pointed out that people can save about EGP 825 monthly if they are using 10 liters of gasoline 80 daily, elaborating that the price of natural gas per cubic meter is EGP 3.5, while the price of gasoline 80 price is EGP 6.25 per liter and gasoline 92 price is EGP 7.5 per liter.



INSIDE EGYPT'S GRAND PLAN: PRESENT AND FUTURE

On another note, El Molla highlighted CNG's vital role in his opening remarks of the British Egyptian Business Association's (BEBA) webinar on Egypt's Green Economy, held on November 9. "We have expanded our domestic activity of using CNG in vehicles in light of achieving the national strategic goal to preserve the environment and drive economic growth through natural gas projects," he said.

The minister stated that there are currently 330,000 converted vehicles on the roads fueled through 215 CNG stations. He shared the vision and plan of reaching more than 600 stations across Egypt and an additional 263,000 converted cars by the year 2023.

Speaking of the Egypt's grand plan, Ahmed Bahaa El-Dean, Operations Manager, Gas Downstream & Electricity at Egypt Kuwait Holding, told Egypt Oil & Gas (EOG) that it includes the conversion of "about 1.8 million vehicles to run with natural gas by 2023 out of about 10 million vehicles. Natural Gas Vehicles (NGV) will become the norm in Egypt if this plan comes to success, and it is strongly recommended to succeed, especially that Egypt was one of the first countries in the region to start using NGV before the mid-1990s."

In BEBA's webinar, the CEO of Taqa Arabia, Khaled Abou Bakr, echoed the importance of CNG to the industry, stressing the reason behind the leadership's attentive measures towards CNG. "We as TAQA, we are investing four times, we went from seven stations in 2006, in this year we added 16 stations of CNG for vehicles. It is a total turnaround," emphasizing that Egypt is a role model in that area. "Globally we are leaders in the gas industry," he asserted.

On the same track, Ahmed Youssef, Senior Operation and Maintenance Engineer (CNG/NGV/SAP) at Master Gas (Taqa Gas Group), remarked to EOG that "with the political leadership vision and the governmental support, I think the next three years will experience a remarkable growth in NGV vehicles and CNG stations."

A COMPREHENSIVE STRATEGY: BUSES AND MICROBUSES

Neveen Gamea, the Minister of Trade and Industry, said on September 7 that her ministry is working on implementing a comprehensive strategy for localizing car manufacturing, including the initiative of replacing old cars with NGV across seven governorates as a first phase. She added that this initiative is focusing on microbuses and taxis mainly.

For his part, the Minister of Military Production, Mohamed Morsi, said that his ministry started to convert public buses of transportation to run on natural gas in Cairo. He showed the procedures taken to manufacture natural gas cylinders by establishing a plant for producing cylinders of CNG.

Master Gas's Youssef revealed to EOG that Taqa as well is currently working to utilize natural gas in the diesel-run vehicles. "Economically the cost of the CNG is almost half the cost of gasoline, thus, the saving is traditionally increasing as the vehicle kilometer increases. That is why most of the NGV in Egypt are taxi, microbuses, and UBER lately," he said.

Al-Ahram reported that earlier in September, the Chairman of Gastec Abdelfattah Farahat outlined the government's plan to convert vehicle fueling system from gasoline to CNG, saying that the Ministry of Petroleum and Mineral Resources is cooperating with several stakeholders to convert taxicabs, referring to the coordination with the Micro, Small and Medium Enterprise Development Agency (MSMEDA) to provide the financial facilities necessary for car owners in easy installments.

MSMEDA signed two agreements in late 2019 with Natural Gas Vehicles Company (Car gas) and the Egyptian International Gas Technology Co. (Gastec), totaling EGP 80 million, in order to convert cars to run on CNG instead of gasoline. As a witness of the signage, Gamea clarified that the agreements are part of the "Towards Natural Gas" initiative, pointing out that MSMEDA has already converted 34,400 cars, among which 28,000 taxis with total investment worth EGP 172 million.

RECOMMENDATIONS

To encourage conversions to take place more frequently, Bahaa El-Dean recommends "a significant price difference between gasoline and natural gas," as this is the main incentive driven by the savings in fuel cost and small pay-back period. Another aspect that he weighed on is to "issue legislation to gradually prohibit public transport means, whether buses or minibuses, that do not run with natural gas and stop licenses for the new diesel-fueled ones."

On the other hand, Youssef signaled that "new stations locations were the main challenge, we overcome it with the corporation with the current companies by adding CNG Station at their gasoline stations whenever it can be possible. On a final note, he recommended that "finical support is required for both vehicles' owners and companies, the government [should] announce a banking facility for the vehicles owners to encourage them to convert their cars."


We take energy forward
We're committed to making energy safer, cleaner, and more efficient for people and the planet. By combining industry-leading technologies and services with operations in over 120 countries, we're collaborating with customers to transform the future of energy—everywhere.
bakerhughes.com
Baker Hughes

DELVING INTO THE PETROLEUM TRADE AGENDA

BY JASMINE SHAHEEN

Crude and economy walk hand in hand and the 2020 economic turmoil is a proof of that. Despite the declared intention of energy transition and the pandemic-induced prices, it seems that the world will keep relying on crude for power for the near future. This may not be only good news for upstream oil companies but also for the petroleum trade sector, which may have another story to tell about the COVID-19 crisis.

TRADE AND OIL PRICES

With the slowing demand on crude that dominated 2020 due to worldwide lockdowns, the global industry faced a bit of a dormant period, especially for crude producing countries; Egypt included. The difference is that Egypt is both an importing and an exporting country; making the trade climate a double-edged sword. Ashraf Abdul Badie, Oil and Gas Technical and Commercial Consultant, noted that as oil prices continue to hover around the $40/bbl, it indicates "low consumption and demand of petroleum, which means that oil amounts to be transported are low…On the other side, the cost of fuel for transportation will decrease."

The fluctuating prices, low as they may be, would have swung the national economy sideways if it were not for the fact that Egypt is a crude importer as well. Sherine Omar, a Financial and Commercial Director at Dragon Oil, remarked that to balance the export-import equilibrium, "[Egypt] resorted to secure the future crude oil demand at less cost which aimed to create a balance and minimize losses." Omar explained that at the peak of the price plunge, Egypt "focused on increasing crude oil imports above the monthly demand levels and stocked crude to maximize the benefit to the country."

Mohamed Farghaly, an Independent Energy and Business Strategy Consultant, concurred that Egypt's situation with oil prices is a favorable one as a net importer, "however, such low oil prices will not last forever," he added. He elaborated that the oil crisis does not pose risk for Egypt "since the prevailing domestic market price of petroleum products is significantly higher than the international market price."

THROUGH THE PIPELINE

When it comes to petroleum trade, pipelines remain the most popular and efficient method for transportation of crude. Even though it is not financially efficient to construct, pipelines are an obvious and economical means to transport large quantities of natural gas in the long term; not to mention they are considered safe and reliable. While the efficiency part is not lost in the pipeline business, there remains room for improvement.

The most important aspect to facilitate the transmission of different sorts of petroleum products through pipelines is the infrastructure, which is not limited to the actual pipelines. It includes the facilities used in transportation, like compression and metering stations, storage services, and natural gas processing facilities. Developing and improving the current downstream infrastructure aim to maintain the smooth transmission of natural gas from producing basins to consumers and meet the public demand.

When it comes to Egypt, its most notable main pipeline is the 320 kilometers (km) SUMED pipeline extending from the Ain Sukhna terminal on the Gulf of Suez to offshore Sidi Kerir on the Mediterranean Sea. It remains a focal point in the country's petroleum transport system; from just fiscal year (FY) 2014/15 to FY 2018/19, SUMED managed to transport about 316 million tons (mmt) of crude and condensate. However, since the 2015 Suez Canal expansion, crude transportation shifted from SUMED to the canal, increasing the transported petroleum products through the Canal by 18% in 2017 compared to 2016. Correspondingly, the transported petroleum products decreased by 12% from SUMED pipeline in FY 2017/18.

BEYOND THE BORDERS

This brings up a vital angle which is the Suez Canal impact on petroleum products trade. From 2015 to 2019, Egypt's exports of liquified natural gas (LNG) reached 6.25 mmt, that is of course, after the great Zohr discovery. This has turned Egypt's position from an exporter to an importer in FY 2015/16. Thus, the Suez Canal leaves the door wide open for exporting to both the European and the Asian markets.

Egypt is already an exporter of LNG to about 14 countries in Europe, the Middle East, Africa, and the Asia Pacific; Pakistan and India being the top importers of Egyptian LNG. Omar remarked that Suez Canal provides a shorter delivery time to Europe and Asia allowing Egypt "to connect with all international markets based on the crude product specifications." In addition to its location, the diversity of Egypt's crude allow "access to a wide range of markets and secures convenience to buyers around the world," Omar elaborated.

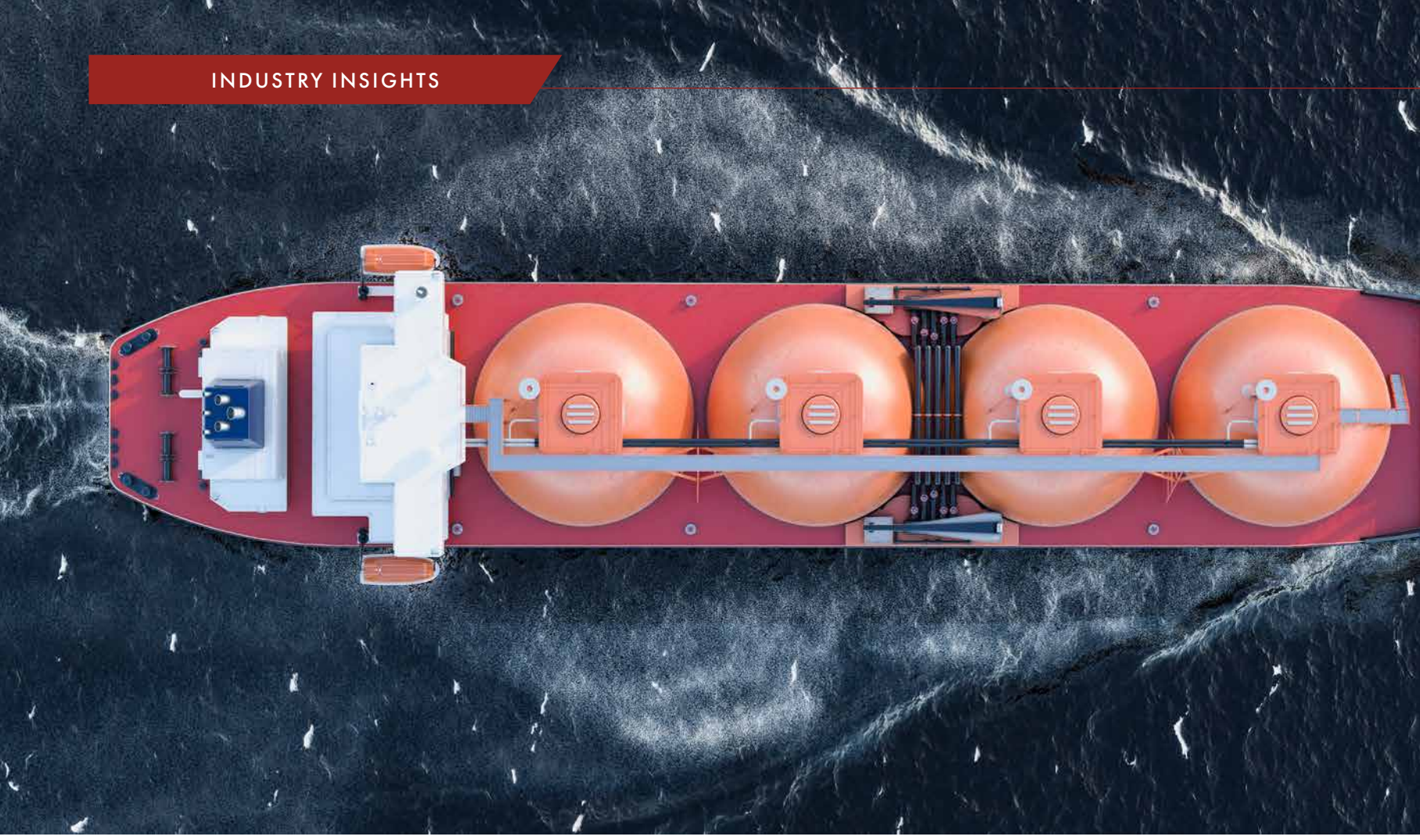
Throughout 2020, the Suez Canal leveraged its position on world trade and remained resilient in the face of the pandemic. Omar noted that "the oil tankers movement through the Suez Canal during April/May was higher by almost 20% compared to the same period in 2019," connoting that a strong force lies in Egypt.

Above all, Egypt's geographical location gives the country an edge when it comes to the trade business. Farghaly noted though, that despite that Egypt "still responsible for very modest bunkering volume, less than one million tons (mmt) of fuel annually," compared to "Singapore and Fujairah [which] bunkered 42 mmt and 24 mmt, respectively in 2015." This shows that the Suez Canal has a much larger untapped potential.

FUTURE PROSPECTS

Petroleum trade remains and will remain a pivotal attribute to Egypt's economy and it seems that between Egypt's pipelines and the Suez Canal, Egypt has the potential to become a gas trading hub. Farghaly believes that liberating the market is the way to do it noting that "it has been years since the issuing of the gas trading law but we could not see deals of gas trading in the market, even before COVID-19 pandemic." He elaborated that since petroleum products are fully controlled by government agents, then liberating the market "will enhance competition that would lead to cost reduction of products trading. All, for the sake of the consumers and security of supply."

Besides being a hotspot among other countries, geographical location is not the only attractive aspect for Egypt's trade. Omar remarked that "the Gulf of Suez has lots of ideal ullage that investors should plan to utilize and hence enable profitable investment with minimum infrastructure cost." Having said so, Egypt's petroleum industry still has a lot to offer in spite of the trail 2020 has left in its wake.



LNG STORAGE AND TRANSPORTATION:
NEW DOWNSTREAM CHALLENGE AND OPPORTUNITY

BY FATMA AHMED

As the world cast around for clean and efficient alternative sources of energy to reduce greenhouse gas emissions and help combat global warming, the conversion to natural gas utilization has become a point of focus worldwide. It was no wonder to see the demand for natural gas increasing and so the demand for safe and cheap ways to transport and store.

LNG SIGNIFICANCE

According to a recent study by Global strategy consulting firm Mckinsey, global gas demand is expected to grow at 0.9% per year between 2018 and 2035.Since liquified natural gas (LNG) is seen as the best method for transporting and storing natural gas by cooling it to -260° F And so the LNG global demand is projected to grow at 3.6% per annum between 2018 and 35, the study added. A research entitled "The Growing Importance of LNG Market" written by Thang Do, indicated that the role of gas pipelines has diminished over the last decades declining from 73% of total volumes shipped in 2000to 65% in 2020.

Egypt has become one of the leading natural gas producers,, thanks to the Zohr discovery which led to covering the local demands and export the surplus abroad. According to BP's report, Egypt exported LNG 4.5 billion cubic meters (bcm) in 2019,increasing by 2.6 bcm compared to 2018. Accordingly, there is growing interest inproviding safe LNG storage and transportationSaad Bedir, Oil and Gas ExperttoldEgypt Oil and Gas (EOG) "As much LNG [is] available economically as much it is strong support to the national economy"

An LNG Expert, who preferred anonymity, stated that improving LNG transportation means by increasing the number of trains, for example, and using latest applications of technology will increase the quality of the overall LNG process in Egypt and the Middle East.

LNG MOVES STRAIGHTLY

LNG reduces the volume of natural gas by about 600 times that enables it to be moved in ISO containers on roads and highways as well as on the water.

LNG pipelines are used to transport natural gas from liquefaction plants to storage facilities, from storage facilities to tankers and from tankers to regasification plants. The main challenge of LNG pipelines came from the difficultyassociated with its construction, in addition to its high costs. This is because LNG requires specific temperatures to keep its content in a liquid state,which needs to establish insulated pipelines by a combination of mechanical insulation to maintain this temperature level and prevent any regasification. This complex insulation system for LNG pipeline construction is more expensive and difficult than that of standard pipelines.

Transporting LNG via vessels or carriersis always the proper way for exporting natural gas at an intercontinental level because of their ability to carry large quantities of natural gas. LNG carriers are among the strongest, safest and most technologically advanced vessels in the world. They are equipped with sophisticated monitoring and control systems. LNG shipping is an economic and efficient method as long as carriers are bigger in size.

Transporting LNG via trucks is a conventional and practical method. However, certain parameters including the maximum allowed truck weight in the country, the transported LNG capacity, the maximum allowed speed for the trucks, distance from the source to consumer, the loading and unloading conditions, the consumption rate of LNG and the working time are necessary to adopt.

STORING LNG EFFICIENTLY

LNG is stored in particular insulated containers and tanks that are built specifically for this purpose. These tanks include cryogenic equipment to keep the natural gas in its liquid state and prevent it from vaporization. The temperature within the tank will remain constant if the pressure is kept constant by allowing the boil-off gas to get out from the tank. The boil-off gas is used as a fuel source for the facility or the vessels that carry LNG.

LNG containers can be placed above or within the ground. Nevertheless, these types of storage applications are less attractive as they require a large area of land. However, underground storage was thought to be an economical way to store LNG, but so far, it has not been satisfactory due to the large boil-off gas rate and the low LNG temperature acting on the rock wall generating cracks in the rock mass.A new concept of storing LNG in a lined rock cavern (LRC) was introduced to provide a safe and cost-effective solution. It can protect the host rock againstthe low temperature by insulation and providing a liquid and gas-tight liner. Additionally, it can form an ice ring around the cavern with suitable thickness to prevent any groundwater leakage.

Moreover, LNG can be stored in flat bottom storage tanks or pressurized storage tanks. They are classified according to their safety level. There are three types offlat bottom tanks: single containment, double containment and full containment. Single containment consists of an inner tank and outer container; the inner tank is only required to meet low temperature requirements. Double containment has inner self-supporting primary container to contain LNG and the secondary container's role isto contain any leakage of the refrigerated liquid, but it doesn't contain any vapor resulting from a leakage. Full containment is similar to double containment, but its secondary container is able to contain vapors.

Moreover, there are three main types of pressurized tanks. The first type includes single integrity which can hold the refrigerated liquid, but the outer insulation would not able to withstand the LNG in case of leakage. Double integrity is the second type which is able to prevent the uncontrolled release of liquid into the environment. Full integrity is the third type which has an inner and outer container constructed from cryogenic steel that is able to hold LNG and in case of inner tank leakage, the liquid is contained in the outer tank, in which the structural integrity of the complete bullet is maintained.

MORE SAFETY ... MORE PRODUCTION

Safety and security are the main elements necessary to boost LNG production. Some regulations and codes have been set forth by international organizations to organize transportation process, especially by shipping. Additionally, certain standards have been placed on sitting, design, construction, equipment and fire protection requirements for facility and terminal applications.

According to an article published on Discovery LNG, advanced carriers are provided by bow thrusters for increased maneuverability at slow speed while entering or departing from restricted waters. They are outfitted with sophisticated gas and fire detection and suppression systems.

Another article written by David Pendleton, suggests that the majority of the world's LNG cargo fleet and terminals are equipped with SSL technology; a system for communicating emergency shutdown (ESD) signals, telephone, and process data required when cargo transfer is undertaken from ship to shore and again from shore to ship.

The LNG Expert stressed on the importance of conducting safety sessions for the employees, pointing out that monitoring practices can prevent any incidents before happening.

EGYPT, IRAQ PARTNERSHIP LAYS DUCTS FOR PROSPERITY

BY **IHAB SHAARAWY**

The historic deep-rooted relations between Egypt and Iraq have gained new momentum with the convening of the Egyptian-Iraqi Higher Committee in Baghdad last month. During the meeting, which was chaired by Egyptian Prime Minister Mostafa Madbouly and Iraqi Prime Minister Mustafa Al-Kadhimi, the two countries have reportedly reached a preliminary consensus to establish an oil-for-reconstruction mechanism.

During the meeting, the two countries have signed 15 agreements to enhance cooperation in the fields of transport, water resources, health, the environment, justice, investment, housing, construction, industry, trade, and finance.

However, many indicators refer to the oil and gas sector as the locomotive for this new era of cooperation between Egypt that seeks to be a regional energy hub and Iraq, the oil-rich country that seeks to upgrade decaying infrastructure and search for a safer route for its oil exports instead of the troubled Gulf waters.

AN ALLIANCE FOR PEACE, DEVELOPMENT

The new committee was a result of a political will that was declared during the Tripartite Summit between Egypt, Iraq and Jordan that was held in Cairo in 2019. During the summit, President Abdel Fattah Al-Sisi expressed Egypt's desire to contribute to the reconstruction of the liberated areas of Iraq. In his remarks to the summit, President Sisi referred to the presence of many Egyptian companies and businessmen who have already worked in the Iraqi market, in addition to Egypt's experience in the recent establishment of major national projects on the basis of mutual and balanced benefit.

During the summit, the three leaders agreed on the need to activate the mechanisms of bilateral cooperation that already exist between them; the joint committee was one of them.

In another tripartite summit in August in Amman, the leaders of the three countries tackled means to enhance joint trilateral cooperation in various fields, especially those related to energy, electrical connectivity, infrastructure and food.

During the Amman summit, President Sisi reiterated Egypt's readiness to offer its experience and expertise in all fields to its brothers in Jordan and Iraq. He also stressed the importance of establishing joint development projects to be implemented according to a tight schedule to rapidly help improve the living standards of citizens and strengthening political and security cooperation paths.

ENERGY TAKES CENTRE STAGE

Energy was the buzzword in many of the related meetings between the three countries.

In a recent meeting with Prime Minister Mabdouli and Minister of Electricity Mohamed Shaker, President Sisi directed the government to expand efforts of implementing more electricity interconnection projects with neighboring countries. The meeting focused on the latest development of Egypt's megaprojects of electricity linkage with Sudan, Jordan, and Iraq.

In a meeting with the Iraqi Ambassador to Cairo, the Minister of Petroleum and Mineral Resources Tarek El Molla said that the Egyptian petroleum sector is ready to reinforce the presence of its companies in Iraq in the coming period with various oil, gas, and petrochemical activities.

El Molla's remarks came at the same time Egypt announced that the agreement to import 12 million barrels (mmbbl) of Iraq's crude oil is still active, noting that the six-month deal is renewed regularly.

It was also agreed to train the cadres in this vital industry and meet Iraqi needs.

The Iraqi ambassador said his country's government is keen to boost bilateral relations and open new horizons for cooperation backed by the full support of the political leadership in both countries.

He stressed the importance of using distinguished Egyptian expertise, especially in the field of energy, noting that Egypt's success, distinction, and experience will benefit Iraq at this important stage that is witnessing a shift towards investment, development, and reconstruction.

AN OUTSTANDING PROPOSAL

However, what looked really outstanding was the suggestion that was raised recently to establish a pipeline to transport crude oil from Iraq to Jordan and Egypt.

The project that was discussed during the Cairo Summit is going to breathe new life into an old project to send Iraqi oil to Jordan. Iraq and Jordan had signed an agreement in 2013 to build the pipeline from Basra to Aqaba, passing through Jordan's only refinery in Zarqa near Amman.

The proposed pipeline had an initial capacity of 150,000 barrels per day (bbl/d) and had a cost of $18 billion. The project was due for completion in 2017, but it was not realized.

Commenting on the new proposal, the Jordanian Foreign Minister Ayman El Safadi described the revival of the pipeline project as a vital and strategic issue that benefits the three countries positively.

The pipeline is expected to allow the energy-thirsty Jordan to secure its oil needs in any quantity. It will also help Egypt, which has the largest refinery capacity in Africa, to consolidate its position as a regional energy hub.

However, the project may be a game-changer for Iraq, where the energy sector has been hit by military occupation and civil unrest in recent decades.

The project will have clear economic and political benefits for the country that seeks to recover from a war with Daesh terrorists and struggles to build its economy.

Even with the current price crisis, the proposed pipeline will offer Iraq an opportunity for more lucrative contracts in new markets.

For Iraq, the project is also providing a key alternative to its currently existing export terminals on the Arab Gulf. Thus, the Iraqi government views the pipeline in geopolitical terms as it will enable it to bypass any vulnerability in its Southern Gulf terminals or any potential closure of the Strait of Hormuz, hence fortifying the geopolitics in the region. Thus, the pipeline will save the Iraqi exports from any vulnerability in Iran or in Syria.

The new proposed pipeline is expected to be one of the pillars of the cooperation between Egypt and Iraq as International Cooperation Minister Rania Al Mashat said the political leadership in both countries have a strong will to eliminate obstacles hindering enhanced cooperation and achieving strategic integration at economic, trade and investment levels.

She unveiled suggestions to increase trade exchange and industrial cooperation, set up a logistics area along the Iraqi-Jordanian borders, establish a trade center for Egyptian goods in Baghdad, exchange data of exporters and importers, and secure free movement of Egyptian commodities into Iraqi markets and vice versa.

However, still the cooperation in the oil and gas sector seems the most encouraging, especially with Iraq, a country with nearly 145,019 mmbbl of proven crude oil reserves and 3,714 billion cubic meters of proven natural gas reserves, and where economic deterioration, military conflicts, and political turmoil have inflicted a blow to the development of its oil infrastructure, damaging its capability to generate national revenues from exports.

"TOGETHER, YOUR PARTNERS IN EGYPT"

PAN MARINE GROUP

YOUR ONE-STOP SERVICE PROVIDER

PAN MARINE GROUP is a ONE-STOP service provider to our clients in Egypt through the following four companies:

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

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

ALEX | CAIRO | DAMIETTA
PORT SAID | RAS GHAREB
SAFAGA | ABU QIR | SUEZ

ISO 9001:2015
ISO 14001:2015
OHSAS 18001:2007
BUREAU VERITAS Certification

www.pan-marine.net

VROON OFFSHORE SERVICES

....CONNECTING MARKETS

VROON OFFSHORE SERVICES excels in the provision of diverse services and solutions for key offshore-support needs, including platform supply, emergency response and rescue, anchor handling tug supply, walk to work, crew transfer and subsea support. In addition, Vroon Offshore Services offers a wide range of complementary offshore services.

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

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

ABERDEEN | DEN HELDER | GENOA | SINGAPORE

Leaders in Safety

MACN

www.vroonoffshore.com

Head Office: Marhaba Tower, Fouad St., Off Horeiya Road, Alexandria 21131, Egypt
Tel.: +2033913820 (10 Lines) Fax: +2033913829 Email: Offshore@pan-marine.net

REVITALIZING EGYPT'S REFINING MARKET

BY JACK BECKFORD

Oil brownfields are the backbone of the oil industry. According to a report from IHS Cambridge Energy Research Associates, two-thirds of the world's daily oil production hails from mature fields. This figure is even greater in Egypt, and according to empirical data at Egypt Oil & Gas' (EOG) "Future of Egypt's Brownfield Development" roundtable, crude production from brownfields in Egypt makes up a resounding 77%.With the expansion and development of the Egyptian economy, the domestic demand for refined petroleum products has increased significantly. Having the means to satiate demand through local refineries is crucial to help ensure Egypt's future development.

What's more, Egypt's energy mix is changing. This has prompted a shift in product demand such as natural gas being utilized more and more to satiate Egypt's expanding requirements for electricity, thus meaning the demand for fuel oil has dwindled. Therefore, a shift is required from producing fuel oil to lighter products such as diesel. This shift in demand for lighter petroleum products is one of the most crucial challenges Egypt's oil and gas industry must overcome.

With this said, Egypt has recognized the importance of adapting, and as of late, there has been a wave of commissions to finance the renewal of Egypt's refining sector as well as constructing two new landmark refineries.

In terms of existing infrastructure, Egypt is home to 12 operating refineries. As of 2019, they have a total capacity of 750,000 barrels of oil per day (bbl/d), a statistic that has propelled the country to rank as the biggest oil refining nation in Africa, according to BP's Annual Statistical Review of 2019.

This review will detail how Egypt has regenerated the existing refineries as well as showcase the landmark projects in the pipeline.

STATE OF AFFAIRS DOWNSTREAM

Firstly, let us delve into what the state of the downstream sector is looking like in the wake of the coronavirus. In terms of planned investment, APICORP's MENA Energy Investment Outlook 2020-2024 report has revised planned energy investments in the region from $965 billion to $792 billion, a $173 billion decrease compared to APICORP's 2019-2023 report.

However, this has not seemed to perturb the levels of planned investment and Egypt is seen as one of the four major players in the region with its new $38 billion petrochemicals drive paving the way.

Egypt's downstream plan, as detailed by APICORP's report, has a two-fold focus: the first objective is to cut reliance on imports of refined products and basic chemicals feeding its domestic industries. The second ambition is to solidify its status as an energy hub, with the Suez-Mediterranean (SUMED) Pipeline at the core of this strategy.

REFINERY UPGRADES

Egypt's Ministry of Petroleum is currently adopting the policy of revamping existing refineries to achieve self-sufficiency for petroleum products and reduce reliance on exports.

On September 28, 2020, Egyptian President, Abdel Fattah Al-Sisi, inaugurated the Egyptian Refinery Company's (ERC) project in Mostorod with investments worth $4.3 billion, to help maintain the refinery's status as one of the most important petroleum refineries in Africa. With the implementation of these upgrades, the refinery is expected to see enhanced diesel production by 30% and increase gasoline production by 15%.

Another big-money refinery revamp comes in the form of the Assiut Oil Refining Company (ASORC). The $450 million project in Assuit is expected to operate with a production capacity of 660,000 t/y of naphtha in addition to producing butane. The project is scheduled to come into operation in Q4 2020.

Middle East Oil Refinery (MIDOR) is located in Borg EL Arab, West of Alexandria. The refinery has the capacity to refine both imported crude oil and crude oil coming from the Western Desert fields. MIDOR mainly produces Liquified Petroleum Gas (LPG), naphtha, jet fuel, diesel, sulfur, and coke, according to the Egyptian General Petroleum Corporation's (EGPC) website. As a testament to the refinery's importance in the Egyptian refinery sector, in June 2018 MIDOR was the beneficiary of an expansion project worth $2.3 billion with the aim of increasing refining capacity by 60%. Pre-investment total refining capacity was 5 million tons per year (mt/y). The project became operational in Q1 2020, which will propel the company's production to 8 mt/y by the end of 2020.

El Suez Refinery was built in 1965 and has a current refining capacity of 3 mt/y, according to the company's website. Located near the Suez region on the Red Sea, it supplies the market with LPG, Naphtha, Gasoline, Kerosene, Gas Oil, and Fuel Oil. There are two crude oil distillation units, which receive crude feed from the Gulf of Suez. In addition, it has a reforming unit that was established in 1983 with a capacity of 0.8 mmt/y and a coker complex, which was commissioned in 1966 with a capacity of 1.5 mmt/y. The refinery has been granted $250 million worth of loans in 2020 by the European Bank for Reconstruction and Development (EBRD) to improve the refinery's efficiency.

IN WITH THE NEW

The Ministry of Petroleum, Mining, and Mineral Resources announced in May 2020 the highly anticipated updated version of the National Plan for Petrochemicals Industries (NPPI) 2020-2035, an updated manifesto from the NPPI 2002-2020. Within this plan two major refining complexes are set to be constructed:

A refinery plant due to be set up in Al-Alamein (Western Desert) costing in the region of $8.5 billion. It will have a 2.5 mmt/yr crude and condensate refinery producing 1 mmt/yr of petrochemicals and 0.85 mmt/yr of refined products. It is expected that it will be tendered through the Egyptian EPC Engineering for the Petroleum and Process Industries (ENPPI) in H2 2020.

Within the project, the targets include satiating domestic market needs supplying specialty chemical feedstocks for Egyptian industries, and exporting surplus quantities. It is expected that the Ministry of Petroleum will hold a minor equity share in this project and will seek a combination of institutional equity investors and project financiers.

The second project licensed under the updated NPPI is the $7.5 billion ECHEM project in the Suez Canal Economic Zone (SCEZ) to produce 2.2 mmt/yr of petrochemicals and 0.65 mmt/yr of refined products. Bechtel has been selected as the engineering, procurement, and contracting (EPC) partner while the US International Development Finance Corporation (IDFC) and US Exim Bank have been highlighted as potential contributors to the project's finance.

THE SCIENCE OF ISOMERIZATION: ENHANCING GASOLINE PRODUCTION AT MIDOR

BY JACK BECKFORD

Isomerization is a process that has transformed itself into one of the most renowned techniques for gasoline production. The reason for the refining process's meteoric rise in the downstream sector is due to the process's ability to produce high octane products whilst simultaneously reducing the number of pollutants released into the environment.

The paper in question is "Improving gasoline quality produced from MIDOR light naphtha isomerization unit" and is written by M. Mohamed, Engineer at Egyptian Projects Operation and Maintenance (EPROM) MIDOR Refinery, and W. Shehata, Professor at the Faculty of Petroleum & Mining Engineering at Suez University.

The paper provides a practical study for MIDOR, an Egyptian refinery established in 1994 with a refining capacity of 115,000 barrels per day (bbl/d). There is a particular focus on improving gasoline quality and economic income from an existing light naphtha isomerization unit tasked with octane improvement. Thus, an array of isomerization equipment at the MIDOR refinery was combined in order to produce optimum results. After the simulation results were prepared, an economic analysis was performed to calculate the return on investment (ROI).

ISOMERIZATION

Isomerization is a petroleum refining process that enhances the octane rating of gasoline. This is achieved through converting strait chains of paraffin molecules to the branched forms of iso-paraffins.

This is a much more refined and economical way of increasing the octane rating. Previously, catalytic reforming was the widespread practice in this regard. However, this was much less environmentally-friendly as it increased the quantity of CO2 emissions as well as cancerous by-products.

However, the birth of isomerization came thanks to a new mathematical model enlightening us on the light alkanes isomerization process: this mathematical model can be used for different raw materials composition and catalyst, and also it can be used to compare the efficiency of different modules isomerization work and choose the most appropriate alternative of process optimization for a given raw material. This theoretical framework will be applied to an existing isomerization unit at MIDOR to enhance product octane number by small alterations and low utility consumption.

MIDOR LIGHT NAPHTHA ISOMERIZATION PLANT PROCESS

The current rate of octane enhancement at MIDOR refinery is from 66.6 to 86.7. The process of isomerization is as follows:

Light naphtha is separated from crude oil using atmospheric distillation, and also it is produced from cracking units of hydrocracker and coker units. Light treated naphtha is mixed with hydrogen to reduce coke formation on the catalyst. Then, the feed is exchanged with the reactor effluent stream. Hot feed enters the reactor through the top distributor. Gases are separated at sieve tray stripper (stabilizer), then washed by 10% wt caustic solution to remove HCl. If unconverted, hexanes are separated from products using sieve tray fractionators called de-hexanizers (DH). This is then mixed with the feed stream to improve the product octane number.

The feed flowrate of the isomerization unit at MIDOR stands at 70.7 cubic meters per hour (cm/hr) of treated light naphtha. The feed is hydrotreated using cobalt, molybdenum, and nickel oxide as a catalyst. Then the treated naphtha is split into light naphtha with mainly five and six carbon atoms and heavy naphtha with other heavier hydrocarbons. Hydrogen is produced at the platforming unit, which increases the heavy naphtha octane number by converting the naphthenes to aromatics.

Finally, a catalyst is used to convert normal kinds of paraffin, naphthenes, benzene, and low octane paraffins into high octane iso-paraffins. The strain of catalyst used at MIDOR is composed of chlorinated alumina that is impregnated with 0.25 wt% platinum.

DATA ANALYSIS

The study used a PRO/II computer software to simulate chemical and refining processes with an ability to apply a wide range of applications.

The simulation was run on a wide range of light naphtha isomerization combinations to try and optimize production: one scenario was removing the existing MIDOR DH tower; another scenario was replacing the existing DH tower with de-iso-pentanizer (DIP) and de-pentanizer (DP); installing two fractionators; and installing DIP, DP, and DH at the same time.

The results comprehensively showed that the Product octane number obtained from each fractionation improved depending on the different combinations. The main findings include: a high-quality product was obtained from the isomerization unit with DIP/DP/DH fractionators, due to the concentration of normal paraffins at the reactor feed that forces the reaction towards more isomerization. As the concentration of normal hexane is higher than normal pentane and iso-pentane, accordingly octane number for the isomerization unit with DH is higher than the unit with DP and DIP.

ECONOMIC STREAMLINING

The paper then goes on to discuss the economic savings potential for the previously mentioned methods to find the best scenario that has a high economic benefit.

A holistic approach was adopted with the following factors taken into account: chemical process items are included such as equipment, instruments, electrical, utilities, obtained as a net income after eliminating all operating costs and raw material prices.

Pay-back time and ROI were calculated based on total fixed cost and profit. In essence, a simple investment good investment will have small pay-back time and a high ROI per year.

With specific regard to MIDOR, it was found that replacing the existing DH tower of MIDOR isomerization unit with a DIP tower would, in fact, reduce the ROI by about 5.4% per year, while replacing the DH with a DP tower would reduce ROI by about 6.2% per year. This can be attributed to the octane number decreasing by about 4.3 and 2.2 as a consequence.

On the contrary, adding a DIP tower to the existing MIDOR isomerization unit would be the best economic scenario: it would increase ROI to 26.6% per year and operating costs are lower by 10%. Also, DIP modification is better than adding both DIP and DP to existing DH as the ROI is higher by about 7.6% per year with 14% lower operating costs.

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

EGYPS
EGYPT PETROLEUM SHOW

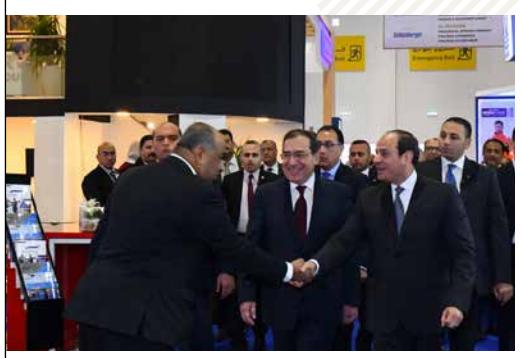
SUPPORTED BY

وزارة البترول والثروة المعدنية • Ministry of Petroleum & Mineral Resources •

31 MAY – 2 JUNE 2021 | EGYPT INTERNATIONAL EXHIBITION CENTER

WHAT TO EXPECT AT EGYPS 2021?

38,000 EXHIBITION SPACE	**35,000** ATTENDEES	**500** EXHIBITORS	**27** NOCS & IOCS
16 COUNTRY PAVILIONS	**80** COUNTRIES REPRESENTED	**2,000** DELEGATES	**80** CONFERENCE SESSIONS



BOOK YOUR STAND AT EGYPS 2021

www.egyps.com/bookastand egyps.sales@dmgevents.com +971 4 248 3214

SUPPORTED BY: EGPC, EGAS, Ganope, EChem – Egyptian Petrochemicals Holding Company

DIAMOND SPONSORS: Apache, bp, Kuwait Energy Egypt, TOTAL

PLATINUM SPONSOR: wintershall dea

SILVER SPONSORS: Air Products, Schlumberger

BRONZE SPONSORS: Baker Hughes, Bechtel

OFFICIAL MEDIA PARTNERS: Pipeline Oil & Gas News, Egypt Oil&Gas Newspaper

ORGANISED BY: dmg events

IS IT HIGH TIME FOR MOP TO ESTABLISH ITS GRADUATE PROGRAM?

In 2016, the Egyptian Ministry of Petroleum and Mineral Resources (MoP) has launched its Modernization Program aiming to modernize and develop the national petroleum sector. According to the ministry's announcement, the program is based upon seven core elements; the third of such is "Human Recourses Management". As announced by the MoP, various objectives were set under that third element; aiming to develop the professional calibers, providing better governance as well as empowering young talents by launching its middle management and young professionals program.

I believe it is high time for the MoP to establish a universal graduate program and integrate it with other efforts under the "Human Resources Management" element. The efforts of having a clear succession planning, empowering young talented professionals, developing the human resources within the sector could be complemented by a well-structured and integrated graduate program. This would ensure an influx of highly talented and well-educated freshmen joining the sector, which in a way would further minimize the more expensive efforts aiming to develop the human resources element. capacity building initiatives could minimize the efforts and reduce cost. Secondly, being the dominant entity in the Egyptian petroleum industry, the MoP has a moral responsibility when it comes to providing employment, especially for highly specialized graduates like petroleum engineers, geologists, and geophysicists who simply could not work in any other industry. Thirdly; this program would act as a pilot program for other national sectors and institutions, as well as providing hope for youngsters entering the job market, making them believe that hard work is their way forward.

What is a graduate program?

According to an article by Devina Tarinon the advantages and benefits of graduate programs, "a graduate program is a recruitment program that usually lasts for 1-2 years, offered by firms and government organizations to a variety of graduates of different disciplines." In more details, it is a channel to recruit, employ and train young talents coming fresh from universities; while ensuring hiring the most prominent and promising talents from the available pool of graduates. Usually, such programs are well integrated with the organization's long-term goals, well-structured to ensure equality of opportunity, transparency, and fair selection.

Why would the MoP need to establish such a program?

The list could grow long. First of all, such a program would ensure sourcing the most talented and well-educated graduates, hence reflecting on the performance of the national petroleum sector. Integrating this program with middle management and

I would suggest that the MoP could receive assistance in developing such a program from its international partners, mainly Petronas - The Malaysian National Petroleum Company-. In 2010, I have experienced their graduate program and recruitment process when I was studying for my B.Sc. in University Technology Petronas. It consisted of three phases, a screening phase, an analytical computerized test, and finally a two-hour structured interview. That interview had many case studies and decision-making exercises to measure the candidates' capabilities and competencies.

On a more personal note, as an engineer reaching almost a decade in the petroleum industry, I aspire to see my fellow young colleagues coming fresh from college with all the energy of the world; to see a gateway that promises them career development, based on competency and equality of opportunity, and this article is for them.

Ahmed Abo Bakr
Subsea Engineer

COVID-19'S IMPACT ON THE GLOBAL PETROCHEMICAL INDUSTRY

The covid-19 pandemic has hit the global petrochemical industry severely, like other affected economic sectors as aviation, travel, and manufacturing. The global economic situation, nowadays, looks like the global financial crisis in 2008-2009, if not far worse. The world economy will probably go into recession, as the global gross domestic product (GDP)has contracted by 4.4% in 2020 according to the International Monetary Fund (IMF)estimates. Meanwhile, potential recovery will be slow in the next few years. This situation will hurt the global petrochemical demand this year and make the investment environment hard to predict.

Global industries, depending on petrochemical products as inputs such as vehicles, infrastructure, construction, etc., slowed down after the pandemic, and this reflected negatively on indicators such as car sales and Purchasing Managers' Index (PMI) in most of the advanced economies like the United States (US) and European Union (EU) countries. Hence, not surprisingly, the petrochemical products demand will fall by 10% year-on-year(YoY) in 2020, as estimated by Gulf Petrochemicals and Chemicals Association.

Petrochemical prices, especially, Polymers, could not maintain its previous levels before the pandemic. ICIS Global Petrochemical Index (IPEX), which tracks petrochemical products prices in most world markets (US, western European, and Asian markets), fall down by 10% YoY to 146.8 points in October. Regarding the US market, the price index dropped by 14.7% to 159.2, the European market to 180.9 decreasing by 12.6%, and Asia to 146.2 declining by 8.8%.

Before the crisis, there were several petrochemical plans that were underway around the world, and they were supposed to be finished in the medium term, but the global economic situation stood in the way of putting them into force according to their timelines.

In the short term, major petrochemical companies around the world sure will encounter tough situations in response to operating and capital spending cuts, while others are announcing project delays due to the financial difficulties and slowing demand. Also, the pandemic will leave a dramatic impact on the financial results of several petrochemical players. BASF, a top global petrochemical producer, expects operating profit to fall by 35% this year to between EUR 3 and 3.3 billion.

Despite this tough situation, there is still hope to slightly boost the industry. Packaging, sanitary, and medical polymer applications are seeing robust demand, according to Mckinsey company, due to the boom in delivery services and high healthcare sector activity. This could make firms afloat and mitigate some of the negative side effects of the pandemic on the industry.

Overall, the outlook of the petrochemical industry remains unclear amid the economic uncertainty, although there might be a light at the end of the tunnel. Lately, some of the international pharmaceutical firms reached an effective vaccine for Covid-19, this will help economic activities come back to normal and can be reflected positively on the global petrochemical industry.

Ibrahim Al Ghitany
Energy Analyst

SMARTER DATA-DRIVEN PIPELINE RISK ASSESSMENT KEEPS THE GAS FLOWING

Gas pipeline operators are discovering how a method called Bayesian Networks can, combined with machine learning, address data uncertainties in risk management (Figure 1). This approach converts uncertainty into an ally rather than an enemy of pipeline risk managers.

Choosing which data to gather first is complicated. Data may be missing or unreliable. There may also be uncertainty over failure mechanisms such as corrosion, third-party damage and others. In addition, collecting and assessing the validity of data from sensors on pipelines, inspections and front-line operatives is expensive. With safety at the top of the agenda, operators, therefore, have tough cost-benefit decisions to make when designing data-driven risk management strategies.

When data is missing, traditional risk assessment methodologies require operators to conduct pipeline risk assessments based on worst-case scenarios. "With smart risk assessments based on Bayesian Networks, there is no need to gather all the data in the same way," says Dr Francois Ayello, principal engineer, risk management, DNV GL - Oil & Gas.

Bayesian Networks is the logical next step in pipeline risk management because it incorporates data uncertainty and provides justification for how much an operator should invest in collecting data about buried assets. "This saves cost and time while keeping threats below acceptable levels," says Ayello, adding that "Our work applying the methodology for pipeline operators shows they need not wait for all the data to do all risk assessment, and this obviously saves resources that can be spent on another pipeline."

UNCERTAINTY HELPS RISK MANAGERS MAKE THE RIGHT DECISION

Bayesian Networks let risk managers produce a statistical model that can graphically represent a set of variables and their conditional dependencies on each other. Consequently, operators can simultaneously model from cause to effect in a simulation, or from effect to cause for diagnosis. In addition, the machine-learning process is stopped when the cost of data-gathering activities outweighs the benefit to risk predictions.

"It lets the pipeline operator see everything that could happen to the pipeline with its associated probability. After all, nothing is certain, but understanding where the uncertainty comes from improves the decision-making process," explains Ayello. He further elaborated that "quantifying the effects of data uncertainty through Bayesian Network modelling lets operators predict in near real-time the risk of all possible events. Here, uncertainty is not the enemy; it actually drives the decision-making process. With Bayesian Networks, every time data is gathered, future risk predictions become more certain."

This logic lies at the heart of DNV GL's Multi-Analytic Risk Visualization (MARV™), a smart risk-assessment approach developed over five years of research. It is now being applied to offshore and onshore pipeline systems around the world.

MARV captures known pipeline data as well as variables that are unknown, such as missing data and knowledge uncertainty. MARV can then predict all possible futures of a pipeline and show the results visually. The user can perform fully quantitative risk assessments, evaluate life extension strategies, prioritize data gathering, plan mitigative actions, and explain the hidden root-causes of risks.

GLOBAL EXPERIENCE PROVES THE VALUE OF SMARTER PIPELINE RISK ASSESSMENT

MARV has been applied in almost every world region and on pipelines operating under varying conditions and differing regulatory regimes such as Australia, Russia and the US. It has been applied to risks including internal and external pipeline corrosion, stress corrosion cracking, electrical currents, and illegal tapping of oil pipelines.

"Even until recently, Bayesian Networks were practically unused in the pipelines industry but have become a growing trend because of the way they can counter uncertainty," observed Ayello.

DNV GL's US experts have collaborated with multiple stakeholders including transmission system operators PG&E and Southern California Gas Company (SoCalGas) to customize MARV and apply it to a transmission pipeline network. The pilot study aimed to enhance safety while saving resources.

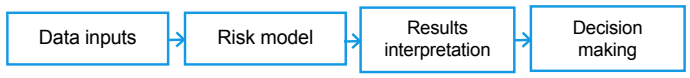
DISCOVERING WHAT PIPELINE DATA TO LOOK FOR WITHIN AN ORGANIZATION

In addition, SoCalGas independently contracted DNV GL to pilot MARV for combatting external corrosion and the risk of third-party damage to a natural gas transmission pipeline. MARV helped to quantify the effect of uncertainty and to understand, for example, how to direct information-gathering efforts. Because MARV places a value on variables that risk managers want to track, it suggests what to look for, and therefore, where to look for it in the company. Some maintenance activities may be executed by other parties, but are an important part of the pipeline risk. MARV helps to quantify the effect of uncertainty and to understand, for example, how to direct a company's information-gathering efforts.

FIGURE 1: LINEAR PROCESS VERSUS BAYESIAN NETWORKS

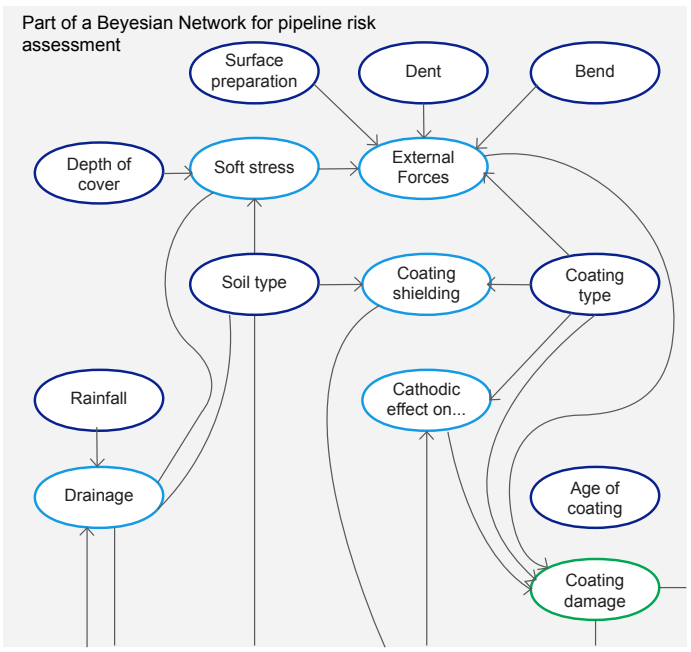
The linear approach to pipeline risk assesment

Pipeline engineers routinely use this step-by-step approash. Collecting all conceivable data at the start (see below) results in substantial expenditures to gather what often proves to be unnecessary information. Operators using this approach either choose or are required to assume worst-case scenarios ro cover gaps in knowledge or available data. thus, both risk and the cost of preventing resources such as maintenance spending being needlessly diverted from other pipelines.



Bayesian Networks make an ally of uncertainty

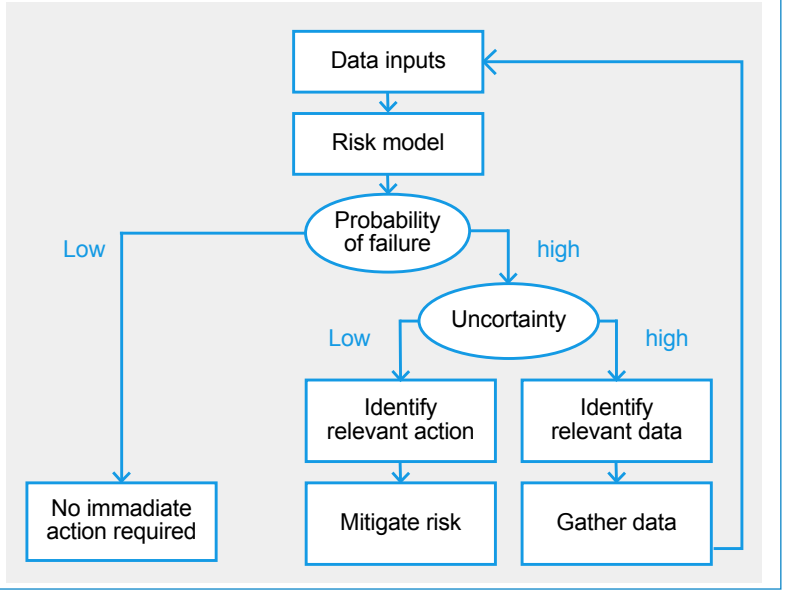
A smarter data-driven method is to base risk assessment on Bayesian Networks, This involves assigning values to all the variables (nides) that could impact on risk, and quantifying how they impact on each other through a network of cause and effect. Data is gathered repeatedly, but based on its value in reducing risk. This value is calculated by combining analysis of two factors: how sensitive risk levels are to changes in nodes, and, data- collection costs. Every time data is gathering, future risk predictions become more certain, and the process is stopped when the cost of data-gathering activities outweighs the benefit to risk predictions.



*Sourse: The use of sensitivity analyses for optimum data gathering in risk and threats assements : F ayelic, H Chen, N sRIDHAR, L Ruiz, T Sera, M Shirinishi, Proc. 2018. Calgary, Alberta,Candada, Paper 78402 .

FIGURE 2:
DECISION MAKING WITH MARV™

MARV analyses complex cause-effect relationshops through failure models and expert inputs. Its logic loop illustrated below is based in Bayesian Network methodology for decision making. This means pipeline operators need not gather all the data in the same way as they do traditionally before constructing a risk model. The MARV approach saves cost and time while keeping threats below acceptable levels.



REGULATION AND SKILLS ARE KEY TO A BAYESIAN FUTURE

Regulation will be a key driver for the uptake of Bayesian Network approaches in pipeline risk assessment, according to industry experts, who also see potential benefits from MARV in dealing with regulatory requirements. For example, regulators in the US are moving towards requiring operators to quantify risks rather than considering the relative risks. This is to encourage a better understanding of where to apply resources, and to help quantify the benefits of these investments. MARV could potentially help quantify both risks and benefits.

While the advantage of the MARV approach to mitigate insufficient data is appealing, the uptake of the Bayesian Network methodology will be led by regulators getting operators to invest more in it.

"There are clear benefits in aligning operators with the same methodology when it comes to assessing pipeline safety risk," concludes Hisham El Grawany, Vice President & Area Manager – North Africa, DNV GL Oil & Gas.

"Many operators around the world are currently using traditional methodology, hiring experts who have done some plant risk assessment and trying to do that with pipelines. Competence is key: I look forward to seeing experts vetting the Bayesian Networks methodology and making it more of a standard. The industry also needs more people trained in data science technology and Bayesian Networks. DNV GL is proud to be leading the way in applying the latest innovations to secure safe and reliable pipeline operations around the world," El Grawany says on a final note.

Contact us to find out more.

CONTACT US TO LEARN MORE:

HISHAM EL GRAWANY
Vice President & Area Manager North Africa, DNV GL - Oil & Gas

Email: hisham.el-grawany@dnvgl.com

EGYPT OIL&GAS
RESEARCH & ANALYSIS

Annual Inflation Headline CPI (%)

SEPTEMBER 2020	OCTOBER 2020
3.7	4.5

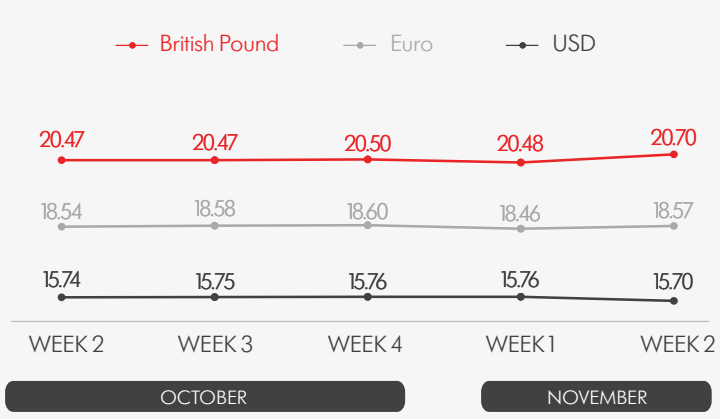
Net International Reserves ($ billion)

SEPTEMBER 2020	OCTOBER 2020
38.43	39.22

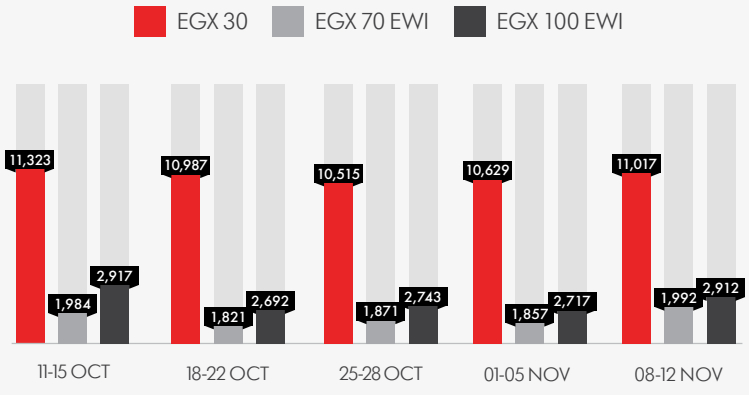
Non-Oil Private Sector PMI (Points)

SEPTEMBER 2020	OCTOBER 2020
50.4	51.4

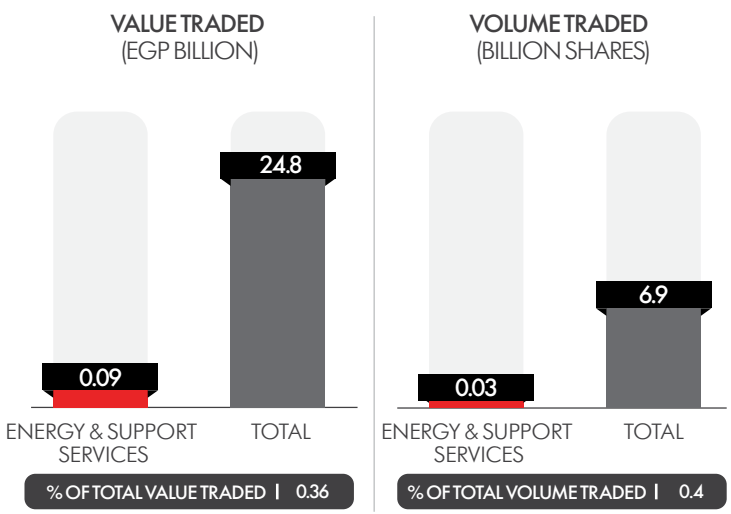
Exchange Rates



Capital Market Indicators



Performance of Petroleum Companies in the Egyptian Exchange in October 2020



National Drilling

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
USD	4.69	▼ 5.44

Alexandria Mineral Oils Co.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	2.39	▼ 34.16

Egypt Gas

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	60.39	▲ 8.81

Sidi Kerir Petrochemicals

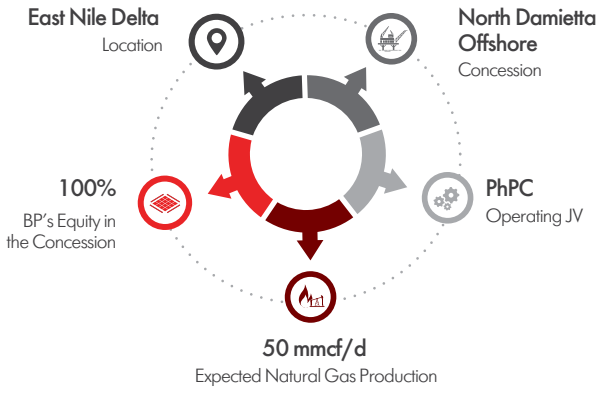
CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	7.42	▼ 17.37

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

CABINET APPROVED 3 E&P AGREEMENTS

	Partners	Location	Concession
1st	EGPC, IEOC & Lukoil	Western Desert	Meleiha
2nd	EGPC & BP	Gulf of Suez	South Ghareb Offshore
3rd	EGPC, Ganope & Enpedco	Eastern Desert	Wadi Deb

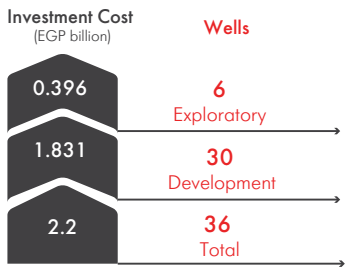
BP STARTS PRODUCTION FROM QATTAMEYA FIELD



GEMPETCO PRODUCTION UPDATES IN 2020 (BBL/D)

- 4,000 — Gemsa Concession
- 6,000 — Zaafarana Concession
- 10,000 — Total

GPC DRILLING PLANS IN FY 2020/21



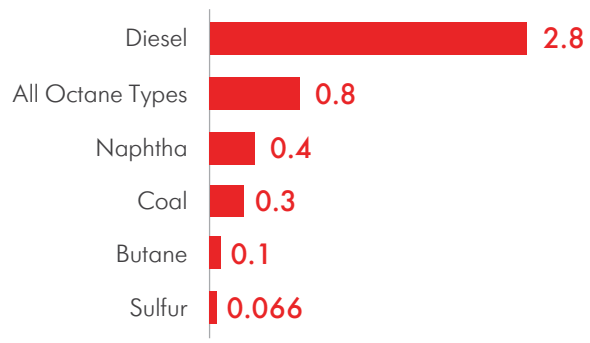
DANA GAS TO SELL ITS EGYPT ONSHORE ASSETS TO IPR

$236 million	El Manzala West El Manzala West El Qantara North El Salhiya	30,950 boe/d	$153 million Cash Consideration in Sale $83 million Contingent Payments
Value	Offered Concessions	Concessions Production in H1 2020	The Sale Includes

ASORC OCTANE COMPLEX HIGHLIGHTS

Covers **60-65%** of Upper Egypt & South Valley needs of petroleum products

COMPLEX PRODUCTION CAPACITY (MMT)



IDKU PLANT EXPORTS OVER JAN-JUL 2020

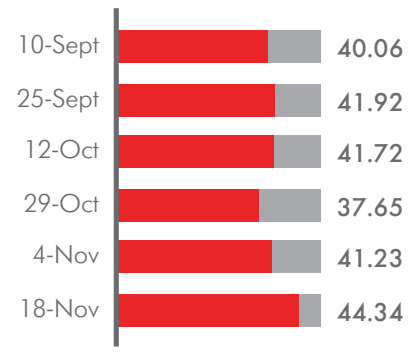
No. of Cargoes	Quantity Exported
7	0.45 mmt

GASTEC EXPANSION PLANS BY 2022

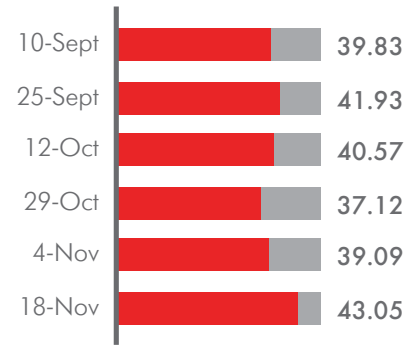
- New Natural Gas Stations — 400
- New Cars Converted to Natural Gas — 264,000

INTERNATIONAL OIL PRICES

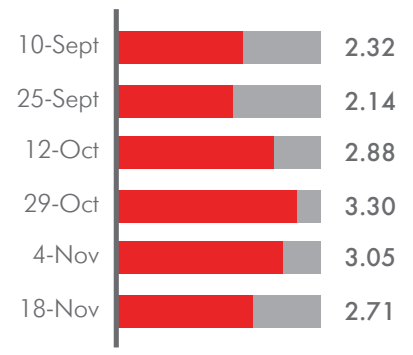
BRENT PRICES ($/bbl)



OPEC BASKET PRICES ($/bbl)



NATURAL GAS PRICES ($/mmBtu)



UNDER THE HIGH PATRONAGE OF **HE. ENG. TAREK EL MOLLA**

MINISTER OF PETROLEUM & MINERAL RESOURCES - ARAB REPUBLIC OF EGYPT

1ST OFFICIAL OIL AND GAS EVENT POST COVID-19 PANDEMIC

PART OF THE EGYPTIAN OIL AND GAS SECTOR MODERNIZATION PROGRAM

4TH UPSTREAM TECHNICAL CONVENTION

UNLOCKING VALUE IN AN UNCERTAIN UPSTREAM ENVIRONMENT

2021

CONTINUING TO BUILD A STRONGER **EGYPTIAN UPSTREAM INDUSTRY**

ORGANIZED BY

EGYPT OIL&GAS NEWSPAPER

TECHNICALLY PREPARED BY

EGYPT OIL & GAS COMMITTEE

OFFICIAL RESEARCH PARTNER

Wood Mackenzie
A Verisk Business

PLATINUM SPONSORS

APEX INTERNATIONAL ENERGY

CHEIRON

TransGlobe Energy CORPORATION

GOLD SPONSORS

ENAP

IPR ENERGY GROUP

wintershall dea

SILVER SPONSORS

SAPESCO SAHARA PETROLEUM SERVICES

SHAWCOR

OPERATIONAL EXCELLENCE AWARDS SPONSOR

DragonOil

TECHNICAL WORKSHOP SPONSOR

Kuwait Energy

STRATEGIC PANELS SPONSOR

HALLIBURTON

DELEGATE BAG & NAME TAG SPONSOR

Baker Hughes