EGYPT
OIL&GAS
NEWSPAPER

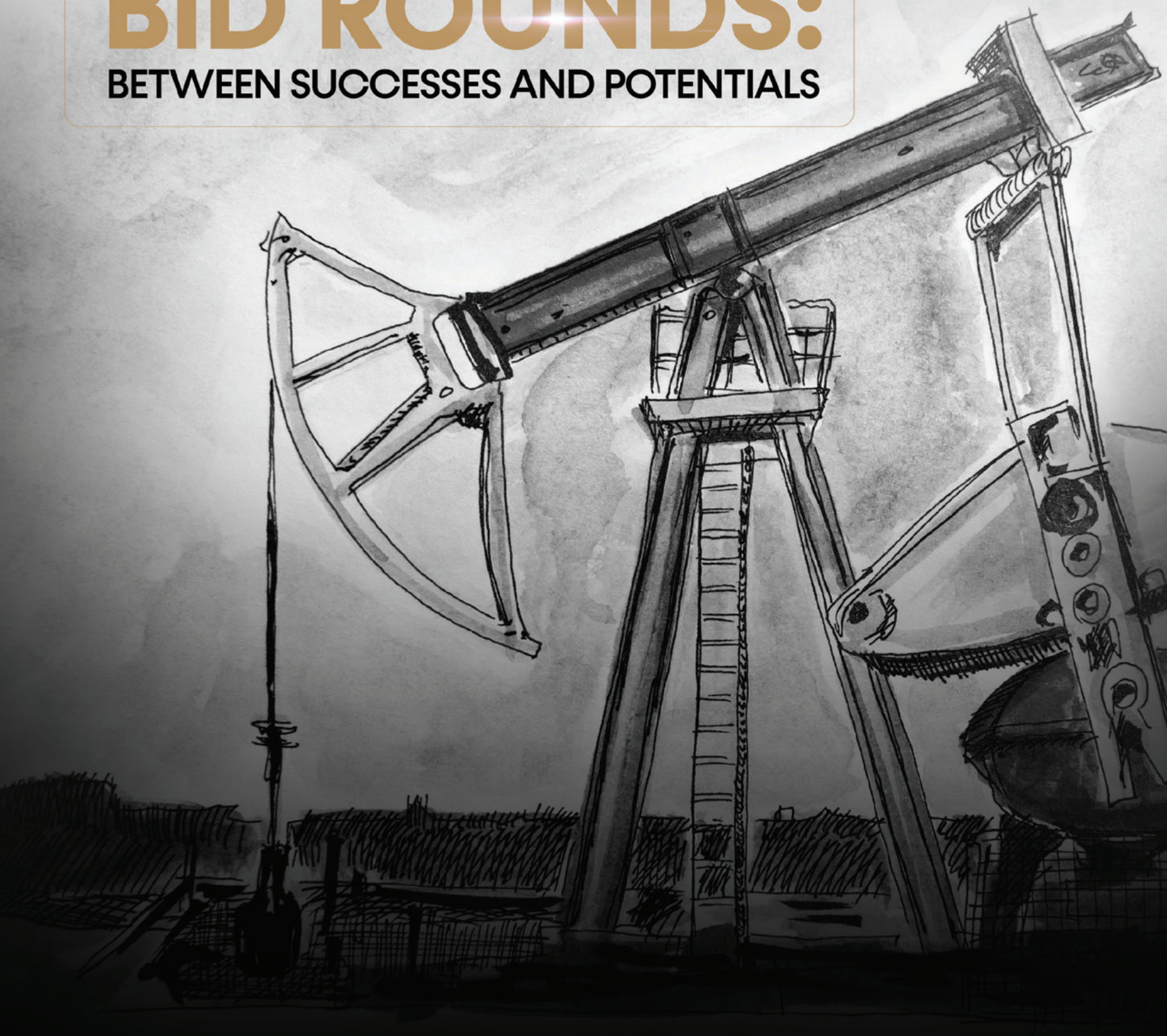
PROUDLY THE OFFICIAL PUBLICATION

EGYPS
EGYPT PETROLEUM SHOW
14 - 16 February 2022 | Egypt International Exhibition Center

ANALYTICAL REPORT

OIL & GAS INTERNATIONAL BID ROUNDS:

BETWEEN SUCCESSES AND POTENTIALS



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EDITOR'S LETTER

Exploring New Areas

The Ministry of Petroleum and Mineral Resources is aiming to attract investments to new and unexplored areas. This could be seen in the ministry's plan to offer more bid rounds to boost the exploration activities and increase production levels. In 2019, HE. Eng. Tarek El Molla the Minister of Petroleum and Mineral Resources said that recent discoveries in the Western Desert, confirm that this region is not yet fully employed, and called for foreign oil companies to intensify their exploration efforts.

He also mentioned that the total production of the Western Desert region represents about 60% of Egypt's crude oil production. In another recent meeting in 2021, El Molla stressed the need to focus on exploration activities and to expedite their completion to compensate for the natural decrease in production. The Ministry is also willing to attract more investments to the Mediterranean in order to support Egypt's goal of being regional energy hub.

Based on the importance of Exploration and Production (E&P) activities, we dedicated our June issue to discuss different upstream related topics. Our Research and Analysis team prepared a full report analyzing all the bid rounds offered by the ministry sine 2014. Moreover, we prepared an overview highlighting the importance of the western desert as an area that is not fully explored yet.

We had a good change to interview Fedir Bayuk, Naftogaz Egypt Branch Director. He shared with the us the company's recent achievements and future plans in Egypt. In our industry insights section, we discussed the technological remediation procedures in upstream sector to ensure land preservation and environmental conservation.

This month we added a new section to our issue. The section is called energy economics and will be discussing economic and financial energy related topics.

Wish you all informative read!

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

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HE. ENG. TAREK EL MOLLA

MINISTER OF PETROLEUM & MINERAL RESOURCES - ARAB REPUBLIC OF EGYPT

PART OF THE EGYPTIAN OIL AND GAS SECTOR
MODERNIZATION PROGRAM

4TH UPSTREAM TECHNICAL CONVENTION

UNLOCKING VALUE
IN AN UNCERTAIN UPSTREAM ENVIRONMENT

HYBRID EVENT

OCTOBER 2021

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TOP 5

EGYPS FIFTH EDITION TO BE HELD IN 2022

The Ministry of Petroleum and Mineral Resources announced that the fifth edition of the Egypt Petroleum Show (EGYPS) will be held from 14-16 February 2022.

After closely monitoring the COVID-19 global situation and after extensive consultation with key stakeholders, the Ministry of Petroleum and Mineral Resources has taken the decision to not hold EGYPS from 7-9 June 2021.

EGYPS signifies an important event for the oil and gas industry in North Africa and the Mediterranean. The annual event will be held on its original February dateline and will be attended by global industry leaders and exhibiting companies.

KHALDA, QARUN TO INVEST $1 B IN WESTERN DESERT DURING 2021/22

Khalda Petroleum Company and Qarun Petroleum Company announced that they will pump around $1 billion of investments in the Western Desert during the fiscal year (FY) 2021/2022, as Khalda targets to invest $830 million while Qarun will invest $252 million in different oil and gas relevant activities.

This announcement was made during the two companies' general assembly meeting which was held virtually and was headed by Minister of Petroleum and Mineral Resources, Tarek El Molla, to approve their planned budgets for FY 2021/2022.

Khalda Chairman, Saeed Abdel Moniem, declared that his company's investments will be focused on oil and gas exploration and production (E&P) activities in its concessions located in the Western Desert.

Chairman of Qarun, Ashraf Abdel Gawad, stated that his company's investments will be oriented to drilling 24 developing wells and five exploring wells, while keeping on its well maintenance and reform plan to achieve annual production rates of 9 million barrels.

EGYPT TO ESTABLISH LARGEST REFINERY COMPLEX IN AL-SOKHNA

Prime Minister Mostafa Madbouly witnessed the signature of a contract allocating a land for establishing the largest refinery and petrochemicals complex in Ain Al-Sokhna, at the Suez Canal economic zone (SCZONE), with investments worth $7.5 billion.

The contract has been signed by Chairman of Suez Industrial Development Company (SIDC), Abdel Nasser Al Refaee, and Managing Director of Red Sea National Refining and Petrochemical Company, in attendance of the Minister of Petroleum and Mineral Resources, Tarek El Molla and Head of General Authority of SCZONE, Yehia Zaki.

The project aims to meet domestic market needs of value-added petroleum and petrochemical products such as poly ethylene, poly propylene, polyester and ship fuel. It also targets to localize this industry and thus minimize state's imports of such materials.

EGYPT LAUNCHES FIRST MOBILE CNG STATION

Egypt's petroleum sector has operated the first mobile station in Egypt and the Middle East region for supplying vehicles with compressed natural gas (CNG).

The project comes in line with the petroleum sector's keenness to provide new outlets for supplying vehicles with natural gas. The project is an addition to the natural gas supply stations expansion project across Egypt. The mobile station has a capacity to supply CNG to 500 vehicles every 12 hours, which increases to 1,000 vehicles per day with refilling.

The ministry plans to deploy 10 more mobile stations in different areas to meet the people's needs especially in remote areas where there are no natural gas stations as well as tourist areas and resorts.

EMRA, NUBIAN MINES SIGN GOLD EXPLORATION CONTRACT WORTH $5.2 MM

Minister of Petroleum and Mineral Resources, Tareq El Molla, witnessed the signing of a $ 5.2 million contract between the Egyptian Mineral Resources Authority (EMRA) and the British company Nubian Mines for gold exploration in the Eastern Desert.

El Molla stated that this contract came within the framework of proceeding with inking contracts with 11 companies that were awarded 82 gold exploration blocks in Eastern Desert in the international bid round for gold exploration with total investments of $60 million.

A BLAST FROM THE PAST

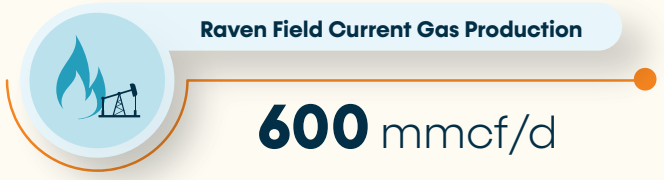
In June 2018, Mubadala Petroleum completed the acquisition from Italy's Eni of a 10% participating interest in the offshore Shorouk concession in Egypt's Zohr Field.

After the acquisition, Eni, through its subsidiary IEOC, held a 50% interest in the concession, while Rosneft owned a 30% interest, and BP held the remaining 10%.

Eni discovered the Zohr field in August 2015, and it is the largest natural gas field in the Mediterranean, with a total capacity of up to 30 trillion cubic feet (tcf) of natural gas in place. The field is about 190 kilometers north of Port Said in waters approximately 1,500 meters deep.

The project was delivered in record time with the first phase production of the Zohr gas field started in December 2017. The field produced over 1.1 billion cubic feet of natural gas per day (bcf/d), which is roughly 200,000 barrels of oil equivalent per day (bbloe/d). Production was expected to increase to two bcf/d by end 2018 and to reach a production plateau of 2.7 bcf/d by end 2019.

NUMBER OF THE MONTH



The production from the West Nile Delta Project (WND) continued in the fifth field. Production from the Raven field started in **April 2021** with an expected gross rate of **900** million cubic feet per day (mmcf/d) of natural gas and **30,000** barrels per day (bbl/d) of condensates. The onshore facilities of the WND project, including the new Raven facility, currently have a total gas processing capacity of around **1.4 billion** cubic feet of gas per day (bcf/d).

The Raven field, which was discovered in **March 2004**, is part of the WND development project that involves five gas fields including Taurus, Libra, Giza, Fayoum.

PRODUCTION

GPC STARTS INITIAL EXTRACTION FROM AL-HAMD FIELD WITH 1,500 BBLS/D

The General Petroleum Company (GPC) started its first extraction from Al-Hamd field at the Gulf of Suez concession area with a production rate of about 1500 barrels per day (bbls/d).

An official source in the petroleum sector pointed out that Al-Hamd field includes four wells, from one of which the production has started, while the remaining three wells will be successively on the production map in May.

The source also stated that the target of Al-Hamd field is to produce an average of 3,000 to 4,000 bbls/d from the four wells.

GPC SUCCEEDS TO GET INITIAL PRODUCTION OF 600 BBLS/D IN AMER- 81 FIELD

With investments of about $ 1.5 million, the General Petroleum Company (GPC) succeeded in drilling one of the oldest fields in the Gulf of Suez at a depth of 2256 meters, the development well Amer-81. The well was tested at an initial rate of 600 bbls/d.

It is expected that Amer Filed will be put on production by using an electric submersible pump, with expectations to produce about 1000 barrels of oil per day (bbls/d).

Nubia reservoir was also discovered in the field and raised the field's productivity from 4000 bbls/d to 9000 bbls/d, which marked an increase in the reserve stock of the field, as more than seven mmbbls were produced from the Nubia reservoir through 10 wells.

INVESTMENTS

EGYPT TO EXPAND OIL, GAS EXPLORATION IN WESTERN MEDITERRANEAN

Hamdy Abdel Aziz, Spokesperson of the Ministry of Petroleum and Mineral Resources, stated that the current Ministry's strategy aims to increase oil and gas discoveries especially in the Western Mediterranean.

Abdel Aziz added that there are international companies that came for the first time to Egypt and are working now on more discoveries, which are expected to enable Egypt to become a regional hub in oil and gas industry.

Abdel Aziz referred to the expansion of cooperation with the countries of Eastern Mediterranean Gas Forum (EMGF), stressing the importance of Egypt's infrastructure in this regard.

PETROJET RAISES CAPITAL TO EGP 6 B

Tarek El Molla, Minister of Petroleum and Mineral Resources, has agreed to raise Petrojet's capital from EGP 3.6 billion to EGP 6 billion.

The decision was based on the company's strategy for 2022-2026 which targets a growth rate of 15-25%. Petrojet also announced the financial results for Q1 2021 where an increase by 108% in the operational revenues over the targeted plan has been highlighted, indicating a 28% increase year-on-year (YoY).

The company achieved a surplus in operations by 115% over the initial company outlook in Q1 2021; an increase of 31% over the Q1 2020 surplus. Petrojet's net profit also increased by 35% over last year's by earning a net profit of 119% over the initial amount.

MOP, MOIC CONVENE MULTI-STAKEHOLDER PLATFORM

Ministry of Petroleum and Mineral Resources (MoP) convened a multi-stakeholder platform with the Ministry of International Cooperation (MOIC), under the title "Egypt as a Regional Energy Hub: Reforms and Prospects in the Oil and Gas Sector".

The platform was launched in attendance of officials of major foreign and private companies operating in Egypt, including Apache, TAQA Arabia, Schlumberger, and SAP. Representatives from the World Bank (WB), the International Finance Corporation, the African Development Bank, and the German Embassy were also in attendance.

The platform tries to shed light on the economic sectors that have undergone fundamental reforms during the past years,

which have contributed to Egypt's economic development. Through the platform, MOIC aims to explore cooperation opportunities with international partners involved in the petroleum sector's projects.

Tarek El Molla, Minister of Petroleum and Mineral Resources, stated that the sector's Modernization Project bore fruit and contributed to achieving many successful stories foremost of which is the signing of 98 agreements with international oil companies (IOCs) with a minimum of $16 billion in investments.

AGREEMENTS

EGYPT SIGNS AGREEMENT WITH APA TO MODERNIZE PRODUCTION SHARING CONTRACTS

APA Corporation announced that it has reached an agreement in principle with the Egyptian Ministry of Petroleum and Mineral Resources, and the Egyptian General Petroleum Corporation (EGPC) to modernize production sharing contracts in Western Desert.

According to the agreement, the two sides will sign production sharing contract (PSC) which merges most of the concessions operated by APA in the Western Desert into one concession representing 90% of the company's gross volume production in Egypt on a barrel of oil equivalent (boe) basis.

The new PSC will simplify the contractual relationship with EGPC and include provisions to create a single cost recovery pool, adjust cost oil and gas and profit oil and gas participation, facilitate recovery of prior investment, update day-to-day operational governance, and refresh the term length of both exploration and development leases.

PETROJET, TR SIGN MOU TO MANUFACTURE HEAT TRANSFER EQUIPMENT IN EGYPT

Minister of Petroleum and Mineral Resources, Tarek El Molla, witnessed the ceremony of signing a Memorandum of Understanding (MoU) between Petrojet and the Spanish company Tecnicas Reunidas (TR) to cooperate in designing, supplying, and manufacturing heat transfer equipment used in components of petroleum projects.

During the signing ceremony, El Molla affirmed the necessity of the collaboration with international companies to locally manufacture equipment and components used in petroleum projects in line with the strategy of developing the local oil sector in accordance with international standards.

El Molla also pointed out that the collaboration with international companies allows local companies to get acquainted with the latest technologies in the field of designing, manufacturing, and transferring equipment.

DOWNSTREAM

ECHEM, ETHYDCO TO ESTABLISH NEW POLYETHYLENE UNIT

Minister of Petroleum and Mineral Resources, Tareq El Molla, stated that the Egyptian Petrochemicals Holding Company (ECHEM) and the Egyptian Ethylene and Derivatives Company (ETHYDCO) plan to establish a new unit for coloring and granulating polyethylene with an investment ranges from EGP 700 to 800 million with a production target of 60,000 tons per year.

The new unit will provide colored polyethylene for the local market, sister oil companies, and various industrial institutions.

For his part, Mohamed Hassanien, Chairman of ETHYDCO, said that the establishment of the new unit comes in light of the increasing demand in the local market and the international markets as well as the high price of colored polyethylene. He also indicated that the new unit will maximize the use of the company's resources represented in the available facilities, skilled labor, and the presence of the Polyethylene factory with a production capacity of 400,000 tons per year.

EGYPT INCREASES FUEL PRICES BY EGP 0.25 IN Q2 2021

Egypt's Fuel Automatic Pricing Committee has adjusted the fuel prices and increased them by EGP 0.25 per liter for Q2 2021.

As of April 23, the prices per liter are as follows; octane 80 at EGP 6.50; octane 92 at EGP 7.75; and octane 95 at EGP 8.75. As for diesel and mazut fuel, both were set at a fixed price at EGP 6.75 per liter and EGP 3,900 per ton.

It should be noted that the prices are subject to change in the next fuel pricing committee meeting at the end of June to decide on rates for Q3 2021.

This decision was driven by the average prices of Brent crude in the global energy market and the value of the Egyptian pound against the US dollar.

NUMBER OF NATURAL GAS STATIONS TO REACH 1000 IN 2021

Minister of Petroleum and Mineral Resources, Tareq El Molla, held meeting to follow up on the natural gas car conversion project and the expansion of the natural gas service stations to reach 1000 stations by the end of 2021.

During the meeting, El Molla stated that 306 natural gas stations are currently in operation nationwide, as well as 100 natural gas conversion centers.

El Molla also mentioned that about 450,000 cars will be converted or replaced to run on natural gas within three years, with 250,000 cars to be replaced by new ones and 200,000 to be converted. He also referred to the conversion of 42,000 cars to run on natural gas from July 2020 till now despite the challenges of COVID-19 pandemic, bringing the total number of cars running on natural gas to about 360,000 since the start of this initiative till now.

MOP TO CONNECT 1.2 MILLION HOUSEHOLDS TO NATURAL GAS IN FY 2021/22

Egypt aims to connect 1.2 million housing units to natural gas in the upcoming fiscal year (FY) 2021/22, the Minister of Petroleum and Mineral Resources, Tarek El Molla, stated.

The state's current plan for FY 2020/21 aims to connect one million households with natural gas. The ministry has exceeded that goal by 102%; reaching over one million households from July 2020 until the end of April 2021. Additionally, it includes connecting natural gas to about 80 new areas, so far 79 areas have been connected to the natural gas grid.

As for the state's Hayat Kareema initiative, the state has already connected 59 villages to natural gas and plans to include 14 villages in the upcoming fiscal year. The state has also installed about 266,000 prepaid meters. The ministry also began the survey works necessary to implement the ground networks of 217 other villages.

SAAD EL-DIN STARTS TRIALS FOR NATURAL GAS DELIVERY VIA TANKERS

Mohamed Saad El-Din, Chairman of the Board of Directors of Saad El-Din Group and the Liquefied Petroleum Gas (LPG) Investor Association, announced the launch of the first operating trial of transporting natural gas by tankers, that came in alignment with the state's plan to make the natural gas an alternative fuel for all industrial areas located far from the national gas pipelines.

Saad El-Din also said that Sinai Gas Company has completed the development of the project's infrastructure which will transport natural gas to the industrial sector in the Abu Zenimah area via tankers.

Abu Zenimah area is expected to receive about 60,000- 70,000 cubic meters of natural gas per day during the first phase of the project.

COOPERATION

EGYPT, CÔTE D'IVOIRE TO BOOST COOPERATION IN ENERGY

Egypt's Ambassador to Abidjan, Wael Badawi, met with Thomas Camara, Ivorian Minister of Mines, Oil, and Energy, to discuss ways of promoting cooperation between Egypt and Cote d'Ivoire in the energy and mining fields.

Badawi showcased the progress made by the Ministry of Petroleum and Mineral Resources as well as the Ministry of Electricity and Renewable Energy in Egypt, noting that Cairo is keen to cooperate with African countries. He also added that the Egyptian companies in Cote d'Ivoire are ready to cooperate with the Ivorian government in establishing projects in the energy sector.

For his part, Camara welcomed the collaboration with Egypt, referring to Egypt's experience in the energy sector and highlighting country's aim to combat the illegal exploration of gold, diamonds, and other minerals. The minister also highlighted his country's desire to raise the efficiency of the oil refinery in Abidjan and to increase the amount of oil that can be exported to West African countries.

EGYPT, BELGIUM DISCUSS STEPS TO GREEN HYDROGEN PRODUCTION

In the presence of Minister of Petroleum and Mineral Resources, Tarek El Molla, Minister of Electricity and Renewable Resources, Mohamed Shaker, met Francois D'Elzius, Belgium Ambassador to Egypt, and the representatives of Belgian DEME Group, to discuss the steps taken in the direction of green hydrogen production and to enhance cooperation between Egypt and Belgium.

At the beginning of the meeting, Shaker praised the outstanding cooperation between Egypt and Belgium in various electricity-related fields, highlighting Egypt's keenness to benefit from the Belgian expertise in green hydrogen field in light of the intent agreement signed between the companies affiliated to the petroleum and electricity ministries and Abu Qir Company with DEME Group.

El Molla praised the efforts of DEME to start taking serious steps toward green hydrogen production, stressing these steps are in line with the Egyptian strategy to be a regional hub for energy.

WINTERSHALL DEA

WINTERSHALL DEA, BP GET APPROX 600 MMSCF/D OF GAS FROM RAVEN FIELD

Wintershall Dea and operator BP managed to get a gross production of gas from Raven, the fifth field of the offshore West Nile, estimated approximately at 600 million standard cubic feet of gas per day (mmscf/d). At its peak, the Raven field is expected to deliver a gross production of 900 mmscf/d and approximately 30,000 barrels of condensate per day (gross production.

The onshore facilities, including the new Raven facility, now have a total gas processing capacity of around 1.4 billion standard cubic feet of gas per day (bcf/d).

Wintershall Dea, Europe's leading independent gas and oil company, holds a 17.25 per cent stake in the West Nile Delta project, with BP holding the remaining 82.75 per cent as operator.

WINTERSHALL DEA PRODUCES 659 MMBOE/D IN Q1 2021

Wintershall Dea has recorded production of 659 million barrel of oil equivalent per day (mmboe/d) during the Q1 of 2021, which will allow the achievement of the full year guidance of 620-640 mmboe/d.

The company succeeded to reduce the production costs by 18% to reach €3.2 per barrel, Year over Year (YoY) during this period. The company also lowered its production and development Capital Expenditures (CapEx) by 28%, hitting €239 million.

These results are attributed to the record production and the stability of the external environment which managed the company to increase its Earnings Before Interest, Taxes, Depreciation, Amortization, Exploration Expense (EBITDAX) up to €704 million and to raise its free cash flow up to €400 million.

ENERGEAN

ENERGEAN ANNOUNCES 2020 FINANCIAL, OPERATING RESULTS

Energean Oil and Gas plc, the oil and gas producer focused on the Mediterranean, announced its audited full-year results for the year ended 31 December 2020 ("FY 2020").

Despite the challenges of 2020, Energean was able to report extraordinary achievements that are going to reinforce the company's position and open new expansion horizons with a significant production increase and the completion of the acquisition of Edison E&P. In Egypt, the company has successfully sanctioned the high-return NEA/NI projects and successfully completed a $2.5 billion bond issuance at extremely attractive rates.

What was more significant was the company's commitment to the net zero target, while vying to apply new technologies to older fields, converting them into carbon capture and underground storage facilities.

The company also focused in Egypt on driving Value Through Committed Investment Programme, Cost Optimisation, Production Efficiencies & Strong Focus on Working Capital.

UOG

UOG HITS REVENUES OF $9MM IN EGYPT IN 2020

United Oil & Gas PLC (UOG) recorded $9 million as group revenues in Egypt in 2020, with a total of $0.85 million profit in 2020.

Throughout 2020, UOG made a completion of Rockhopper Egypt acquisition including a successful equity placing, and the re-admission of the enlarged group to AIM, which helped to get its production average up to 2,195 barrels oil equivalent per day (bbloe/d).

UOG's success at the ASH-2 and ES-5 development wells increased working interest production from 1,709 bbloe/d on March 1 2020 to 2,389 bbloe/d on December 31 2020. At the end of 2020, the company recorded 24 % increase in Abu Sennan Gross 2P Reserves to reach million barrels of oil equivalent (mmboe).

UOG SUCCESSFULLY TESTS ASD-1X AT LOWER BAHARIYA, ARC

United Oil and Gas (UOG) has successfully tested the ASD-1X exploration well in the Abu Sennan concession in the Lower Bahariya and Abu Roash C (ARC) reservoirs and reached a Total Depth (TD) of 3,750 meters on March 30, several days ahead of schedule and under budget.

Initial short-term test results from the Lower Bahariya reservoir indicated a maximum flow rate of 1,619 barrels of oil per day (bbl/d) and 2.840 million standard cubic feet of gas per day (mmscf/d) on a 64/64 choke. tThe initial short-term test results from the ARC reservoir show a maximum flow rate of 1,215 bbl/d and 1.371 mmscf/d on a 64/64 choke.

Accordingly, Kuwait Energy Egypt (KEE), submitted a notice of commercial discovery and an application for a development lease at ASD-1X to the Egyptian General Petroleum Corporation (EGPC). Upon approval, production would be expected to commence shortly.

ENI

AL-SISI SUPPORTS ENI'S ENDEAVORS TO EXPAND ACTIVITIES IN EGYPT

President Abdel Fattah Al-Sisi expressed his support for Eni's endeavors to expand its investments in Egypt in the field of exploration and production (E&P) and to continue its fruitful cooperation with the Egyptian state.

Both sides discussed the reoperation of the liquefied natural gas (LNG) plant in Damietta with full capacity to export to all international markets. This provides an added value to Egypt in the field of liquefied gas and strengthens its position in the production and trading of gas from the eastern Mediterranean to the entire world.

The meeting also discussed the cooperation with Eni in the field of hydrogen production to generate energy in Egypt within the Egyptian efforts to attract foreign investments in the field of modern uses of renewable energy.

ENI, SANTOS SIGN MOU TO COOPERATE IN NORTHERN AUSTRALIA, TIMOR-LESTE

Eni and Santos have signed a non-binding memorandum of understanding (MoU) to identify potential new areas of collaboration in northern Australia and Timor-Leste, including but not limited to developments of offshore Australian fields and extending the life of Timor-Leste's Bayu-Undan.

Under the terms of the MoU, the companies will seek cooperation in optimizations, synergies, and sharing of infrastructure between the Barossa Project and the Evans Shoal development, including the potential expansion of Darwin liquefied natural gas (LNG) and options to repurpose and extend the life of Bayu-Undan.

ENI STARTS GAS PRODUCTION FROM MERAKES PROJECT IN INDONESIA

Eni announced that it has started to produce natural gas from the Merakes Project, located at the East Sepinggan block in the Makassar Strait in Indonesia.

The project is a development deep-water gas field at offshore Kutei Basin and it will produce about 450 million standard cubic feet per day (mmscf/d) which is equivalent to 85,000 barrels of oil equivalent per day (boe/d).

The natural gas produced from this project is to be exported to the Jangkrik FPU through subsea pipelines and then pumped to the Onshore Receiving Facility (ORF) in Senipah, after being processed via the existing Jangkrik export pipelines.

DANA GAS

DANA GAS TERMINATES EGYPTIAN ASSETS SALE AGREEMENT

Dana Gas has terminated its agreement related to the sale of its Egyptian assets with IPR Wastani Petroleum Ltd.

A number of conditions needed to close the deal could not be completed by the deadline set down in the sale and purchase agreement (SPA), which was reached on Wednesday 14th of April 2021. As a result, Dana Gas board has decided to maintain and operate assets in Egypt alongside the offshore Block 6.

According to Abu Dhabi stock exchange (ADX), the company is required to specify the financial impact of the decision. In this regard, the company stated that it would have "positive consequences on the company's profitability and balance sheet and improvement in its cash flow in the coming years."

DANA GAS INCREASES PRODUCTION BY 2% YOY

Dana Gas's total production has averaged around 64,900 barrels of oil equivalent per day (bbloe/d) indicating a 2% increase compared to 63,650 bbloe/d in Q1 2020.

The company's production in Egypt has recorded 29,050 bbloe/d during Q1 2021, showing a decline of 5% that was balanced by the increase in production in the Kurdistan Region of Iraq (KRI). The company has collected $23 million during Q1 from Egypt and its receivables at quarter-end recorded $131 million.

The company's net profit rose up 41% in Q1 2021 reaching $24 million against $17 million in Q1 2020. That was mainly due to improved revenue of $106 million due to higher production in KRI alongside a reduction in finance cost.

DANA GAS, CRESCENT PETROLEUM RESUME KHOR MOR EXPANSION PROJECT

Dana Gas along with its partner Crescent Petroleum have resumed the expansion project at the Khor Mor (KM) field in the Kurdistan Region of Iraq (KRI), which the companies jointly operate on behalf of the Pearl Petroleum consortium.

The KM250 expansion project includes a further $600 million investment to add 250 million cubic feet per day (mmcf/d) of natural gas production to supply the local power stations.

The project construction was suspended due to the COVID-19 pandemic, but it was resumed for a new target start date of April 2023, following the agreement to lift the force majeure with the Kurdistan Regional Government (KRG) and the contractor. The natural gas produced by both companies covers more than 80% of the KRI's electricity production.

TRANSGLOBE

TRANSGLOBE PRODUCTION AMOUNTS TO 11,009 BBL/D IN APRIL

TransGlobe Egypt has announced that its production averaged around 11,009 barrels of oil per day (bbl/d) in April and recorded 10,238 bbl/d throughout Q1 2021.

The company began production from SGZ-6X well located in the South Ghazalat concession, Western Desert, on March 21 with an estimated production rate of about 3,600 bbl/d of light oil on a 32/64-inch choke with 0% water cut.

Soon after, the well was restricted to a field-estimated about 1,000 bbl/d of light oil on a reduced choke, to facilitate reservoir data gathering. Production then averaged at 188 bbl/d during the quarter and at about 996 bbl/d in April.

The EDC-64 rig was relocated to the company's concessions in the Eastern Desert to begin the 12-well drilling program in May.

NAFTOGAZ

NAFTOGAZ RAMPS UP OIL PRODUCTION BY 20% IN EGYPT'S WESTERN DESERT

Naftogaz Group ramped up oil production from its assets in the Western Desert of Egypt by more than 20% or 600 barrels per day (bbl/d).

Accordingly, Naftogaz Group is expected to earn additional revenues from its operations of about $400,000 per month, if current oil prices as $60 per barrel and the current production levels are sustained.

OIL & GAS INTERNATIONAL BID ROUNDS: BETWEEN SUCCESSES AND POTENTIALS

BY: AMINA HUSSEIN, REHAM GAMAL, AND TASNEEM MADI

Bidding processes play a vital role in flourishing the exploration activities and creating an attractive investment climate for Egypt's hydrocarbon industry, which leads to promoting the Egyptian petroleum agreements.

Currently, more than 60 international oil companies (IOCs) are engaged in Exploration and Production (E&P) activities in 183 areas in Egypt. The areas are offered by and under the supervision of the affiliated authorities to the Ministry of Petroleum and Mineral Resources (MoP) represented in the Egyptain General Petroleum Corporation (EGPC), the Egyptian Natural Gas Holding Company (EGAS) and Ganoub El Wadi Petroleum Holding Co. (Ganope), explained in the MoP's website.

With offering more bid rounds and boosting the exploration activities, the total number of discoveries were recorded to be 78 during fiscal year (FY) 2019/20, as stated by the MoP. Consequently, Egypt's total proven reserves of crude oil and natural gas jumped to 3.1 billion barrels and 75.5 trillion cubic feet (tcf), respectively, at the end of H1 2019/20, according to the statistical review of BP Global Energy 2020.

1. INTERNATIONAL BID ROUNDS OVERVIEW OVER FYS (2015/16-2019/20)

In line with elevating exploration activities and opening up several investment scopes, the MoP successfully launched five international bid rounds over the past five FYs. The supervised authorities, Ganope, EGAS and EGPC offered a total of 80 blocks; 31 of which were awarded with minimum investments of about $1.9 billion and total drilled wells of 126, according to the MoP.

2. SIGNED AGREEMENTS & DEVELOPMENT LEASES DURING FY 2019/20

The total signed agreements in FY 2019/20 were greater than the previous FY by nine agreements, in addition to five amendments, according to the MoP data.

EGAS had a large share of 30% of the total signed agreements in FY 2019/20. In addition, the gas price was amended in two agreements. During the same year, the Egyptian House of Representatives approved nine agreements signed by EGAS with a total signature bonus of $24 million, total investments of $981 million, and drilling commitments of 18 wells, according to EGAS Annual Report 2019/20.

Furthermore, development leases signed by EGAS represented 13.3% of the total signed development leases in FY 2019/20, with a total signature bonus of $300,000. The leases were signed with SDX Energy and Dana Gas, according to EGAS Annual Report 2019/20.

The signed agreements opened the doors for the entry of new international players to the upstream activities in Egypt like ExxonMobil, which won an exploration area for the first time in its history in Egypt.

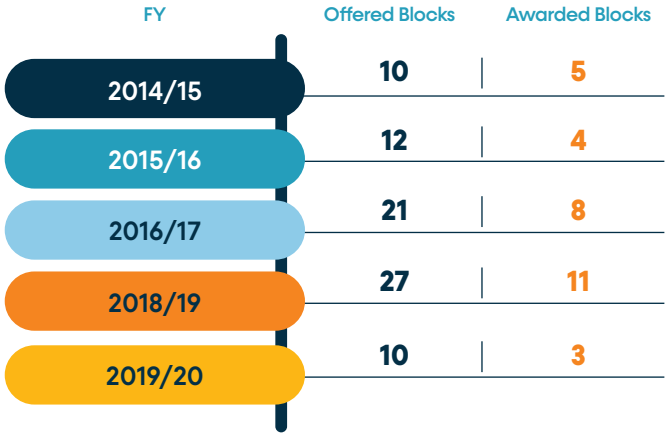
INTERNATIONAL BID ROUNDS OVER FYS (2015/16-2019/20)

BID ROUNDS PER AUTHORITY

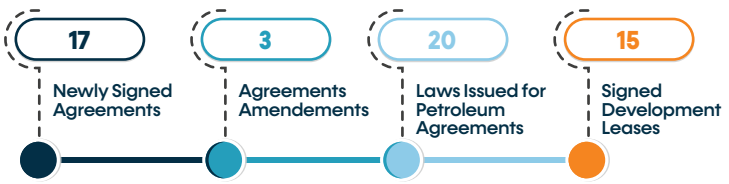
Authority	Offered Blocks	Awarded Blocks	Signature Bonus ($ millions)	Minimum Investments ($ millions)	Wells
GANOPE	30	10	66.75*	652	35
EGAS	28	9	49.5	906.15	29
EGPC	22	12	132.6	344.5	62

*Number does not include the last bid round (Red Sea).

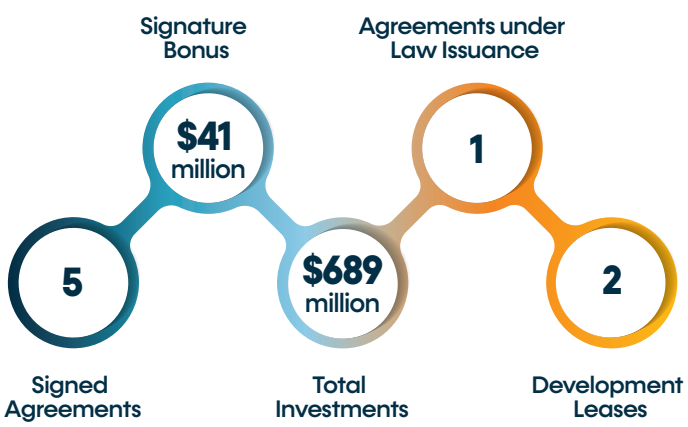
BID ROUNDS PER FY



PETROLEUM AGREEMENTS & DEVELOPMENT LEASES IN FY 2019/20



EGAS AGREEMENTS & DEVELOPMENT LEASES IN FY 2019/20



3. LATEST BID ROUNDS

EGAS, EGPC, and Ganope have launched two international bid rounds, in 2019 and 2021 for exploration and exploitation of crude oil and natural gas in the Red Sea, the Mediterranean Sea, the Western Desert, and the Gulf of Suez. The three concessionaires offered a total of 34 blocks for bidding.

I. RED SEA BID ROUND

In 2019, Ganope launched the first ever international bid round in the Red Sea, which is one of the most promising areas. The steps towards the exploration of wealth in the Red Sea waters came from political support, as the signature of the demarcation agreement of the maritime borders between Egypt and Saudi Arabia allowed the petroleum sector to launch this bid round.

The bid round offered 10 offshore blocks, according to the Egyptian production sharing agreement (PSA), for upstream operations, covering a total area of 30,579 km², according to Ganope official website.

The awaited results of the bid round were announced in December 2019, where three blocks were awarded to three IOCs, a total exploration area of 10,000 km², and a minimum bidding investments of $326 million, according to the MoP official website.

II. EUG BID ROUND

In February, Egypt launched the first international digital bid round through Egypt Upstream Gateway (EUG) project, offering 24 blocks. The offered blocks are located in the Mediterranean Sea, the Western Desert, and the Gulf of Suez. Nine blocks are offered by EGAS, while the other 15 blocks are offered by EGPC. It is worth noting that the application for the bid round will end by August, according to the EUG website.

4. AREAS OF POTENTIAL

I. RED SEA

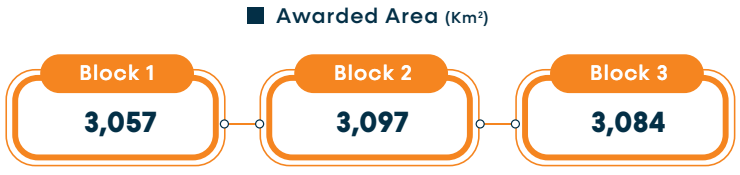
The Red Sea Province is considered one of the most promising areas for oil and gas exploration. The province consists mainly of three sections including the Gulf of Suez, the Gulf of Aqaba, and the Red Sea.

In 2010, the United States Geological Survey (USGS) divided the Red Sea section into three parts and estimated the undiscovered hydrocarbon reserves.

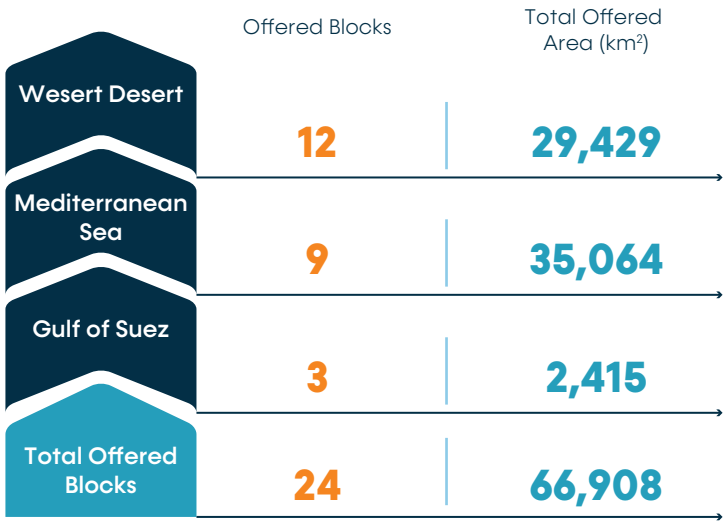
In April 2016, Egypt and Saudi Arabia signed a bilateral agreement to demarcate the maritime borders. A month after the demarcation agreement, Egypt announced its plans to start exploration in the region. The exploration process started with the signing of a $750 million contract between Ganope on one side and Schlumberger and TGS on the other side. Under the terms of the contracts, the companies began conducting seismic surveys in the Red Sea to collect geo-science data in preparation for E&P activities, according to the MoP website.

Following the launch of an international bid round in the Red Sea, IOCs were attracted by the potentials of the area which resulted in signing three E&P agreements by June 2020. Two of these agreements brought in $213 million as minimum investments in the area, while the details of the third one are not released yet, according to a press release by the MoP.

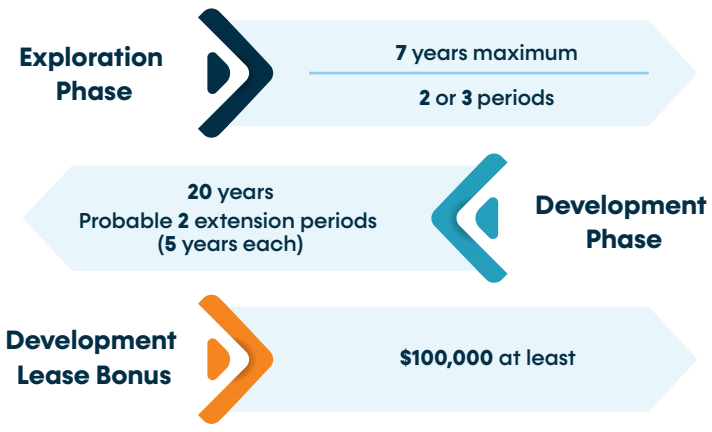
RESULTS OF GANOPE BID ROUND IN THE RED SEA



OFFERED BLOCKS IN EUG 1ST BID ROUND



EUG BID ROUND DETAILS



USGS ESTIMATES FOR THE RED SEA UNDISCOVERED RESOURCES

Area	Crude Oil Reserves (mmbbl)	Natural Gas Reserves (tcf)
Red Sea Coastal Fault	1,254	21.95
Red Sea Salt Basins	2,731	76.22
Red Sea Axial Rifts	170	5.1

II. THE MEDITERRANEAN SEA & NILE DELTA

EGAS reflects the great potential for IOCs to conduct more activities and surveys in the Mediterranean Sea and Nile Delta. According to the seismic surveys in Mediterranean region, in FY 2019/20, a 3D seismic survey was held with a 321 km² in North El Arish by Dana Gas. Additionally, there is an ongoing 2D seismic survey program.

The number of approved agreements in the Western Mediterranean region is a total of seven; this is with regards to awarded blocks in various areas of 28,847 km² total. During the first exploration phase, a 3D seismic survey is estimated to be carried out on an area exceeding 20,514 km². As part of FY 2020/21's targets, carrying out a 3D seismic acquisition program (SPEC) with a minimum of 10,000 km² by Petroleum Geo-Services Co. (PGS) in the West Mediterranean region. Moreover, in the newly awarded blocks in the previously mentioned region, another 3D seismic survey of over 17,000 km² to be carried out, according to EGAS annual report in FY 2019/20.

As a result of the continuous seismic surveys, in FY 2019/20, the number of drilled wells increased by 50% compared to that in FY 2018/19. It is worth noting that seven wells were newly discovered out of the total wells in FY 2019/20.

5. MOST ACTIVE IOCS IN LATEST BID ROUNDS

The most active companies are selected according to the recent agreements and bid rounds' results. According to Ganope's Red Sea bid round in 2019, Shell, Chevron and Mubadala have been awarded three blocks as an overall. In EGAS' bid round in 2018, ExxonMobil, BP, Eni through its subsidiary IEOC, Total, Shell, Wintershall Dea, and Petronas were the winners for five blocks. Additionally, during EGPC's bid round in 2018, Shell, Merlon, and Eni won six blocks in total.

Shell was awarded four blocks without point participation with another company all along the previous three bid rounds in 2018 and 2019 for exploration activities. Being one of the most active companies, Shell won the BT100 award for the most growing investor in Egypt's oil and gas field, according to a press release on March 31, 2021.

Wintershall Dea and Eni are considered very active in supporting Egypt's role in digital transformation. Accordingly, Wintershall Dea and Eni became golden EUG members. Besides the companies' ongoing operations, they were awarded one block for each company in 2018's bid rounds separately. As published in the Official Gazette, Chevron was given the right to explore for oil and gas in Sidi Barrani's offshore area in the Mediterranean Sea.

6. MOP'S EFFORTS FOR OPENING UP NEW OPPORTUNITIES FOR E&P ACTIVITIES

The Ministry's main strategy is to attract further investments, and enhance cooperation throughout various incentives, facilities, and suitable investments climate through launching several bidding processes. Hence, in accordance with the global trend towards automation and digitalization, and in line with pillar seven of the Modernization Project, Egypt launched its first digital subsurface platform, which is EUG, in collaboration with Schlumberger. The start of this platform was in February 2020. The Ministry announced the first digital bid round on the platform in 2021.

EGAS carried out several promotion activities to provide investors with more opportunities, to increase the exploration acreage and attract foreign investments. Hence, EGAS has prepared various physical data rooms that are attended by technical teams of major companies to review the 3D seismic and well data in the open acreage and awarded some major companies with a number of blocks under its promotion plan, according to EGAS Annual Report for FY 2019/20.

AGREEMENTS IN THE RED SEA IN JUNE 2020

Agreement	Concession	Minimum Investment ($ million)	Drilling Commitment (Wells)
1	Block 1	110	2
2	Block 3	103	2

EXPLORATION ACTIVITIES IN FY 2019/20

Region	Drilled Wells
Mediterranean Sea	8 (+1 Suspended Well)
Nile Delta	3
Total	12
Success Ratio	64%

ACTIVE COMPANIES IN 2018 & 2019 BID ROUNDS

Companies	Bid Rounds	Awarded Blocks	Location
Merlon Petroleum	EGPC 2018 Bid Round	North Beni Suef	Eastern Desert
		NW El Amal	Gulf of Suez
Eni		SE Siwa	Western Desert
Shell		West El Faiyum	
		SE Horus	
		South Abu Sennan	
Wintershall Dea	EGAS 2018 Bid Round	East Damanhur	Nile Delta
Eni with BP		West Sherbin	
Petronas & Shell		North Sidi Gaber	Mediterranean
		North El Fanar	
ExxonMobil, BP, IEOC,Total, Shell & Petronas		North East El Amreyia	
Shell	Red Sea Offshore Bid Round 2019	Block 3	Red Sea
Chevron		Block 1	
Shell & Mubadala		Block 4	

Moreover, the Minister called for expediting the digital transformation process and utilizing programs such as Supervisory Control and Data Acquisition (SCADA) and Enterprise Resource Planning (ERP), according to a press release on March 30, 2021.

The MoP acknowledged the results of the offered bid rounds as a stunning sign that paves the way for more investment prospects within the region. With this regard, the Modernization Project came with a pillar with specific mechanisms dedicated to attracting more investments; this is through the development of the bidding system in the exploration domain, simplification of procedures and shortening of timelines.

Furthermore, launching these bid rounds came to comply with the MoP's strategy to achieve the optimum economic use of oil and gas resources potentials, leading to the sustainable development with an ambitious vision of Egypt becoming a pre-eminent natural gas hub in the Mediterranean region.

BRIGHT OUTLOOK FOR EGYPT'S UNTAPPED POTENTIALS

INTERVIEW WITH NAFTOGAZ EGYPT BRANCH DIRECTOR FEDIR BAYUK

BY SHAIMAA BEHERY

Exploration and Production (EP) stage in the Oil and Gas field is a process that requires real drudgery that must be applauded especially when it is followed by lucrative results. That's why, Egypt Oil and Gas (EOG), who is always keen to shed the light on striking examples of upstream breakthroughs, conducted this interview, with a company managed recently to reach production results too remarkable to be overlooked.

How did Naftogaz group manage to ramp up its oil production from its assets in the Western Desert of Egypt by more than 20%?

Start of 2021 hydraulic fracturing campaign at AES-E6 field has given the possibility to enhance hydrocarbons influx from carbonate and sandstone reservoirs of Abu Roash formation, thus improving performance of stimulated wells.

How does Naftogaz see the petroleum potentialities of the Western Desert and does Naftogaz have prospective plans relevant to this area?

Naftogaz considers the potentialities of the Western Desert as promising, so our asset in the Western Desert remains our main one in Egypt. Our actions, particularly developing current assets through hydraulic fracturing and water flooding, which we have already started prove this considerable potential. Moreover, Naftogaz is participating in the current bid round, which includes blocks in the Western Desert, for which we have great expectations.

What are the enablers that helped Naftogaz increase natural gas delivery from the fields in Egypt in 2020 by 40%?

When one of the oil wells was watered, it was recompleted to a gas bearing zone, where it showed the capability to produce with a rate of 9.5 MMscf/d. Also commissioning of a gas boosting compressor at HG field gave us the possibility to evacuate additional associated gas.

What does Naftogaz look forward to this year on the level of natural gas delivery from Egypt?

With the support of the EGPC, it is planned to replace low efficiency rented gas compressors with two sets purchased from one of EGPC affiliated companies, thus reaching maximum possible capacity regulated by the gas grid of Abu Sannan Area.

What are the Naftogaz results on the levels of production and investments in the first quarter of 2021?

In the first quarter of 2021, Naftogaz invested USD 7.4 million in the projects in Egypt and a total of USD 537 million since the commencing of its activities in Egypt.

At the same time, the decline in oil production was eliminated after an aggressive workover campaign for the idle wells, also the commencement of a pilot water flooding project at AES-E3 field gave promising expectations, which encourage us to develop further mentioned and other projects for secondary oil recovery.

What about the company's main goals for the second half (of 2021)?

Naftogaz's production target is to ramp up oil production by a further 20% through wells stimulation, then to work on tasks to reduce decline by adding new reserves.

The company's main strategic goals are: to enhance the productivity of the deep wells via hydraulic frack stimulation technique, to develop further the started and to initiate new waterflooding projects, and to reduce renting expenditures via investing in own assets.

Where does Egypt stand in Naftogaz new corporate strategy-2025?

The main goals of Naftogaz in Egypt for the second half of 2021, as well as in our corporate strategy-2025 are, in particular, the optimization of existing assets. Given the previously stated interest in new promising areas in Egypt, Naftogaz is taking steps to participate in new projects to obtain the maximum positive economic effect. Thus, we are participating in the bid round, which EGPC and EGAS announced in February 2021 for 24 prospective onshore and offshore areas. Naftogaz has already joined the EUG platform and is studying the available information on the offered areas.

What is the role Naftogaz can assume in Egypt's mission to be a regional hub for natural gas?

Egypt and Ukraine are long-standing partners in many sectors of the economy. Naftogaz highly appreciates the reforms which the Egyptian Government currently actively implements in all areas, including the oil and gas sector. With the assistance of the EGPC and other partners, Naftogaz will work to increase gas production through our operating company. That will consequently strengthen Egypt's role as a regional natural gas hub, strengthen its prospects as a gas supplier to European markets. As a national oil and gas company of Ukraine, which is interested in economically feasible gas imports, Naftogaz paid attention to the prospects of gas supplies from Egypt to Ukraine's neighbors, such as Hungary and Lithuania.

What are the current steps taken by Naftogaz to achieve its goal of carbon neutrality by 2040?

In accordance with the approved Naftogaz Group corporate strategy-2025, to achieve the goal of carbon neutrality by 2040, the new "Low Carbon Businesses Platform" is being created. Our ambitious objective in the frame of corporate strategy is to invest approximately USD 1 billion in emission reductions, hydrogen and biofuel production, carbon capture, use and storage. The goal of Naftogaz to achieve carbon neutrality by 2040 is being applied in line with European Union's net-zero 2050 strategy. Naftogaz is already developing a network of electric car charging stations under the WeEnergy brand.

UPSTREAM REMEDIATION: STRIKING GREEN IN BROWNFIELDS

BY RANA AL KADY

Upstream activities have a huge role to play in environmental impacts and could result in high carbon dioxide emissions, increased energy consumption, air pollution, water pollution, soil pollution, deforestation, flooding, and even endangered biodiversity. Land clearing, hydrocarbon extraction from inside the soil, feasibility testing, construction and processing, transportation, storage, and distribution to the first customer are all part of the upstream phase in the oil and gas sector; all of which require technological remediation procedures to ensure land preservation and environmental conservation.

For environmental conservation operations, there are a variety of remediation methods that may be categorized as in situ or ex situ, for soil, surface, or groundwater remediation, or based on the physics or chemistry of the procedure. The vast majority of approaches are classified as physical procedures, with only one biological procedure, biodegradation, falling into this group. Chemical therapies entail the use of chemicals to aid in the retrieval of dangerous material, while physical treatments entail the physical removal of the risk. The main benefits of different remediation approaches are determined by their large-scale applicability and total cost.

TECHNICAL INNOVATIONS

Most sites are remedied using one of three main techniques, which are used independently or in combination; contaminants could be removed or altered, extracted or separated from natural media, or immobilized. Furthermore, the following treatment technologies are capable of eliminating contaminants by modifying their chemical/physical structure: chemical, biological or thermal remediation technologies. Stabilization, solidification, and containment technologies, such as installation in a protected landfill or building of slurry walls, are all examples of immobilization technologies (i.e. physically and chemically remediating contaminated upstream sites).

Since no immobilization technology is ever completely successful, some level of upkeep is needed. For the remediation of areas polluted by metals or other inorganic species, stabilisation methods are often suggested. To arrive at the most efficient treatment system, the most effective contaminant distribution pathways should be used in the selection and incorporation of technologies. More air may be transported by soil than water, for instance. As a result, Soil Vapour Extraction (SVE) would be a more effective isolation technique than soil flushing or washing for a reactive toxicant in soil that is practically insoluble in water.

Petroleum hydrocarbon-contaminated soils can be found in both used and reclaimed areas. During the years of commercial activity on upstream sites, spills and leakage of coal, kerosene, fuels, diesels, lubricating oils, and related chemicals may have caused environmental concerns. Polychlorinated biphenyls (PCB), as well as metals like zinc, lead, and cadmium, contaminate certain soils at brownfield sites. However, even though certain processes are necessary and crucial to upstream activities (such as hydraulic fracking), it is important to recognize that there is a limit as to what environmental impacts could be avoided.

On that note, Fracking is an advanced drilling method that uses high-pressure water and added chemicals to crack the rock surface to remove the extracted oil and gas. Nevertheless, most environmentalists consider fracking to be a recent issue due to the use of groundwater and the need to dispose of waste solutions that can be hazardous after coming into contact with underlying soil, as well as the volatile rock fracking activity through which the crack can stretch to an unknown duration underground. Nonetheless, fracking technology has benefits over traditional exploration in terms of allowing the extraction of natural gas reserves; as a result, ground-breaking fracturing methods are being introduced to minimize environmental effects and consumption of resources.

For upstream oil and gas organizations, site owners, and regulators, a standard collection of remediation requirements are recommended. Upstream petroleum sites, which include well sites, batteries, compressors, upstream waste disposal plants, or other facilities affected by primary drilling, extraction, or transportation of unrefined petroleum resources, are covered by a set of regional guidelines tailored to the site's conditions.

THE WAY FORWARD

The discussed and studied state-of-the-art technologies reflect significant recent developments in Exploration and Production (E&P) that exploited the potential of sophisticated analytical technologies for operational optimization. Not only have information systems and technologies advanced operation management and automation, but data collection and understanding have opened up new avenues for applying technological advancements, due to the rapid growth in computing capacity that has happened recently. As noted by an Operations and Maintenance Manager, who preferred anonymity, "the effect of COVID-19 made most companies less concerned about environmental problems. This does not mean that environmental problems are not taken care of by the trained staff, it means that technology is evolving so that remote solutions can fix upstream brownfield operations so that the ground and water sources are not polluted by such activities."

As a result, investments in the oil and gas upstream industry are significant and are projected to have totaled $382 billion, with North America accounting for almost 30% of the figure. The investments are distributed through a diverse variety of private industries that aim to develop the most effective and creative technologies that will enable them to break into the market, as well as large corporations looking to retain their power and impact.

Furthermore, exploration and production of oil and gas are inherently dynamic and so the investment operations. In fact, health, atmosphere, technological problems, environmental restrictions, and regional issues are only a few of the obstacles that production companies face. The feasibility and viability of certain exploration areas that face geological difficulties have improved as a result of continued innovation.

To conclude, the oil and gas industry's upstream processes have a number of phases before producing the final product of oil and gas. Flaring, fracking, and manufacturing operations will continue to have a negative impact on air emissions, global warming, ozone degradation, and public health degradation. From mobilization equipment to drilling operations, and well completions will all have an impact on the air and soil quality during the exploration and production phases.

In other words, these negative effects are suspected to contaminate soil as well as groundwater sources, posing health and environmental threats. The degree and scope of the risk are determined by the amount of material released, its location, exposure mechanisms, and susceptibility to contaminant sources.

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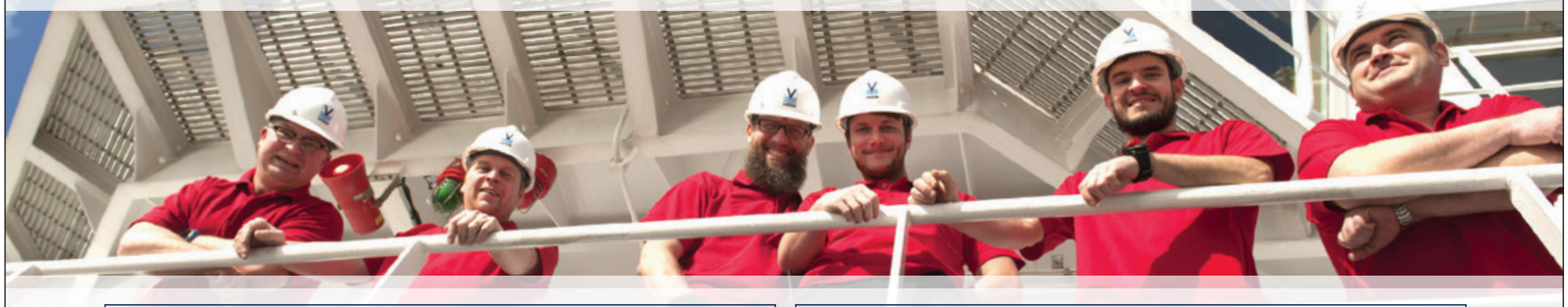

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UNLEASHING TREASURES IN EGYPT'S WESTERN DESERT

BY FATMA MOHAMED AND LOBNA HEFNY

There is an undeniable growing tendency from the government, international companies, and geoscientists to the Western Desert in Egypt. Accelerating trends of Western Desert represent an unprecedented global consensus in the oil and gas industry. This is actually quite typical as conventional oil and gas fields in the Gulf of Suez are nearing maturity and becoming brownfields. Consequently, market players in oil and gas industry have shifted their focus toward the potential of the Western Desert due to its favorable geographical location which covers two-thirds of Egypt.

UNPRECEDENTED TENDENCY

Fostering the direction toward the Western Desert has greatly increased in recent years from the government and in the coming period, the competition is expected to very high for developing its productive potential.

In this regards, President Abdel Fattah Al-Sisi has shown a desire to expand the exploration and production in the Western Desert to serve Egypt's objective to be an oil and gas regional hub, which paved the way to several investments from International oil companies (IOCs) and National oil companies (NOCs).

During the fiscal year (FY) 2021/22, Khalda Petroleum Company and Qarun Petroleum Company are expected to invest about $1 billion in the western desert, with Khalda aiming to invest $830 million and Qarun $252 million on oil and gas E&P activities. Khalda intends to drill 87 new wells including 52 for development and 35 for exploration, targeting 130,000 barrels per day (bbl/d) of oil and condensates, as well as, 630 million cubic feet per day (mmcf/d) of natural gas. Per Qarun, it plans to drill 24 developing wells and five exploring wells, with a production target of nine million barrels (mmbbl).

Additionally, the government managed in February 2021 to launch the first digital international bid round for petroleum E&P covering 12 blocks in the Western Desert, which will attract new investments from international and national investors. Egypt launched two international bid rounds during 2018 for E&P activities in 27 concessions; five of which were located in the Western Desert.

A NEW HOPE

The Western Desert covers a total area of 680,650 km^2 from Egypt. However, the oil and gas production from this region only represented 37% and 32.4% of Egypt's total production during Fiscal years (FY) 2017/2018 and 2018/2019, respectively, according to data released by the Egyptian General Petroleum Corporation (EGPC) and Egyptian Natural Gas Holding Company (EGAS). In addition, the data stated that the Western Desert produced 34.18% of Egypt's hydrocarbon production. This reflects that the Western Desert still have a large volume of undiscovered potentials.

A document issued by the Egypt Upstream Gateway (EUG) cited that more than 1 billion barrels of oil and gas can be produced from Abu El Gharadig basin. The Western Desert is enriched with more capabilities since it has two main source rocks including the Cenomanian Abu Roash limestone and the middle Jurassic khatatba shales. According to the report, Paleozoic, undifferentiated Paleozoic/Mesozoic (Bahrein and Khatatba Fm) are three plays which have potential to produce huge amounts of hydrocarbons. It also has Alam El Bueib, Kharita Fms, Bahariya, and Abu Roash Fms Plays that have a substantial reservoir. Lower Tertiary Apollonia carbonate Play is one of the new plays in the Western Desert Basin.

Among the potential blocks in the Western Desert being expected to leverage the Egyptian oil and gas production so that they were offered in the bid round 2021 areSouth Wadi El Rayan, Southeast Bahariya, South Sitra, Southwest Badr El Din, South Bir El Nus, East Siwa, East Bir El Nus, West El Moghra, El Moghra, West Wadi El Natrun, Wadi El Natrun. On the other hand, the Western Desert has many discovered oil &gas fields Meleiha, Qarun and Badr El Din are some of the most important and old oil fields. While Abu El Gharadig, Obaiyed, and Abu Sennan are the most significant natural gas fields there.

RECENT MILESTONES

During the last few years, the Western Dessert witnessed many remarkable oil discoveries and production development. United Oil and Gas company achieved a remarkable production in Abu Sennan Concession in April 2021, with at least 22million net oil pay interpreted across a number of reservoirs including the Abu Roash C ("AR-C"), Abu Roash E ("AR-E"), Lower Bahariya and Kharita Formations. What's more, Apex Company achieved a discovery in January 2021 in the Southeast Meleiha Concession.

In December 2020, Eni announced a discovery in Meleiha Concession adding 10,000 bbl/d to the concession production. Moreover, in July 2019, Eni made another discovery in the South West Meleiha Concession and its production ramped up to 12,000 barrels of oil. Eni also achieved a discovery in South West Meleiha during May 2018. All the previous can tell that Western Desert is going to be the destination for more oil and gas E&P in near future.

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RIPPLE EFFECT OF CYBERTHREATS

BY JASMINE SHAHEEN & REHAM GAMAL

As the world moves forward towards a paperless society, privacy issues and cyberattacks remain a threat to our lives and businesses. Cyberattacks are more likely to happen than not to. With COVID-19, cybercrime has since increased by a whopping 300%. And despite the obvious impending doom, more than 77% of organizations do not have a cybersecurity incident response plan. The oil and gas industry is no stranger to such incidents and whether the industry manages to overcome them or not, the fact remains that these incidents can shift the balance of the market.

Since almost every aspect of the energy industry is digitalized, oil companies are vulnerable to threats such as hydrocarbon installation terrorism, utility interruption, production disruption, and undetected spills to name a few. Maintaining this critical infrastructure has never been more important and the industry cannot afford to dismiss the consequences of cyberattacks.

A TUG WAR

The most recent ransomware attack fell on May 7 and cost Colonial Pipeline $4.4 million worth of bitcoin. The attack struck the largest pipeline system which carries 2.5 million barrels per day (bbl/d) of gasoline, diesel, heating oil, and jet fuel from Texas to New Jersey and provides around 45% of fuel needs to the US East Coast. The hack led to a system shutdown which resulted in thousands of gas stations across the US southeast running out of fuel. The masses, unsurprisingly, acting out of fear of prolonged shortages, raced to fill up their cars.

The pipeline restarted its operations after almost a week of shutdown, which prompted gas prices to surge and gas stations in multiple states to experience shortages. Prices for all four products of West Texas Intermediate (WIT), Brent crude, natural gas, and gasoline increased by 1.8%, 1.5%, 0.37%, and 1.5% respectively. On top of that, as of May 18, over 10,400 supply stations remained without fuel, and in North Carolina, South Carolina, Virginia, and Georgia, gas outages dropped below 50%.

Anna Scherbina, Senior Economist on the Council of Economic Advisers, the executive agency that provides the US president with objective advice on economic policy, stated in an interview published by Brandeis Business School that "any given hack can reverberate throughout the economy, way beyond the company that was attacked. When one company is compromised, other businesses feel the impact too because everybody is so connected through different supply chain connections, and through similarities in the technology they use."

This may have been the latest cyberattack on the energy sector, however, it is not something new. No one can forget what is now dubbed 'the biggest hack in history' when Saudi Aramco, the oil supplier for 10% of the world, got hacked and stepped into the dark ages. In 2012, about 35,000 of Aramco's computers were partially wiped or destroyed with the aim to stop production. To prevent the virus from spreading, Aramco was forced to shut down the company's internal corporate network, disabling employees' e-mail and internet access.

For Aramco, the world had gone silent. Any sort of contracts or agreements had to be done on literal paper. Gasoline tank trucks seeking refills had to be turned away. The company temporarily stopped selling oil to domestic gas tank trucks. After 17 days, Aramco yielded and started giving oil away for free to keep it flowing within Saudi Arabia. Luckily, the damage did not impact the company's production as it was run on isolated network systems. The then US Secretary of Defense, Leon E. Panetta, stated that the Aramco infiltration was "a significant escalation of the cyberthreat."

As one of the biggest oil companies in the world, Aramco has since been upping its game to counter cyberterrorism. This was an essential step since Saudi Arabia's economy is massively reliant on oil. Taking into consideration that the country's oil export revenues account for 80-90% of total Saudi revenues and above 40% of the country's gross domestic product (GDP), the attack is severely linked to the country's economy and shows that investing in cybersecurity outweighs the damage of cyberattacks.

BETTER SAFE THAN SORRY

Cybersecurity spending has been increasing every year with increased remote working, the cybersecurity market was valued at around $132 billion in 2020. Adding COVID-19 into the mix, forecasts suggest that the market will exceed $200 billion a year in 2024. At times where sensitive data is on the cloud, spending on cybersecurity is an important priority in order to ensure its protection.

According to IBM, in 2019, the global data breach could cost an industry something along the lines of $3.9 million and a 207-day average time to identify and contain a breach. Of course, based on the industry, the cost of a breach varies significantly. For the energy industry in 2020, that cost was valued at $6.4 million, up by 106% since 2015.

Deloitte's report on cybersecurity for upstream oil and gas estimates the average energy company's annualized cost of cybercrime at only around $15 million. However, a major incident could easily incur costs running into hundreds of millions of dollars and could significantly impact the business - like in the case of Aramco.

To overcome the myriad threats facing the energy industry, one has to assess where the vulnerability lies to prioritize cyber investments. In the upstream industry, production and drilling operations are the most vulnerable and most damaging to a company's finances. If not taken care of, if not invested in, it could lead to disruption, legal and regulatory costs among other things. Eric Cole, Founder and CEO at Secure Anchor, and a World-Renowned Cybersecurity Expert, noted that "with the increase of cyberattacks occurring, organizations continue to spend more money on security; however, they often spend it in the wrong areas."

Cyberattacks should not be taken lightly, it impacts trade, competitiveness, economic growth, and GDP. It will turn to losses that can be significant, causing business disruption, loss of time and cash, and reputational damage. On a financial level, the effects will be downtime and productivity loss. Despite that, a 2018 Bloomberg report estimated that energy companies invest less than 0.2% of their revenue in cybersecurity, meanwhile, the number of hacker groups targeting the energy sector is soaring.

Since the major challenging economic consequences of cyberattacks are budget constraints and resource limitations, it is advised that the IT infrastructure should be a core asset to the company's budgets and money need to be invested in cybersecurity to mitigate risks.

تحت رعاية فخامة الرئيس عبد الفتاح السيسي رئيس جمهورية مصر العربية

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CARBON BORDER TAXES: ENVIRONMENTAL ACTION OR TRADE-WAR MONGER

BY IHAB SHAARAWY

The European Union (EU) is poised to unveil a range of new policy measures that are expected to help the bloc reach its ambitious emissions 2030 targets. The new measures will include new targets for renewable energy, changes to tax rules to ensure that electricity does not face higher charges than oil and gas, and a new carbon border adjustment mechanism, or what is known as a new carbon border tax.

The EU leaders hailed the proposed carbon border tax as a key part of the EU's ambitious push to achieve carbon neutrality by 2050 and to meet the targets of the Paris Climate Agreement. They also describe it as a shield that will protect EU companies from the effect of cheaper imports from countries with weaker climate policies.

However, the scheme also has its share of complications that threaten to widen political conflicts, starting trade wars, creating serious challenges for companies with a large greenhouse gas footprint and becoming a new source of disruption to a global trading system already roiled by rising protectionism and effects of coronavirus crisis.

AMBITIOUS TARGETS

A carbon border tax is largely believed to be an improvement from a national carbon tax. A national carbon tax is a fee imposed on any company within the country that burns fossil fuels. However, this often results in an increase of costs for these companies and may lead to several economic hardships for businesses and citizens in these countries.

A carbon border tax is largely meant to protect the EU's local manufacturers, who have been paying for carbon emissions since 2005 under the EU's Emissions Trading System. The carbon border tax can therefore lead to a more level playing field against importers.

Although carbon border taxes could help the world move more efficiently toward sustainability, such taxes can be a new source of conflict, if it weren't a part of a consensual multilateral approach.

SPOILING FOR A FIGHT

Just a few days after European Parliament had passed a resolution with an overwhelming majority for creating a carbon border tax, ministers from Brazil, South Africa, India and China have warned – in a jointly released statement - that the European Union plans to impose taxes on carbon at its border are discriminatory and unfair to developing nations and are not aligned with principles of equity as per the Paris climate agreement.

However, a big part of the criticism came from the Chinese president himself, who slammed EU plans, warning European leaders that tackling climate change should not become an "excuse for geopolitics, attacking other countries or trade barriers."

China's continuing reliance on non-renewable energy to power its economy leaves it particularly helpless in this matter. The possible implementation of a carbon border tax poses an obstacle to China's ambition to boost its economy as such tax would likely raise the price of Chinese goods in Europe. This suggests that the carbon border tax may be politically motivated as it could slow down the rising economy in China, and would therefore preserve the European competitiveness.

Other critics of the proposal argue it is protectionism disguised as climate action which will damage the economies of countries poorer than the EU, at a time when they are struggling with the economic fallout from Covid-19.

A report by the European roundtable on climate change and sustainable transition found that industries most affected by the EU proposal included Colombia's cement industry, China's plastics sector, North African fertilizer and South American pulp exports.

Many developing and poorer countries argue that they are being unfairly penalized, stressing that figuring out how much carbon is in each product would be very challenging from both a technical and political perspective.

GROWING CONCERNS

Sam Lowe, a senior research fellow at the Centre for European Reform (CER) think tank, warned in a recent policy brief that "If the mechanism applied to the imports of all goods currently covered by the EU's Emissions Trading System (ETS), up to US$16bn of developing country exports to the EU could face an additional charge."

The research carried out by the CER estimates 69 developing countries currently covered by EU unilateral trade or preferential schemes could be impacted.

The proposal also came under friendly fire as US climate envoy John Kerry cautioned that such a move could carry risks "downstream."

Speaking to reporters in Berlin before talks with European Commission Vice President Frans Timmermans, Kerry said that President Joe Biden had instructed US officials to examine "what are the consequences, how do you do the pricing, what is the impact."

"Nobody wants their businesses disadvantaged" by introducing carbon taxes that businesses elsewhere don't pay, he said.

"But we do have some concerns about what the downstream impact might be, and we want to understand that fully before jumping on this," Kerry added.

Jonathan Pershing, a member of the US climate envoy's team, warned at the same time that implementing a border tax on imports and protect European industries will be "extremely complicated."

Despite these warnings and uncertainty about the impact of this scheme on world trade, calls for carbon border taxes are growing in EU as the carbon price reaching €50 per tonne for the first time since the EU carbon market was launched in 2005.

"We cannot ask our industries to operate at that level of price, which is needed, without having a level playing field," said Pascal Canfin, a French MEP who chairs the European Parliament's environment committee.

BAND-AID SOLUTION

Despite such complications, the resolution still highlights the EU's increased ambition on climate change and to stop 'carbon leakage', as global climate efforts will not benefit if EU production is just moved to non-EU countries that have weaker emissions rules.

This point of view was supported by a recent research paper introduced by International Monetary Fund (IMF) that found that a carbon price that starts low and rises steadily could help Asian countries reach their targets under the Paris climate accord over the next decade.

IMF Managing Director Kristalina Georgieva insisted meanwhile that there was a growing consensus that carbon pricing was the most efficient and cost-effective way to curbing emissions.

However, a research published by The Conversation Africa suggests that it's also important to recognize that border carbon taxes can't solve the entire problem.

The research elaborated that when climate policies in a few large countries reduce demand for fossil fuels, that can lower the global price of them, which can result in more consumption elsewhere.

"Properly addressing climate change will take significant efforts and international cooperation. Border carbon taxes will not solve the problem alone, but will likely be an important tool in reducing carbon emissions," suggested the research paper author, Timothy Hamilton, Associate Professor of Economics, University of Richmond.

ARTIFICIAL INTELLIGENCE TRANSFORMS SEISMIC INTERPRETATION

BY FATMA AHMED

Within the upstream industry, getting more accurate information is the best way to increase production and save time. Seismic interpretation is the optimum technique to discover and develop profitable fields and reserves. As time passes, digital transformation goes deeply into the oil and gas industry to develop and update the sector and particularly the exploration and production (E&P) operations that seek more productivity. Artificial intelligence (AI) is the next technology breakthrough to come. For seismic interpretation, AI will help in facilitating the process of oil and gas explorations.

SEISMIC INTERPRETATION

An article published by AAPG Wiki defined seismic interpretation as the science of inferring the geology at some depth from the processed seismic record. Providing reliable seismic predictions requires a synergistic approach to the analysis of seismic and all other related data by experienced and skilled interpreters. Oil companies used to rely on a manual trial-and-error approach for many years. It was effective for building conceptual models of the geology and controlling the quality of individual errors as well as the overall interpretation process while attaining the data.

Despite the benefits of this technique, there are limitations. There are some cases that standard attributes analyses disappoint. Wrong interpretations may be happened due to noise which can take away the opportunity of drilling a rich resource of oil and/or gas. It also consumes too much time and requires scientists to analyze a huge amount of data. Moreover, it is impossible to successfully image faults at all scales. Manual interpretation is biased by the interpreter as well since the scale of faulting drastically varies from time to time.

REVOLUTIONIZING SEISMIC INTERPRETATION

In this regard, new technology based on AI can help interpreters in their mission. This can be done by seeing the past false signals which give unclear or disappointing results in traditional fault detection attribute analysis. AI seismic interpretation approach is based on using Deep Learning. An article, written by Naveen Joshi, entitled "how AI is helping seismic interpreters" stated that the deep learning model is trained with geological data. Then, the AI model analyzes the data and helps to predict faults that may be present in the region. As a result, oil companies can plan their drilling activities based on the output provided by the AI algorithm. It also can help in determining whether there is oil and gas resources in the unreachable areas or those that are hard to be reached by humans.

CASE STUDY

In the same context, a research paper entitled "interpretational applications of artificial intelligence-based seismic fault delineation" was published recently, studying the implementation of AI application and seismic fault interpretation in addition to how to merge in the field of interpretation activities through applying this technique in five different regions.

The study elaborated that AI fault delineation can be applied with different objectives across the E&P lifecycle, including early screening and reconnaissance (exploration), migration pathways and sealing, detailed structural analyses, reservoir compartmentalization and baffles, fault sealing capacity, well planning, structural framework and reservoir modeling and simulation.

The research concluded that the AI fault results can be integrated with the existing interpretations to get the most accurate data. It can assist interpreters to leverage their skills and knowledge to larger areas, more numerous datasets, at increased speeds. Additionally, the research found out that AI enables geoscientists to gain greater confidence in their interpretations, more understanding of the uncertainty range, save considerable time performing the more basic tasks and make insights that were not possible previously.

MACHINE LEARNING APPLICATIONS IN EGYPTIAN OIL AND GAS INDUSTRY

The Oil and gas industry is one of the most complicated and tough industries that humanity knew. Since the inception of petroleum engineering science, the lack of data problem hasn't ended. For example, no investor in the oil/gas industry knows the exact composition

of each barrel of oil; because it is a very complicated mixture of hydrocarbons and to know such information it may consume much time and money to be provided. Thus, Petroleum engineers were the pioneers to introduce the correlation concept to get and predict the reservoir fluid behavior based on quickly measured samples of fluid data. The same concept was generalized over the good logging, post-fracture production performance, reservoir engineering, and nearly all aspects of petroleum engineering.

On the other hand, Machine learning increases the capability of a machine to improve its performance via algorithms that work on previous results or interactions with the system. If we build a system to digitize every measurement in the petroleum production system then provide the machine with a lot of previous data and keep it updated on time, we can get updated and fine-tuned accurate correlations and thus develop petroleum engineering dramatically. Because it is initially based mainly on correlations from previous data using artificial neural networks, this will be a revolution in reservoir engineering, production engineering, well logging, seismic mapping, and reservoir simulation.

Drilling Engineering and well control can be modified dramatically with machine learning because they are mainly the best practices and standard procedures and if we use machine learning for how to correlate the drilling parameters and well control parameters (like penetration rates, gas detection sensor, and mud return ...etc.), we can get the best data-driven decisions with zero human errors.

Most of the catastrophic accidents on the rig site are due to human mistakes and this can be avoided using augmented reality techniques in training for drilling crews. Their reactions, knowledge, and performance can be enhanced significantly and a lot of lives will be saved for such low-cost development.

Petroleum engineering departments in Egypt should start to teach machine learning and artificial intelligence in their classes to develop the new petroleum engineers' capabilities for the new era. That is already started in the top universities in petroleum engineering around the world. By reference to the petroleum engineering master theses in Egyptian universities, we can notice that the new Egyptian researchers started to use artificial neural networks to introduce correlations to understand petroleum production performance and reservoir engineering parameters, which has been already reflected in the digital transformation in the petroleum sector in Egypt. Egyptian Universities should start cooperation and integration protocols with the ministry of petroleum and mineral resources to convert this amazing research potential without additional cost.

All the previous recommendations are cheap methods and can be a paradigm shift to enhance the Egyptian petroleum sector to remain one of the leading sectors in Egypt.

MOHAMED ADEL GABRY

Section Head (Hydraulic Fracture Team), Khalda Petroleum Company

A PROJECT CONNECTING EGYPTIAN PETROLEUM STUDENTS WITH TOP EXPERTS WORLDWIDE

In 2019, a promising non-profit education project named PioPetro was initiated by Dr. Ahmed Algarhy, an Egyptian petroleum engineering faculty member at Marietta College in Ohio, USA. The main objective was to connect undergraduate petroleum students with top universities in the US.

PioPetro is a collaboration among universities, petroleum companies, and oil and gas experts to deliver digital educational content to college students free of charge. It was designed to provide a forum to share videos, e-learning tools, and virtual reality technology to present oil and gas concepts to college students working toward careers in the field. PioPetro was made possible through volunteers from academia and industry professionals.

In 2020 a cooperation between PioPetro and the SPE Egypt section started to serve Egyptian students and offered an online summer internship to overcome the situation of canceling the internships because of COVID19. PioPetro is a non-profit project and all services offered to students worldwide are free of charge. Now, PioPetro and SPE Egypt section offer two or three short courses every month, train a minimum of 2000 students worldwide, and deliver certificates for students who pass the quizzes and the final exam of each short course. The certificate has the logos of Marietta College, PioPetro, SPE Egypt, and the logos of companies or universities that participated in the training.

One of the main goals of this education project is to Inspire Egyptian undergraduate students by meeting successful Egyptian experts working in the US. This will help students to have bigger dreams and follow the steps of these globally well-known experts. For Example, meeting with Dr. Mohamed Soliman, the petroleum engineering department head at the University of Houston, or Dr. Medhat Kamal, the nominated SPE president of 2023 can give the students the knowledge of how to find a scholarship for MS or Ph.D. in the US.

Nowadays, PioPetro is working on two innovative ideas to serve student's needs. First, producing virtual reality applications to help students walk through a drilling rig or well stimulation locations. Students will use virtual reality helmets similar to what they use when they play games on Xbox or Play Station. This application will give the students the chance to do many field trips from their home or a classroom. The same idea can serve geology students and let them watch all the details of an outcrop located thousands of miles away from the classroom.

The second idea is founding the largest online annual conference for students with cooperation with SPE International. This conference will help students worldwide to improve their research and presentation skills by cooperating and competing with other students and also to attend webinars for the top experts in the oil and gas industry.

AHMED MOHAMED (ALGARHY), PH.D.

Assistant Professor Petroleum Engineering and Geology Department- Marietta College

THE AGREEMENT IN PRINCIPLE WITH APACHE CORPORATION EGYPT IS AN IMPORTANT STEP AS WE MODERNIZE EGYPT'S PETROLEUM SECTOR AND POSITION OUR COUNTRY AS A REGIONAL ENERGY HUB. IT IS A WIN-WIN FOR BOTH PARTIES AND WILL HELP TO DRIVE INCREASES IN INVESTMENT AND PRODUCTION TO THE BENEFIT OF EGYPTIANS.

H.E. TAREK EL MOLLA

Minister of Petroleum and Mineral Resources

This came during signing agreement between Ministry of Petroleum and Mineral Resources and Egyptian General Petroleum Corporation (EGPC) to modernize production sharing contracts in Western Desert.

THE NEW AGREEMENT [TO MODERNIZE PRODUCTION SHARING CONTRACTS] IN PRINCIPLE CONFIRMS EGYPT'S COMMITMENT TO ECONOMIC DEVELOPMENT AND PUBLIC-PRIVATE PARTNERSHIPS AND WILL FACILITATE HIGHER INVESTMENT LEVELS BY APACHE CORPORATION EGYPT, RESULTING IN MORE DRILLING, MORE PRODUCTION AND MORE SUSTAINABILITY PROJECTS, WHILE ALSO ENHANCING TALENT DEVELOPMENT OPPORTUNITIES AND DELIVERING COST EFFICIENCIES THROUGH THE INTRODUCTION OF NEW TECHNOLOGY

JOHN J. CHRISTMANN

CEO and President Apache Corporation

This came during signing agreement between Ministry of Petroleum and Mineral Resources and Egyptian General Petroleum Corporation (EGPC) to modernize production sharing contracts in Western Desert

WE HAVE PARTNERED WITH EGYPT FOR 25 YEARS AND INVESTED MORE THAN $20 BILLION IN THE COUNTRY. EGYPT IS IN A GREAT PLACE IN TERMS OF RESOURCES, LOCATION AND LEADERSHIP, WHICH MAKES IT A REGIONAL HUB FOR FOREIGN INVESTMENTS IN THE ENERGY SECTOR..

DAVID CHI

Vice President and General Manager Apache Egypt

This declaration came during the convention of multi-stakeholder platform with the Ministry of International Cooperation (MOIC), under the title "Egypt as a Regional Energy Hub: Reforms and Prospects in the Oil and Gas Sector".

DANA GAS HAS WORKED DILIGENTLY TO FINALIZE THIS TRANSACTION [SELLING ITS EGYPTIAN ASSETS]. HOWEVER, SATISFACTION OF THE CONDITIONS PRECEDENT IN THE SPA PROVED PROBLEMATIC BETWEEN THE PARTIES. ONCE THE DUE DATE FOR SATISFACTION OF THOSE CONDITIONS EXPIRED, AND AFTER DUE CONSIDERATION, THE COMPANY RESOLVED TO EXERCISE THE RIGHT TO TERMINATE THE SPA IN ACCORDANCE WITH ITS TERMS..

PATRICK ALLMAN-WARD

CEO Dana Gas

This announcement came on occasion of the Dana Gas declaration that it has terminated its agreement related to the sale of its Egyptian assets with IPR Wastani Petroleum Ltd.

EGYPT'S MONTHLY UPDATES ON PRODUCTION, RIGS, AND DRILLING ARE AVAILABLE NOW IN OUR MONTHLY MONITOR.
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EGYPT OIL&GAS RESEARCH & ANALYSIS

VALUE AND VOLUME OF SHARES TRADED FOR OIL & GAS SECTOR IN APRIL 2021

VALUE TRADED (EGP BILLION)

% OF TOTAL VALUE TRADED **0.9**

VOLUME TRADED (BILLION SHARES)

% OF TOTAL VOLUME TRADED **0.64**

NATIONAL DRILLING

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
USD	4.69	-

ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	2.99	▼ 4.17

EGYPT GAS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	32.02	▼ 26.51

SIDI KERIR PETROCHEMICALS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	10.35	▲ 11.17

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

MAIN ECONOMIC INDICATORS

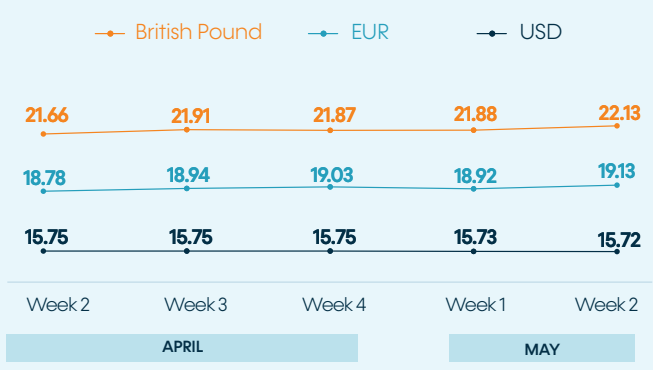
Mar 2021 | Apr 2021

ANNUAL INFLATION HEADLINE CPI (%)
4.5 ▼ 4.1

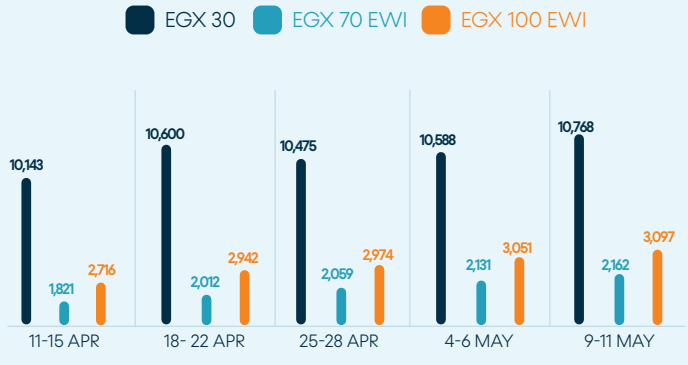
NET INTERNATIONAL RESERVES ($ BILLION)
40.337 ▲ 40.343

NON-OIL PRIVATE SECTOR PMI (POINTS)
48 ▼ 47.7

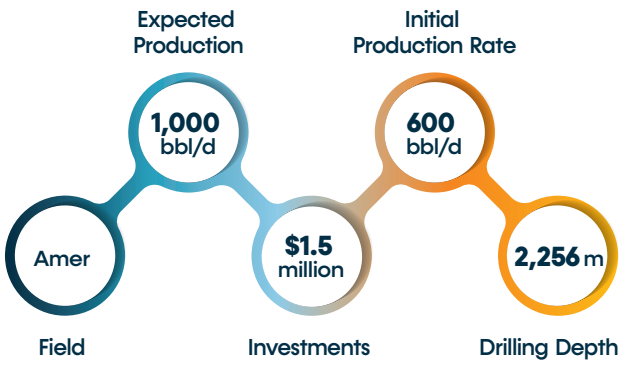
EXCHANGE RATES



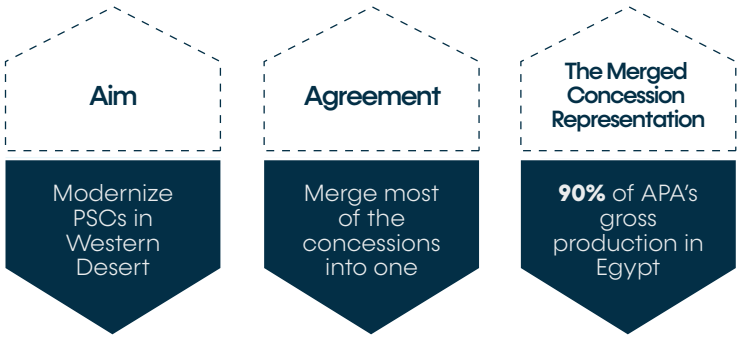
CAPITAL MARKET INDICATORS



GPC SUCCEEDS IN DRILLING AMER-81 WELL IN GULF OF SUEZ



EGYPT SIGNS AN AGREEMENT WITH APA



UOG PERFORMANCE IN EGYPT IN 2020

MAIN ACHIEVEMENTS

$9 million
Revenues

$0.85 million
Profits

2,195 boe/d
Average Production

1 mmboe
Abu Sennan Gross 2P Reserves

24%

WORKING INTEREST PRODUCTION (BOE)

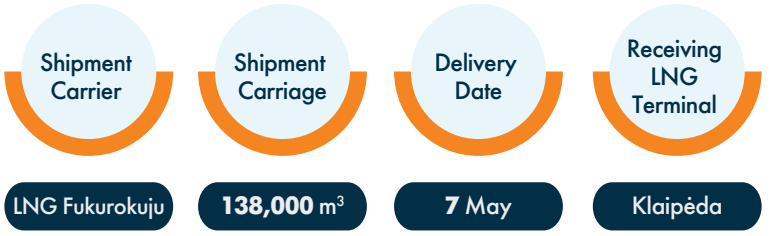
March	1,709
December	2,389

PLANS BY END OF 2021

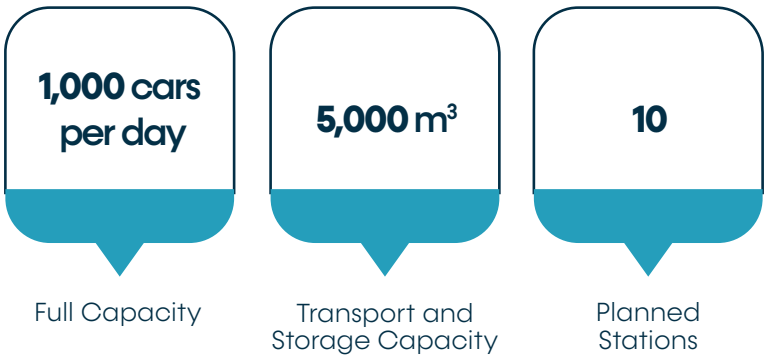
Increase pricing

Increase production: **2,500-2700 boe/d**

LITHUANIA RECEIVES THE 1ST LNG SHIPMENT FROM EGYPT



EGYPT LAUNCHES MOBILE NATURAL GAS STATION



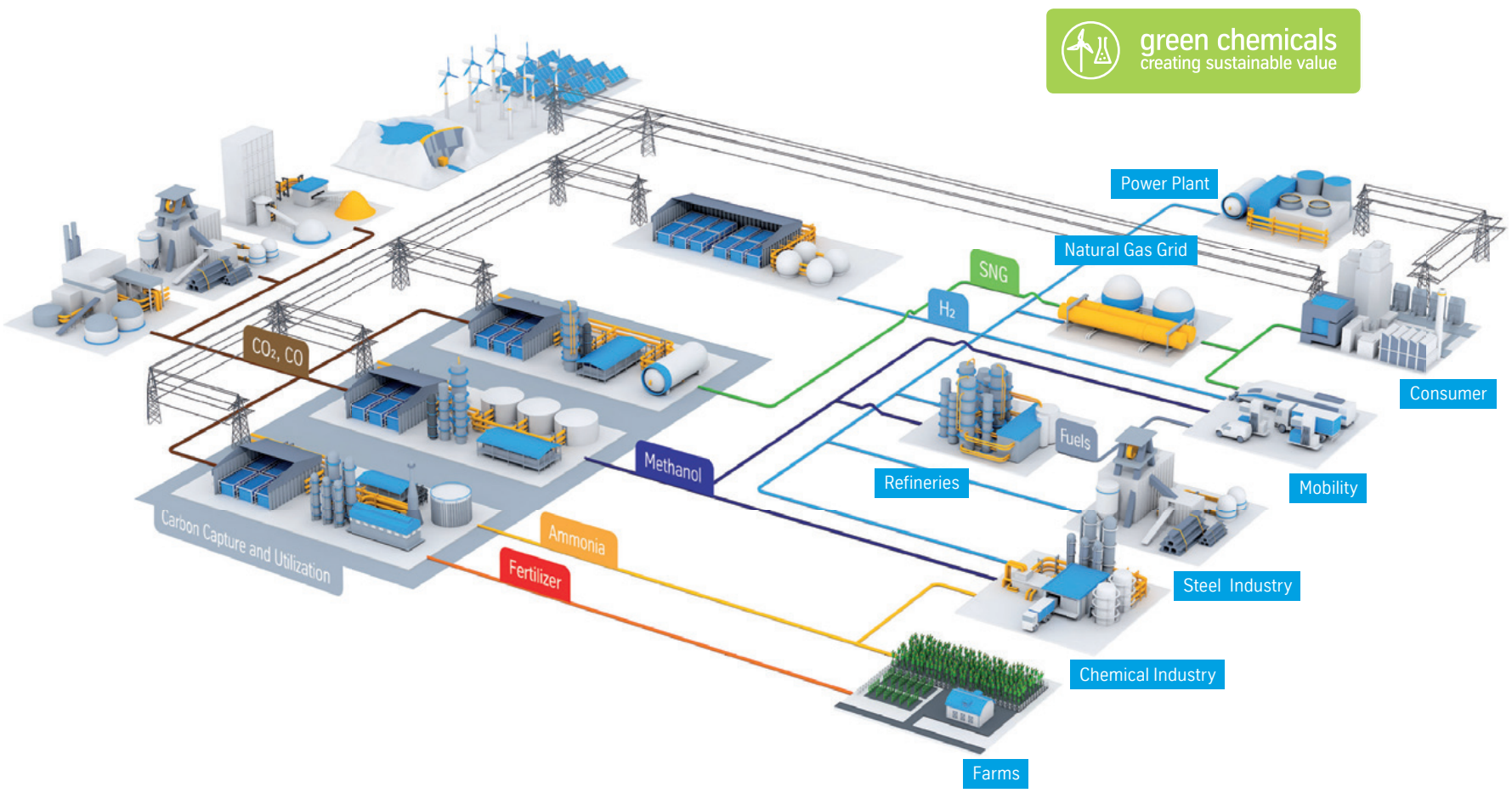
INTERNATIONAL OIL PRICES

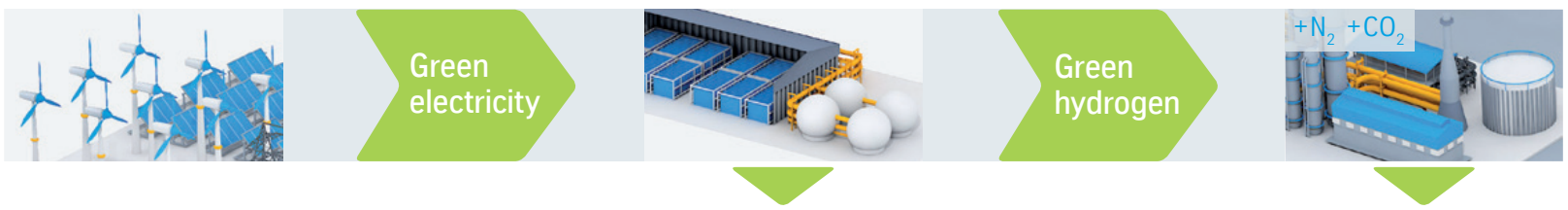
	BRENT PRICES ($/BBL)	OPEC BASKET PRICES ($/BBL)	NATURAL GAS PRICES ($/MMBTU)
15 Mar	68.88	68.18	2.48
30 Mar	64.14	63.37	2.62
15 Apr	66.94	64.48	2.66
28 Apr	67.27	64.53	2.93
05 May	68.96	68.20	2.94
18 May	68.71	68.39	3.01

Sustainable value chains

fueled by renewable energy sources

We are looking at probably the biggest paradigm shift since the industrial revolution and now face the tremendous task to rethink existing infrastructures and build up new sustainable value chains – fueled by renewable energy sources. The core technologies for decarbonizing the industry are available with thyssenkrupp. Green chemicals: You have the vision, we have the solutions. **www.thyssenkrupp-industrial-solutions.com/power-to-x**





Green molecules for CO_2-free feedstock, fertilizer, efuels, energy carrier & storage

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