EGYPT
OIL&GAS
NEWSPAPER

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PROUDLY THE OFFICIAL PUBLICATION
EGYPS
EGYPT PETROLEUM SHOW
13 – 15 February 2023 | Egypt International Exhibition Center

SHELL'S UNWAVERING COMMITMENT TO EGYPT'S ENERGY TRANSITION

An Interview with
KHALED KACEM
VICE PRESIDENT AND CHAIRMAN
SHELL EGYPT

EXCLUSIVE INTERVIEW

Africa Not Ready to Abandon Its Oil and Gas Resources

An Interview with **H.E. Gabriel Mbaga Obiang Lima,**
Minister of finance, economy and planning, Equatorial Guinea

EGYPT OIL&GAS NEWSPAPER

EDITOR'S LETTER

Dear Reader,

Egypt's energy sector is undergoing a major transformation, especially in the oil and gas industry. The ambition of turning into an energy hub is being realized at different levels and prospects in Egypt. In its struggle to achieve this aspiration, Egypt's oil and gas sector has drafted many success stories to tell.

The coming Egypt Petroleum Show 2023, one of the main oil and gas events, is the best venue for sharing such stories. Hence, our EOG team is taking this opportunity to tell some of these inspirational stories.

In our February issue, you will get glimpses of Shell's contribution as a committed partner in Egypt's decarbonization journey in our interview with Khaled Kacem, Vice President and Country Chair of Shell Egypt. In another interesting interview, Rich Sumner, President & CEO of Methanex Corporation, shares his company's vision and ambitions while celebrating 12 years of successful partnerships in Egypt.

The EOG team was also honored to have an interesting interview with the Equatorial Guinean oil minister and OPEC President Gabriel Mbaga Obiang Lima, where he elaborated on Africa's energy ambitions.

You will also get to learn about the unique story of "Cheiron's Rise to Sustainability Success". Our issue offers interesting coverage of the "Future of Digital Evolution in Oil & Gas Industry" event, which was organized by Egypt Oil & Gas under the patronage of Minister of Petroleum and Mineral Resources Tarek El Molla and attended by a myriad of leaders and senior officials from the oil and gas sector.

In this issue, our Research & Analysis team offers insight into the oil and gas sector's achievements in 2022. We also delve deep into the Ministry's efforts to establish Egypt as an energy trade hub and attract new investments for added-value projects. As major global developments unfold, we have traced the ongoing impact of the Russia-Ukraine war on the energy sector after a year has passed since the start of the conflict.

IHAB SHAARAWY
Managing Editor

CONTENTS

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EGYPT'S LEADING OIL & GAS MONTHLY PUBLICATION

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WELL COMPLETIONS | Annular Barrier Packers

Ovidius® Expanding Isolation System

DELIVERS SUPERIOR SEALING, ANCHORING PERFORMANCE AND OPERATIONAL FLEXIBILITY IN MANY APPLICATIONS

OVERVIEW

The Ovidius® expanding isolation system is a new annular barrier packer that transforms from an engineered metal alloy to a rock-like material when it reacts with downhole fluids, creating a long-lasting seal for improved well integrity. Through innovations in Material Science, the Ovidius isolation system packer can perform in extreme-temperature and pressure environments, providing superior isolation and anchoring for the life of the well.

Robust, simple, and flexible, the Ovidius isolation system is ideal for cased-hole, openhole well isolation, high-pressure/high-temperature (HP/HT), multistage fracturing and permanent plug and abandonment (P&A) operations with future applications in geothermal, multilateral, and recompletion operations.

REDUCED RISK WHILE RUNNING IN HOLE

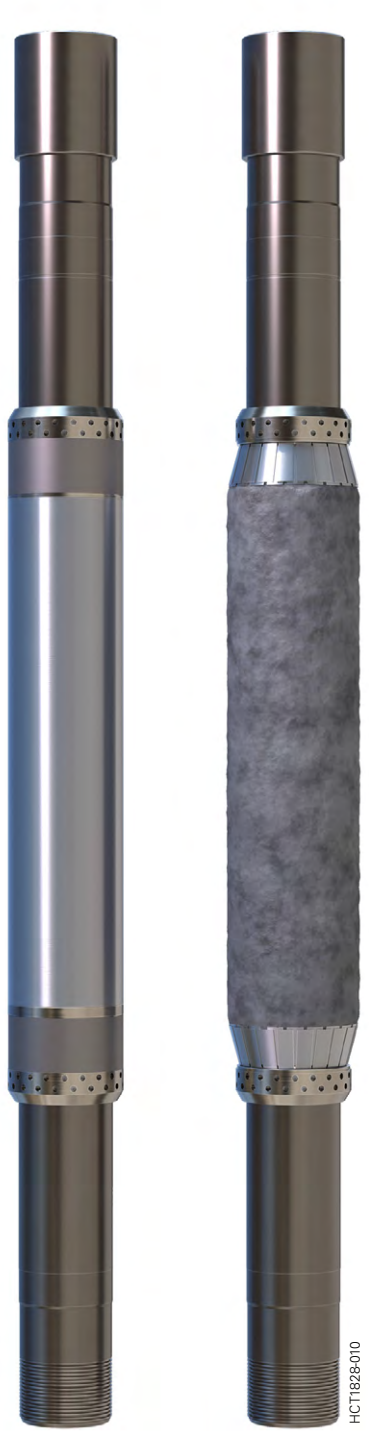
Reaching target depth is the first measure of success for an annular barrier packer. With its slim OD, robust metal alloy construction, and no moving parts, the Ovidius isolation system simplifies run-in-hole operations and helps reduce risk. The ability to rotate and circulate as needed provides operators additional flexibility during deployment.

UNMATCHED OPERATIONAL FLEXIBILITY

Solving the most difficult anchoring and isolation challenges extends beyond high differential pressure ratings. The modular slip-on design of the Ovidius system also simplifies logistics. In addition, the engineered metal alloy can be machined to work with uncommon casing geometries. Extensive laboratory testing has shown compatibility with common water-based fluid systems and resistance to H_2S and CO_2.

SUPERIOR SEALING AND ANCHORING PERFORMANCE

The Ovidius isolation system is capable of providing differential pressure ratings up to 17,500 psi. and anchoring forces in excess of 500,000 pounds. The packer does not rely on elastomeric seals; the engineered metal alloy becomes the seal. As a result, the Ovidius system has been proven to handle high-pressure and temperature swings without failure. With its high-expansion ratio and thermal stability rated up to 570°F, the Ovidius isolation system offers long-term sealing and anchoring stability in the most extreme downhole environments.



The Ovidius® expanding isolation system transforms from an engineered metal alloy into a rock-like material when it reacts with downhole fluids.

HALLIBURTON | Completion Tools

TOP 5

EL MOLLA: ITFC PROVIDED THE PETROLEUM SECTOR WITH $10.8B IN FINANCES SINCE 2008

Minister of Petroleum and Mineral Resources Tarek El Molla stated that the International Islamic Trade Finance Corporation (ITFC) has funded the Egyptian petroleum sector with $10.8 billion since it started in 2008 until November 2022 to finance petroleum exports.

This came during his speech at the signing ceremony of the annual program between the ITFC, the Islamic Corporation for the Development of the Private Sector (ICD), and Egypt for 2023.

The minister highlighted the role of ITFC and its continuous support to the various strategic sectors in Egypt, especially the petroleum sector which contributed to its development. These funds are used totally in meeting part of the refineries' needs for crude oil.

He noted that the extended cooperation between the ITFC and the Egyptian General Petroleum Corporation (EGPC) began in 2008 by providing up to $200 million per year, which reached more than $1 billion in 2022.

Additionally, El Molla said that complementing this cooperation, ITFC has approved a tranche worth $457 million during January 2023, which greatly contributed to facilitating and securing part of the country's needs for petroleum products.

EL MOLLA: EGYPTIAN PETROLEUM EXPORTS SURGED TO $18.2B IN 2022

Minister of Petroleum and Mineral Resources Tarek El Molla stated that the past year 2022 witnessed the achievement of a record number of oil exports that amounted to $18.2 billion, the ministry said in a statement.

This came during the weekly meeting of the Council of Ministers chaired by Mostafa Madbouly, which reviewed a number of positive indicators on the economic level.

In 2021, exports amounted to $12.9 billion and it reached $7 billion in 2020, indicating that a big jump in natural gas exports was achieved in 2022, which is being maximized during this period, the minister noted.

Meanwhile, the World Bank (WB) had expected that Egyptian oil and gas exports will increase by 30.6% to $23.5 billion during the fiscal year (FY) 2022/23.

WB: EGYPTIAN OIL, GAS EXPORTS TO INCREASE 30.6% BY 2022/23

The World Bank (WB) has expected that Egyptian oil and gas exports will increase by 30.6% to $23.5 billion during the fiscal year (FY) 2022/23.

In a press release, the WB stated that Egypt's current account deficit in FY2021/22 narrowed to 3.5% of GDP, compared with 4.4% in FY2020/21 due to some developments including improvement in oil-related trade during FY2021/22 which was driven by robust liquefied natural gas (LNG) exports at high international prices.

EGYPT, AZERBAIJAN TO BOOST BILATERAL ENERGY COOPERATION

Minister of Petroleum and Mineral Resources Tarek El Molla met with Elkhan Polukhov, Ambassador of Azerbaijan in Cairo, to discuss ways of joint cooperation between the two countries and investment opportunities available in the field of oil, gas, and green energies in Egypt, in addition to the possibility of exchanging experiences between the two sides in these fields, the ministry said in a statement.

During the meeting, El Molla pointed out the petroleum sector's historical relations and cooperation with the State Petroleum Company of the Republic of Azerbaijan (SOCAR) in the fields of crude oil and refining, stating that the sector has distinguished manufacturing facilities for supplies and equipment. This is in addition to the expertise gained by Egyptian oil companies in recent years in the field of designing and implementing important projects inside and outside Egypt and the possibility of their participation in oil and gas projects in Azerbaijan.

El Molla reviewed the projects being worked on in the field of petrochemicals in Egypt and the opportunities for investment available in the petroleum sector.

For his part, Polukhov said that his country possesses great experiences in the fields of oil, gas, and green energies and is ready to exchange expertise with Egypt. He highlighted that Azerbaijan, as a key natural gas exporter like Egypt, seeks to increase its natural gas exports, which is one of the important areas in which cooperation with Egypt can be made. Polukhov referred to Azerbaijan's endeavor to establish a gas liquefaction plant that may benefit from the pioneering Egyptian experience in this regard, and that one of the proposed areas of cooperation is the expansion of the production of petrochemical products, especially fertilizers.

EGYPT LAUNCHES NEW INTERNATIONAL BID ROUND FOR OIL AND GAS EXPLORATION

Minister of Petroleum and Mineral Resources Tarek El Molla announced the launch of a new international bid round to search for natural gas and crude oil in 12 regions in the Mediterranean and Nile Delta, including six offshore and six onshore regions, through the Egyptian Upstream Gateway (https://eug.petroleum.gov.eg).

El Molla explained that the bid put forward by the Egyptian Natural Gas Holding Company (EGAS) for the year 2022 comes as an extension of the ministry's work strategy which started in 2016 to attract more investments for oil and gas exploration in promising areas, especially the Mediterranean. He pointed out that the strategy provides opportunities to attract new international companies to work in Egypt, in addition to encouraging operating companies to increase their investments and expand their work areas.The minister highlighted that these measures contribute to the Egyptian state's efforts to intensify research and exploration activities for natural gas resources in the Mediterranean, in light of the efforts of Mediterranean countries to make new gas discoveries and increase production.

A BLAST FROM THE PAST

Egypt was the first country in the Middle East to commence with converting cars to natural gas in **1997.** This took place after the Nasser Social Bank was appointed to finance the process for those who wished to convert their cars. The initiative aimed at converting 15,000 cars until 2013.

The surplus of natural gas in Egypt has encouraged the state in going down this route, especially as international oil prices are volatile. The use of natural gas saves as much as a third on normal fuel consumption.

Within the framework of implementing the presidential initiative to expand the use of natural gas as a fuel for cars, the Ministry of Petroleum is working hard to expand the activity of converting cars to run on natural gas and increase the number of fuel stations with compressed natural gas (CNG), as well as centers for converting cars to run on natural gas at the level of the Republic, and during the year 2022 about 77,000 cars were converted to run on CNG, an increase of 16% compared to 2021, bringing the total number of converted cars since the start of the activity until the end of 2022 to about 483,000 cars.

125 compressed natural gas supply stations were also established during the year, bringing the total number of stations to 862 stations since the start of the activity, and the number of stations established during the year 2022 represents about 19% of the total number of gas stations established over the past 25 years.

NUMBER OF THE MONTH

$18.2 billion

Petroleum Exports Hit a Record in 2022

In 2022, petroleum exports set a new record of $18.2 billion compared to $7 billion and $12.9 billion, with outstanding increases of 160% and 41.09% in 2020 and 2021, respectively.

The reason behind this hike was the great leap in natural gas exports in 2022 in light of the increase in liquefied natural gas (LNG) export prices globally. Natural gas exports increased by 171% to reach $8.4 billion compared to $3.5 billion in 2021, as stated by the Ministry of Petroleum and Mineral Resources.

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i-Trak™ drilling automation services from Baker Hughes reduce operational risk and well delivery costs by integrating and automating drilling systems.

In today's complex drilling environment where surface and downhole real-time systems must deliver according to plan in a predictable, efficient, and safe manner, automation of drilling systems is crucial. The drive to reduce HSE risks by moving personnel from wellsite red zones to remote centers is simplified and supported through the integration and automation of drilling systems.

Baker Hughes's i-Trak drilling automation services improve drilling performance, wellbore quality and trajectory; extend bit life; reduce nonproductive and invisible lost time (NPT, ILT) to deliver wells faster and more economically while reducing operational risk to enable de-manning at the rigsite. These benefits are achieved by aggregating real-time surface and downhole data and annular pressures, and using hybrid physics-based and data-driven models, in combination with automated standardized operating procedures and checklists.

Our i-Trak drilling automation services manage well construction via fully closed loop-control of Baker Hughes rotary steerable assemblies, wellbore hydraulics, and drilling optimization services.

i-Trak services offers two levels of automated control:

- **Advisory mode:** recommended actions or parameters are displayed to the driller who can accept or reject them
- **Closed-loop mode:** parameter changes and instructions are automatically downlinked to downhole tools or transmitted to rig automation platforms to control surface parameters.

In closed-loop mode, the human driller can start/stop the system at any time to make any desired adjustments to the drilling path or operational parameters.

The i-Trak service is a fully integrated extension of Baker Hughes' digital well planning software and ecosystem. This allows i-Trak to monitor and control drilling and reservoir navigation operations based on a continuously updated digital twin of the reservoir and downhole environment.

Contact your Baker Hughes representative to learn how i-Trak drilling automation services can help you achieve safer, more efficient, and more predictable performance on your next well.

Applications

- Wells with inefficient, or inconsistent or unpredictable drilling performance
- Wells with hole cleaning issues, stability issues, or challenging pressure windows
- Wells that must be consistently and repetitively drilled
- Wells using decision-making remote operations or leveraging integrated operations personnel models

Benefits

- Improved safety, lower risks
  - Openhole pressure regime monitoring with automated alerts
  - Swab/surge NPT protection
  - Reduced personnel risks
- Superior drilling and reservoir navigation efficiency
  - Improved hole cleaning
  - Optimized tripping speeds
  - Guaranteed average-excess dogleg severity limits (AEDLS) <1°/100 ft. (30m)
  - Increased hydrocarbon recovery
- Predictable drilling performance
  - Increased gross ROP
  - Fewer stuck pipe incidents
  - Reduced NPT and ILT

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SECTOR DEVELOPMENTS

EL MOLLA PUTS PIPELINE DEVELOPMENT, UPGRADES AT THE TOP OF THE AGENDA

Minister of Petroleum and Mineral Resources Tarek El Molla highlighted the importance of upgrading and developing the nation's petroleum pipelines as well as raising their efficiency as one of the important means to transport crude oil and petroleum products which will support Egypt's target to be a regional hub for trading oil and gas.

El Molla made this statement while chairing the general assemblies of Petroleum Pipelines (PPC), Petrogas, and Cairo Oil Refining Company (CORC) to approve their budget plan for the fiscal year (FY) 2023/24.

During the CORC's general assembly, the minister referred to the company's role in the refining system which provides 30% of total refining amounts in the country as well as its role in leading the petroleum geographical zone in Mostorod.

Additionally, El Molla stressed the importance of continuing to develop all production sites to

reach the highest level of performance, raise safety and industrial security rates, protect the environment, keep pace with technological development and expand digital transformation projects in all petroleum activities in addition to developing the skills of cadres to cope with the development of the oil and gas industry, as well as the expansion of projects to rationalize and improve energy efficiency and reduce emissions.

PETROLEUM SECTOR PARTICIPATES IN DEVELOPMENT PROJECTS IN HAGAR EL MARIS VILLAGE

The petroleum sector, in cooperation with the Orman Association, implemented several projects to support the neediest and most vulnerable families in the Hagar El Maris village, Luxor Governorate.

This cooperation came within the framework of the Ministry of Petroleum and Mineral Resources' strategy for community development headed by Tarek El-Molla, Minister of Petroleum and Mineral Resources, the presidential initiative Haya Karima and Egypt's Vision for Sustainable Development 2030.

The cooperation includes demolishing and rebuilding 21 houses and equipping them with mattresses, furniture, and household appliances, in addition to implementing a number of small development projects that are commensurate with environmental requirements, the most important of which is the project to deliver livestock to the neediest families in the village, as well as providing advanced medical services and distributing food and household products at a cost a total of EGP 6 million.

The families were handed over the new homes, products, and economic empowerment projects in a ceremony attended by Alaa Hagar, Undersecretary of the Ministry of Petroleum for the Technical Office, Nael Darwish, Chairman of the South Valley Company, and a number of leaders of the petroleum sector and Luxor Governorate.

REFINING

EL MOLLA HIGHLIGHTS SIGNIFICANCE OF PETROCHEMICALS, REFINING PROJECTS

Minister of Petroleum and Mineral Resources Tarek El Molla outlined the importance of petrochemicals, refining, and petroleum infrastructure projects to support securing plans and supply stability of petroleum and petrochemical products for the local market as well as promoting Egypt as a regional hub for oil and gas trading.

The minister pointed out that the ministry's strategy fully supports these projects noting that it allocated ambitious budgets to modernize the petroleum entities through replacement and renovation projects, developing and improving energy efficiency, industrial security projects, and environmental compatibility. during the last years.

This came during the general assemblies of Alexandria Petroleum, Amreya Petroleum Refining (APRC) and Egyptian Petrochemical Company to approve their budget plans for the fiscal year (FY) 2023/24.

He also highlighted its role in providing products needed to Egyptian Linear Alkylbenzene company (ELAB), Alexandria Mineral Oils Company (AMOC), and Alexandria National Refining and Petrochemicals Company (ANRPC) as well as its provision of an important aspect of asphalt needs for the national roads project. El Molla underlined the support given by the ministry to the pioneering role of the company in Alexandria and its affiliates.

EL MOLLA PRAISES PERFORMANCE OF REFINERIES IN EGYPT

Minister of Petroleum and Mineral Resources Tarek El Molla stated that what has been achieved in the Egyptian refining industry in recent years is unprecedented, pointing out that the future vision pursued by the petroleum sector Modernization program since its inception in 2016 to develop and implement new projects changed the shape and performance of refineries and increased their production capabilities, the ministry said in a statement.

This came during the general assemblies chaired by El Molla for the public sector oil companies, Assiut Oil Refining Company (ASORC), Suez Oil Processing Company (SOPC), and Nasr Petroleum Company (NPC) to approve the budget plans for the next fiscal year (FY) 2023/24.

INDUSTRY EVENTS

EL MOLLA PARTICIPATES IN THE FUTURE MINERALS FORUM IN SAUDI ARABIA

Minister of Petroleum and Mineral Resources Tarek El Molla has participated in the second edition of the Future Minerals Forum held in Saudi Arabia under the patronage of King Salman bin Abdulaziz.

On the sidelines of the conference, El Molla highlighted Egypt's support and cooperation with the kingdom in the mining sector for several years, noting the similarity between the two countries due to the existence of the Arab Nubian Shield area which separates the two countries.

The conference is being held for three days at the King Abdulaziz International Conference Center in Riyadh under the slogan of "Creating responsible and resilient minerals and metals supply and value chains in Africa, Western and Central Asia".

The conference is attended by 13,000 participants from more than 60 countries and discusses several mining topics, including the latest economic and environmental developments that may impact the industry in the region, in addition to the social and environmental practices in terms of competition and equal opportunities.

EL MOLLA PARTICIPATES IN THE FUTURE OF DIGITAL EVOLUTION IN OIL & GAS INDUSTRY EVENT

Minister of Petroleum and Mineral Resources Tarek El Molla confirmed that digital transformation is not only about the use of new technologies to improve operations carried out by the oil and gas industry, but it is a much deeper necessity that requires the basic integration of digital technologies in all areas of business. The minister's remarks came during his opening speech at the Future of Digital Evolution in Oil & Gas Industry event organized by Egypt Oil & Gas (EOG).

The petroleum sector is always keen to support integration among decision-makers to create a consensus that is reflected in managing the work as a whole and supporting all activities in all stages of the industry, El Molla highlighted during the event which took place at Dusit Thani LakeView Cairo Hotel on January 15th.

The event featured a Strategic Roundtable that brought together the oil and gas sector's distinguished minds to discuss one of the most important aspects of the industry's future, digital transformation.

Moreover, the event included a technical session that featured several presentations on new project developments as well as industry best practices.

NATURAL GAS

WINTERSHALL DEA MAKES NEW NATURAL GAS DISCOVERY IN EAST DAMANHOUR BLOCK

Wintershall Dea announced that it, along with its partners, has made a new natural gas discovery in the East Damanhour exploration block in the onshore Nile Delta.

It said that the licensees, operator Wintershall Dea (40%) and partners Cheiron Energy (40%) and INA (20%), as well as the Egyptian Gas Holding Company (EGAS) will assess the discovery as a possible tie-back development towards the nearby infrastructure at Disouq.

It should be noted that the Disouq gas project is operated by DISOUCO, a Joint Venture between Wintershall Dea and EGAS.

Wintershall Dea started exploration at East Damanhour in November 2021. The discovery was made as the second exploration well in this license.

The ED-2X well is located around three kilometers north of the existing Disouq field. The well encountered a 43-meter-thick gas bearing reservoir with a gas-water contact at 2627 meters. A thorough and fit for purpose data acquisition program has been carried out in the well and the discovery has been tested at peak production of 15 million standard cubic feet per day (mmscf/d).

EL SISI HOLDS NATURAL GAS TALKS WITH ENI'S CEO

President Abdel Fattah El Sisi met with Claudio Descalzi, CEO of Eni, in the presence of Tarek El Molla, Minister of Petroleum and Mineral Resources, according to the presidential spokesperson.

Descalzi reviewed the company's current and future plans to explore and produce gas in Egypt, in light of what it represents as a regional hub for the circulation and production of energy and liquefied gas. He pointed out that being a hub is becoming increasingly important in the context of the current global developments related to the energy crisis, and in view of the promising opportunities and potential that Egypt has in this field.

From his side, El Sisi urged for the expansion of research, exploration and production activities and efforts in coordination between the Ministry of Petroleum and Mineral Resources and

Eni, with the aim of achieving optimal utilization of Egypt's natural resources.

During the meeting, the main topics discussed included the company's current and future activities in Egypt, highlighting the ongoing exploration campaign, which indicated positive preliminary results, showing potential for export increase, leveraging the spare capacity available at Eni's assets on the Mediterranean coast.

NATURAL GAS REACHES JAZIRAT EL HAMOUDI VILLAGE IN QENA

The Ministry of Petroleum and Mineral Resources announced that Jazirat El Hamoudi village in Qena has been supplied with natural gas for the first time as part of efforts to connect rural areas to the natural gas grid within the framework of the Haya Karima ("Decent Life") initiative.

The first natural gas flame was lit in the village by Modern Gas company after pumping the gas to it, bringing the number of villages that the Haya Karima initiative has helped in Qena to 24.

Other villages will be connected once sanitation projects are complete. Modern Gas urged village residents to accelerate connecting natural gas to their housing units, noting that they can benefit from these services.

ENI ANNOUNCES NEW GAS DISCOVERY OFFSHORE EGYPT

Eni announces a significant new gas discovery at the Nargis-1 exploration well located in Nargis Offshore Area Concession, in the Eastern Mediterranean Sea, offshore Egypt, the company said in a statement.

Egypt's Nargis Offshore Area concession is ~445,000 acres (1,800 square kilometers). Chevron Holdings C Pte. Ltd. is the operator with a 45% interest, while Eni's wholly owned Affiliate IEOC Production BV holds a 45% and Tharwa Petroleum Company SAE holds a 10% interest.

Eni has been present in Egypt since 1954, where it operates through the subsidiary IEOC. The company is currently the country's leading producer with an equity production of hydrocarbons of approximately 350,000 barrels of oil equivalent per day. In line with the net-zero strategy by 2050, Eni is engaged in a series of initiatives aimed at decarbonizing the Egyptian energy sector, including the development of CCS plants, renewable energy plants, agro-feedstock for biorefining and others.

EXPLORATION

EXXONMOBIL SECURES EXPLORATION ACREAGE OFFSHORE EGYPT

ExxonMobil announced that it has secured exploration rights to two blocks, Masry and Cairo, offshore Egypt. The blocks are located in the outer Nile Delta and cover more than 11,000 square kilometers. The awards are subject to governmental approval of the concession agreements covering the blocks, and their signature in due course.

ExxonMobil Egypt (Upstream) Limited will operate both blocks and hold 100% interest. Exploration activities are scheduled to begin in 2023, subject to the signature of the concession agreements.

UNITED OIL & GAS COMPLETES DRILLING OF ASW-1X EXPLORATION WELL

In a company statement, United Oil & Gas announced the completion of drilling operations at the ASW-1X exploration well.

The ASW-1X well is located in the Abu Sennan license, onshore Egypt, where the company holds a 22% non-operating interest, and is operated by Kuwait Energy Egypt (KEE).

The well has been drilled to a total depth of 3,640 meters, 10 days early and under budget. Moreover, the well encountered a net reservoir in the Bahariya, Alam El Bueib, and Abu Roash targets, however, the logs did not show hydrocarbon presence.

The ASW-1X well results will be integrated into the company's subsurface understanding of the Abu Sennan license, as well as the additional data that are planned to be used to prioritize future drilling locations.

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HOUSE OF REPRESENTATIVES APPROVES LICENSE FOR OIL EXPLORATION IN THE WESTERN DESERT

The House of Representatives approved the report of a joint taskforce from the Energy and Environment Committee and the Office of the Constitutional and Legislative Affairs Committee on a draft law, which allows the Minister of Petroleum and Mineral Resources to contract with the Egyptian General Petroleum Corporation (EGPC) and IEOC Production B.V., Al Ahram Newspaper reported.

The approval is to amend the commitment agreement issued pursuant to Law No. 212 of 2014 for the exploration and exploitation of petroleum in the area southwest of Maleiha in the Western Desert.

It is noteworthy that the Council had previously approved a draft law licensing the Minister of Petroleum to contract with EGPC and IEOC Production B.V. in the search for and exploitation of oil in the southwest region of Maleiha in the Western Desert.

APEX

APEX INTERNATIONAL UPGRADES ICUS IN RAS EL HEKMA CENTRAL HOSPITAL

Apex International Energy announced an update on its assistance to the Ras El Hekma Central Hospital near the company's operations in the Western Desert. During November and December 2022, Apex raised the hospital's Intensive Care Unit (ICU) capacity and effectiveness while serving the community of Ras El Hekma by providing modern medical equipment for six ICU rooms.

The assistance was provided within the framework of the social responsibility role played by the petroleum sector, and under the auspices of the Minister of Petroleum and Mineral Resources Tarek El Molla. This framework is linked to the United Nations Sustainable Development Goals, and in this case the third goal of ensuring healthy lives and promoting well-being for all citizens.

EGAS

ENI, EGAS SIGN MEMORANDUM OF INTENT FOR EMISSIONS REDUCTION

Minister of Petroleum and Mineral Resources Tarek El Molla and Eni's CEO Claudio Descalzi witnessed the signing of a memorandum of intent for the technological integration of flare gas reduction and evaluation efforts and other emission reduction technologies between the Egyptian Natural Gas Holding Company (EGAS) and Eni, the Ministry said in a statement.

The memorandum was signed by Magdy Galal, President of EGAS, and Guido Brusco, Head of Natural Resources Operations at Eni.

According to the memorandum, the two companies will study and identify available opportunities for reducing greenhouse gas emissions in oil and gas sector projects in Egypt and prepare a master plan for the economic utilization of the gases resulting from these operations.

Therefore, EGAS and Eni will take important steps to reduce the burning of flare gases and emissions to the lowest technical level, evaluate and implement several initiatives to reduce greenhouse gases, including the construction of photovoltaic electricity units, and evaluate carbon capture, storage and use initiatives.

PETROJET

PETROJET MANUFACTURES PROJECT COMPONENTS LOCALLY FOR THE FIRST TIME

Minister of Petroleum and Mineral Resources Tarek El Molla witnessed the first meeting of the Board of Directors of Petrojet for the year 2023, which was held at the headquarters of the Ministry of Petroleum and Mineral Resources, the ministry said in a statement.

During the meeting, Walid Lotfi delivered a presentation on efforts to implement the ministry's work strategy for local manufacturing in the five manufacturing workshops of Petrojet, which are qualified with international manufacturing licenses (AS ME) in the field of equipment and the N Stamp license for nuclear plant equipment. In 2022, Petrojet succeeded in manufacturing more than 366 units of static equipment with a total weight exceeding 10,000 tons, with a value of $240 million, compared to $350 million if imported from abroad.

The meeting also reviewed the company's establishment of the first specialized workshops for the manufacture of static equipment in Assiut to serve the sector's projects in that region, especially the projects of Assiut and ANOPC companies.

HPCL

INDIA'S HPCL TO EXPAND CAPACITY OF VIZAG REFINERY

The state-run Hindustan Petroleum Corporation (HPCL.NS) hopes to start its Vizag refinery in southern India at an additional capacity of 15 million tonnes per annum (mtpa) by the end of June, according to its chairman Pushp Joshi, Reuters reported.

He added that the refinery, which had a previous capacity of 8.33 mtpa and is currently commissioning units. As a result, HPCL's crude imports will increase beginning in April of the following fiscal year.

The HPCL tailings upgrade project at the Vizag refinery will improve distillate yields and will be ready by the end of this year or January 2024, Joshi said.

To expand its portfolio, HPCL is building a petrochemical facility linked to the Vizag refinery and a 5 mtpa gas import terminal at Chhara in western Gujarat.

TOTALENERGIES

TOTALENERGIES IS ROLLING OUT ITS INTEGRATED GAS STRATEGY IN OMAN

TotalEnergies declared the start of gas production from onshore Block 10 in the Sultanate of Oman as well as a long-term LNG purchase contract with Oman. This came in accordance with its growth strategy in gas and LNG, a fuel contributing to the energy transition.

The onshore Block 10 Mabrouk North-East field of TotalEnergies has started producing gas. Block 10 is owned by TotalEnergies with a 26.55% stake, OQ with a 20% stake, and Shell, the operator, with a 53.45% stake.

Gas output is forecast to reach 500 million standard cubic feet per day by mid-2024. The produced gas will supply the Omani gas network, feeding both local industry and LNG export facilities. This production start-up follows the signing of the concession agreement in December 2021.

A contract between TotalEnergies and Oman LNG for the purchase of 0.8 million metric tonnes of LNG annually beginning in 2025 has also been signed.

PDVSA

PDVSA RESTRICTS MOST OIL EXPORTS FOR CONTRACT REVIEW

In a move to avoid payment defaults, the new CEO of Venezuela's PDVSA Pedro Rafael Tellechea stopped most oil export contracts while his team reviews them according to an internal document seen by Reuters and people familiar with the matter, Reuters reported.

Since the United States first implemented trade restrictions on PDVSA in 2019, the business has increasingly turned to unknown middlemen to

distribute its oil shipments, resulting in significant pricing discounts and cash flow issues.

According to the sources, the freeze order is causing port delays because ships that were loading have been diverted and are now waiting for new directives.

The suspensions of the contracts were announced last week in a letter from Tellechea to the leaders of the company's supply and trade, domestic market, international market, finances, and foreign affairs divisions. The freeze's duration was not made clear in the letter.

WINTERSHALL

WINTERSHALL DEA TO EXIT RUSSIA

Wintershall Dea's Supervisory Board has approved a decision by the Management Board to exit Russia.

As a result, the German energy giant will fully exit Russia in an "orderly manner complying with all applicable laws and regulations."

Wintershall Dea came to the conclusion that it no longer satisfies the IFRS requirements for having control or significant influence over its joint ventures in Russia.

Wintershall Dea deconsolidated all of its Russian participations in Q4 as a result. The Russian participations will be treated as financial assets valued at fair value in accordance with IFRS 9 until the planned exit is fully realized.

The company will take actions in accordance with its financial policy to maintain a strong balance sheet consistent with its commitment to an investment grade rating and, concurrently, profitably grow and diversify its operations outside of Russia. This flexibility was built during the year 2022.

EXXONMOBIL

EXXON TO START UP $2B TEXAS OIL REFINERY EXPANSION

ExxonMobil in coming days will excessively increase gasoline and diesel output at its Beaumont, Texas, refinery, sources familiar with the matter told Reuters.

It is anticipated that this boost will make the Beaumont refinery the second largest in the United States with an initial startup of 250,000 barrels per day crude distillation unit (CDU) at the 369,000 barrels per day refinery by Jan. 31, the sources said.

It adds the equivalent of a mid-sized refinery and goes online as planned at a time when U.S. President Joe Biden has been pressuring refiners to produce more fuels or face penalties. It is the first significant expansion to U.S. oil processing in almost a decade.

A representative for Exxon declined to comment on the time of the unit's initial startup. Exxon had previously stated that the unit will begin production in this year's first quarter.

ADNOC

ADNOC ESTABLISHES NEW WORLD-CLASS PROCESSING, OPERATIONS, MARKETING COMPANY

ADNOC, a trustworthy and ethical supplier of energy with a lower carbon footprint, has announced the creation of ADNOC Gas, its new global-scale gas processing, operations, and marketing organization, which will go into operation on January 1, 2023. The flagship firm unites the ADNOC Gas Processing and ADNOC LNG enterprises' operations, maintenance, and marketing into a single, globally recognized, market-dominating consolidated business.

As ADNOC expands its gas production and processing capacity, both the scale and capabilities of ADNOC Gas will maximize value and create new opportunities for ADNOC, its partners and the UAE. ADNOC Gas, a major worldwide operator with a capacity of 10 billion standard cubic feet of gas per day (scfd), will provide gas products to a wider spectrum of domestic and foreign clients.

Natural gas is and will play a vital role in a responsible energy transition. Demand for natural gas, as a lower-carbon fuel, is forecast to increase heavily over the coming decades with global gas demand driven by industrial and manufacturing growth and the replacement of more carbon intensive fuels, such as coal, in international markets.

BP

BP BRINGS GREEN ENERGY, JOBS TO OHIO WITH CONSTRUCTION OF NEW UTILITY-SCALE SOLAR PROJECT

By partnering with Meta under a power-purchase agreement (PPA), bp is addressing greenhouse gas emissions and promoting the development of renewable energy in the US. When finished, Arche will produce enough clean energy per year to power more than 20,000 US households.

bp America chairman and president Dave Lawler said: "This agreement shows how companies can create jobs, invest in the US economy, and at the same time support net zero ambitions and help the world reduce carbon emissions. It's another example of bp partnering to accelerate change and becoming an integrated energy company – one that can help corporations, countries and cities decarbonize."

Global solar powerhouse Lightsource bp, bp's 50:50 joint-venture partner, created the project on the company's behalf and is overseeing development.

PETRONAS

PETRONAS, ITS PARTNERS AWARDED AGUA MARINHA BLOCK IN BRAZIL BID ROUND

The Agua Marinha exploration block was won by PETRONAS Petróleo Brasil Ltda. (PPBL) and partners during the first round of Brazil's open acreage under production sharing regime auction, which was conducted in Rio de Janeiro.In the Campos Basin block, which will be operated by Petrobras (30%), TotalEnergies (30%), and QatarEnergy, PPBL will own a 20% participating interest (20 per cent).The Brazilian National Agency of Petroleum, Natural Gas, and Biofuels (ANP) announced the outcome of the auction for the pre-salt acreage region in a live ceremony on December 16.

PETRONAS Vice President of Exploration, Mohd Redhani Abdul Rahman said, "We are truly thrilled by the favourable outcome of the bid round. This success demonstrates our competitive edge in sustainably developing and monetising assets in the Campos Basin."

SHELL'S UNWAVERING COMMITMENT TO EGYPT'S ENERGY TRANSITION

An interview with **Khaled Kacem**, Vice President and Chairman, Shell Egypt

What is Shell's view on the global climate change issue?

An unprecedented collaboration between industry, consumers, and governments is vital if the world is to meet the more ambitious goal of the UN Paris Agreement and limit global warming to 1.5°C.

Tackling climate change is an urgent challenge. But only a transformation of the global economy, and the energy system that supports it, will stop the world from adding to the total amount of greenhouse gases in the atmosphere, achieving what is known as net-zero emissions.

For our part, Shell has set a target to become a net-zero emissions energy business by 2050.

We have set our net-zero target, and our short-and medium-term carbon intensity targets, so that they are consistent with the more ambitious goal of the UN Paris Agreement.

By achieving our climate target, we will contribute to a net-zero world, where society stops adding to the total amount of greenhouse gas emissions in the atmosphere.

To help step up the pace of change, in October 2021, we set a complementary absolute emissions target, for emissions under our operational control.

What's the role of gas in this?

Gas currently meets a quarter of the world's energy needs. It heats and cools industries, homes and businesses; it fuels trucks and ships as an alternative to diesel, and heavy fuel oil; it generates electricity; and it goes into many everyday essentials because gas is also used as feedstock for key industries such as fertilizers, plastics, and fabrics. When compared to alternatives such as coal, it is a lower-emission energy option that is available at scale and serves both energy security and energy transition, two of the most fundamental challenges facing society today.

Khaled Kacem, Vice President and Chairman Shell Egypt

> *Tackling climate change is an urgent challenge. But only a transformation of the global economy, and the energy system that supports it, will stop the world from adding to the total amount of greenhouse gases in the atmosphere, achieving what is known as net-zero emissions.*

When gas cannot be transmitted through pipelines, it can be cooled down to a liquid and transported on ships as liquefied natural gas (LNG). The development of LNG-enabled gas to become an internationally traded commodity ensures that today LNG plays a significant role in developing new markets for gas and supporting the switch to gas in more coal-intensive energy systems. Shell has been a pioneer in LNG for more than 50 years.

Shell supports strengthened Nationally Determined Contributions (NDCs) – climate action plans to cut emissions and adapt to climate impacts – bold policies and regulations that both encourage companies to move ahead in providing low-carbon energy supply and provide economic incentives to build demand for low-carbon energy.

Shell Egypt Head of Corporate Relations Alaa El Dabaa (left), Shell Egypt Vice President and Country Chair Khaled Kacem (middle left), Minister of Petroleum and Mineral Resources Tarek El Molla (middle right), Shell CEO Wael Sawan (right)

Today, Shell is a leading LNG trader, delivering cargoes to more than 25 countries. In 2021, we sold 64 million tonnes of LNG, enough to meet Canada's entire annual gas demand.

But gas itself needs to be decarbonized using technological innovations. This includes both the reduction of the carbon intensity of gas and increasing the focus on transparency and measurement, reporting and verification of associated emissions, to ensure that customers and wider society have confidence in the industry's efforts to decarbonize.

These efforts need to happen across the value chain, from production to end consumption. This requires collaboration across stakeholders – governments, policymakers, energy producers and suppliers, and energy consumers. Shell advocates for government policies that require abatement of carbon emissions, such as through carbon capture and storage (CCS) and the reduction and elimination of methane emissions. Shell is at the forefront of global efforts to reduce methane emissions, both through the actions we are taking in our own operations and our leadership in industry and civil society coalitions such as the Methane Guiding Principles. Shell has committed to implementing the Oil and Gas Methane Partnership (OGMP) 2.0 program for improving methane data credibility for Shell-operated ventures by the end of 2023 and to use reasonable endeavors to influence NOVs (Non-Operated Ventures) towards achieving the same standard by the end of 2025. CCS and lower-carbon gases are also fundamental to Shell's Powering Progress Strategy and crucial in helping us achieve our target of becoming a net-zero emissions energy business by 2050.

How did COP27 help achieve such climate ambitions?

The COP27 was an opportunity for governments and policymakers to further step up their climate ambitions and define how they will transform these ambitions into action, as they lower emissions and prepare for the impact of climate change, including the allocation of finance.

Given that the Conference of Parties to the UNFCCC 27th annual meeting (COP27) took place in Sharm El-Sheikh last year against the backdrop of a global energy and cost of living crisis, security of supply and affordability must be balanced with the urgent need for investments in a lower-carbon energy system.

Building on the outcomes of the previous conferences, COP27 had a strong focus on implementation; translating these outcomes previously agreed by governments into policies and actions to mitigate climate change and its impacts.

The Egyptian COP Presidency dedicated a key thematic day (Decarbonization Day) to focus on emissions reduction; scaling up climate change adaptation efforts and shaping a global goal on adaptation; and the required financing. It also recognized the need for the energy transition to be fair and equitable - a 'just transition'. This COP had a strong focus on Africa, where Shell's activities include strengthening our gas business; offering solar power solutions to businesses; and investing in natural ecosystems.

How can Shell support this vision?

Shell supports strengthened Nationally Determined Contributions (NDCs) – climate action plans to cut emissions and adapt to climate impacts – bold policies and regulations that both encourage companies to move ahead in providing low-carbon energy supply and provide economic incentives to build demand for low-carbon energy. These policies should:

support energies and innovative technologies – such as decarbonized hydrogen, advanced biofuels and carbon capture, utilization and storage (CCUS) - that will help cut emissions from sectors that cannot easily run on electricity; accelerate and synchronize the supply and demand of low-carbon energy, along with the equipment to deliver and use it;

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support the development of international carbon markets and provide clarity on the intended use of Article 6; reduce methane emissions throughout the natural gas supply chain through direct regulations, such as performance standards based on robust monitoring, reporting, and verification frameworks; ensure the transition is inclusive and distributed in a fair way.

How can Shell support Egypt's decarbonization ambition?

Shell has a history of over 110 years In Egypt. Over decades the company developed a strategic partnership with Egypt and continuously supported the country monetize its natural resources throughout our involvement in the full value chain of the oil and gas business: upstream, midstream and downstream. Egypt has set itself a very ambitious energy transition target as part of its national vision and this proved immensely compatible with the direction of Shell, where energy transition is at the forefront of our priorities.

Shell has already embarked on its energy transition journey in Egypt a few years back. But this Is gaining traction thanks to the country's growing interest in implementing decarbonization efforts, starting with the Oil & Gas sector.

Shell Egypt, together with EGAS and Petronas are collaborating with a Bechtel-led coalition that includes Enppi and Petrojet to study a proposed unified power system between West Delta Deep Marine (WDDM) and Egyptian LNG (ELNG). The FEED is set to explore the benefits of a One Power Hub concept, integrating the electrical power systems at the WDDM and ELNG, as opposed to having two separate systems. The study outcomes are currently being analyzed.

> *Egypt has set itself a very ambitious energy transition target as part of its national vision and this proved immensely compatible with the direction of Shell, where energy transition is at the forefront of our priorities.*

MoU signing ceremony with EGAS on the sidelines of COP27 in Sharm El-Sheikh, Egypt; EGAS Chairman Magdy Galal (left), Minister of Petroleum and Mineral Resources Tarek El Molla (middle), Shell Egypt Vice President and Country Chair Khaled Kacem (right)

Over the past few years, we have been working on optimizing the performance of our joint ventures (Rashpetco and ELNG) through asset integrity and process safety processes. We have also implanted Zero Routine Flaring for both ELNG and Rashpetco, something we are very proud to have achieved.

We also signed Heads of Agreement with EGAS to set up a Greenhouse Gas (GHG) emissions management framework aimed at managing, and potentially reducing, greenhouse gas emissions from EGAS affiliates. EGAS and Shell are currently collaborating to establish an effective framework to manage Greenhouse Gas emissions through a standardized governing framework that is applicable to all EGAS affiliate companies.

On CCUS, Shell Egypt, in collaboration with SLB, signed a Memorandum of Understanding (MoU) with EGAS to launch a study assessing CCUS potential in the Nile Delta to support the O&G sector in identifying CCUS opportunities, potential reservoirs and scalability. I am pleased to announce that phase one has just been completed, and we are planning to complete phase two soon. If the outcomes are economic, this should place Egypt on the map of CCUS locations, with the outcome of such to act as the sector's 'data bank" for CCUS storage locations around the world. This is a great demonstration of how we can support the Government of Egypt with its CCUS regulatory framework.

As you can see, there are multiple opportunities in the pipeline that we truly believe could add to the sector's decarbonization journey.

> *The COP27 was an opportunity for governments and policymakers to further step up their climate ambitions and define how they will transform these ambitions into action, as they lower emissions and prepare for the impact of climate change, including the allocation of finance.*

> *Shell is at the forefront of global efforts to reduce methane emissions, both through the actions we are taking in our own operations and our leadership in industry and civil society coalitions such as the Methane Guiding Principles.*

AFRICA NOT READY TO ABANDON ITS OIL AND GAS RESOURCES

An Interview with
H.E. Gabriel Mbaga Obiang Lima,
Minister of finance, economy and planning, Equatorial Guinea

What is your opinion regarding the outcomes of COP27 and what direction will oil-producing countries take given these outcomes?

Despite only contributing less than 3% towards the world's greenhouse gas emissions, global actors continue to call for Africa to abandon its oil and gas resources. While we recognize the impacts of climate change – Africa actually faces some of the harshest impacts – abandoning oil and gas is not the solution to reducing emissions. Rather, oil and gas producers have a critical role to play through the adoption of sustainable practices. Going forward, as Africa continues to maximize its hydrocarbon resources in pursuit of alleviating energy poverty and industrializing the continent, priority will be placed on sustainability and environmental protection, so that the energy transition is just while economic growth is accelerated.

How do you think a just energy transition can be accomplished in Africa, which suffers from severe energy poverty?

Africa needs to diversify its energy mix by exploiting all of the available energy resources. With over 600 million people living in energy poverty and over 900 million living without access to clean cooking, the continent needs to leverage its entire energy base. This includes the estimated 125.3 billion barrels of crude oil, over 620 trillion cubic feet of proven gas reserves and nearly 16.4 billion short tons of coal, as well as the range of available hydropower, biomass, geothermal, solar energy, hydrogen and wind energy potential.

At the same time, the continent needs to prioritize carbon capture and mitigation through the deployment of carbon reduction mechanisms, while investing heavily in local content and capacity building. A just energy transition cannot be achieved without an educated and highly skilled workforce. In this regard, collaboration across the entire energy value chain, as well as between African and global stakeholders will be key. Policies also need to prioritize the continent's needs before adhering to global requirements, and progress has already been made in this regard.

In your opinion, how can energy poverty in Africa be eradicated?

Alleviating energy poverty will be achieved through heightened investment and improved intra-African trade. In order for the continent to benefit from the range of natural resources it possesses, investment needs to increase in current and upcoming project developments. At the same time, priority needs to be placed on domestic utilization of resources. Africa cannot benefit from its resources if it does not have the relevant infrastructure to distribute and utilize those resources.

With over 600 million people living in energy poverty and over 900 million living without access to clean cooking, the continent needs to leverage its entire energy base. This includes the estimated 125.3 billion barrels of crude oil, over 620 trillion cubic feet of proven gas reserves and nearly 16.4 billion short tons of coal, as well as the range of available hydropower, biomass, geothermal, solar energy, hydrogen and wind energy potential.

In order for the continent to benefit from the range of natural resources it possesses, investment needs to increase in current and upcoming project developments.

This is why we are advocating for and accelerating the development of regional systems such as the East African Crude Oil Pipeline, the Central African Pipeline System, the Nigeria-Morocco Gas Pipeline and the Trans-Saharan Gas Pipeline System, as well as a wide range of refinery and gas-to-power plants. By maximizing intra-Africa trade and regional cooperation across the oil and gas sector, Africa has the opportunity to achieve energy security and economic prosperity. The development of refineries will enable the continent to process and distribute its own refined products, reducing imports and scaling up fuel security, while the construction of large-scale oil and gas receiving terminals will advance intra-African trade across the liquefied natural gas and associated sectors.

With the Russia-Ukraine war intensifying, what do you expect for energy markets in 2023 and beyond, and how will OPEC navigate through this uncertain future?

Geopolitical dynamics will likely impact the global energy market, just as the COVID-19 pandemic did. In this regard, OPEC's role will remain to closely monitor the market. Our aim is to create as much stability as we can so that both suppliers and consumers benefit. As such, we will continue to monitor the market and the changes that occur.

What unique developments are taking place in Equatorial Guinea's energy sector?

There are a lot of developments being undertaken in Equatorial Guinea. On the upstream side, a number of companies are engaging in exploration and production, and we expect to announce several production sharing contracts soon. We are focused on advancing our E&P agenda while reinvesting in existing wells.

2023 also marks the year in which we are concluding consultations with stakeholders for the finalization of the new Hydrocarbon Law which will lay a clear path for existing investors and energy companies. With gas representing the energy resource of the future, we want to make sure that gas provisions and fiscal terms are provided for in the new legislation. In addition, more work will be done this year to boost our Gas Mega Hub, with several partnerships with neighboring countries having already been signed in this regard. We are also progressing with the establishment of the Central African Pipeline System.

What competitive advantage does Equatorial Guinea's energy sector have that could make it a formidable force in the global energy market?

We have over 1.5 trillion of proven natural gas reserves and with the demand for gas expanding globally, our resources present a huge opportunity for the growth of our economy. Equatorial Guinea's strategic location and its liquefied natural gas (LNG) capabilities makes our sector an ideal industry for global investors to invest in and markets to partner with. We are strategically located to export gas across the globe. Furthermore, investor-friendly fiscal terms continue to attract new investments as we bolster the upstream, midstream and downstream sectors while also expanding our renewables energy portfolio.

Are you optimistic about Equatorial Guinea's energy future and what improvements do you think need to happen in your country to guarantee its continued success?

Equatorial Guinea is well on its way to become a regional processing hub through our Gas Mega Hub initiative. Going forward, we are committed to finding and developing new wells while reinvesting in existing fields to maximize output. I believe that with the new Hydrocarbon Law in place, we will be able to maximize the transformation and continued growth of the energy sector.

What role do you think Egypt can play in the global energy market, especially with the recent developments in its oil and gas industry and its effort to increase LNG exports?

With its strategic location and significant resource base, Egypt is well positioned to supply the global market with oil and gas. The country has been committed to increasing its production, with a number of developments recently launched. Increased focus on LNG by the government and improved ties with Europe continue to enhance the country's attractiveness as a trade partner. Just like other African producing countries, Egypt's energy resources have emerged as highly attractive in the global energy market. w

What is your message to visitors at EGYPS 2023?

Africa is not ready to abandon its oil and gas resources. For the sake of economic progress, industrialization and energy poverty alleviation, we need to drill more wells, make new discoveries and invest in African energy. We also need to prioritize intra-African energy trade so that the continent benefits from its own resources.

> **Geopolitical dynamics will likely impact the global energy market, just as the COVID-19 pandemic did. In this regard, OPEC's role will remain to closely monitor the market.**

> **With its strategic location and significant resource base, Egypt is well positioned to supply the global market with oil and gas.**

SUPPORTING THE GLOBAL ENERGY TRANSITION TOWARDS A MORE SUSTAINABLE FUTURE

An Interview with **Rich Sumner**
President & CEO of Methanex Corporation

How does Methanex's strategy support the achievement of the vision of Methanol global leadership?

We take pride in being the global market leader in the production and supply of methanol to major international markets. To maintain our leadership position, we focus on creating value through the global production, marketing and delivery of methanol to customers supporting both traditional and energy-related markets. We also focus on maintaining a low-cost structure as an important competitive advantage in a commodity industry - as well as operational excellence across all aspects of our business, from manufacturing and supply chain processes to corporate governance practices and financial management. Our strategically positioned production sites in every major market enable our team to quickly adapt and respond to our customers' needs.

Another key factor in maintaining our leadership position is our extensive global supply chain and distribution network of terminals and storage facilities and our integrated in-region logistics capabilities that provide us with unique flexibility to deliver methanol directly to customers by several modes of transport including tanker, barge, rail, truck and pipeline.

We also pride ourselves on being a leader in Responsible Care®, an operating ethic and set of principles for sustainability developed by the Chemistry Industry Association of Canada and recognized by the United Nations, to manage issues related to employee health and safety, environmental protection, community involvement, social responsibility, sustainability, security and emergency preparedness. Our commitment to Responsible Care is one of the main pillars that support the sustainability of our business and helps us maintain our license to operate globally.

How can Methanex positively contribute to the global energy transition and support the transition to a low-carbon economy?

As the world's largest producer and supplier of methanol, we recognize that it is essential that we use our leadership position to promote the role methanol has to play in contributing to a more sustainable future.

We are committed to playing an active role in the transition to a low-carbon economy by leveraging our existing production assets and collaborating with government and industry. Our objective is to drive solutions that can meet the growing demand for our product in ways that can support the environmental commitments of our company, industry and customers. Two priorities are guiding our activities to support a transition to a low-carbon economy: producing low-carbon/carbon neutral methanol and growing the markets for methanol.

We are currently exploring low-carbon pathways to make methanol using our existing asset portfolio, in particular carbon capture utilization and storage, e-methanol and renewable natural gas. Developing methods to efficiently and reliably produce methanol from renewable sources on a commercial scale is an important next step on the path to meeting society's decarbonization goals.

> *We are committed to playing an active role in the transition to a low-carbon economy by leveraging our existing production assets and collaborating with government and industry.*

We are also focused on identifying efficiency projects for our existing sites to reduce greenhouse gas (GHG) emission intensity. We are committed to reducing our GHG emission intensity from manufacturing by 10 per cent by 2030, compared to 2019 levels. Also, we have committed capital and resources to look at technology for a new build design that could achieve a fifty-percent reduction in CO_2 emissions compared to our current methanol plant design.

In addition, methanol is a chemical building block for hundreds of products, many of which help make our lives more sustainable, including energy-efficient buildings, electric cars, solar panels and wind turbines. It is also a cleaner burning fuel that can be used to improve air quality compared to traditional fuels like diesel or coal.

Regarding growing markets for methanol, we continue to promote methanol as a marine and vehicle fuel, as well as promoting its heating uses for industrial and domestic applications. We take pride in our leadership role in advancing the use of methanol as a cleaner-burning marine fuel and supporting the shipping industry's goal to significantly reduce emissions. Today, there are over 100 methanol or dual-fuel vessels that are either running or on order, from leading shipping companies including Maersk, Cosco Shipping and many others.

How do you see the future of methanol?

Methanol is an essential chemical building block for many everyday products in modern society, including clothing, construction materials, automotive parts, pharmaceuticals, and more.

> *Methanex supports the government's vision of maximizing the value of the country's oil and gas resources, through providing vital feedstock to a number of petrochemical industries that further contribute to Egypt's economic growth.*

It's also difficult to substitute due to its unique chemistry, scale and ease of transport and cost.

As society and industry commit to decarbonization, the world faces a dilemma: while demand for petrochemicals and global transportation of goods is growing, so are the pressures to reduce or eliminate the carbon footprint of these products and activities. Methanol, as both a chemical building block and a fuel, can help resolve this dilemma. It can help meet the increased demand for petrochemical-based products and reduce air pollution and GHG emissions from combustion-related applications. It can also be made from renewable sources and support the long-term decarbonization of both the chemicals that make modern life possible and the transportation sector.

Methanol can also support decarbonization pathways in developing economies that are most likely going to face challenges in transitioning to lower-carbon fuels. These countries will require affordable energy options that still set them on a path to decarbonization which is where methanol can play a role.

What essential role does Methanex play in Egypt's national economy and how do its partnerships within the country help it achieve its key strategic objectives?

As the only methanol production business in the country, this means that our joint venture substantially provides most of the country's methanol needs. Methanex supports the government's vision of maximizing the value of the country's oil and gas resources, through providing vital feedstock to a number of petrochemical industries that further contribute to Egypt's economic growth. Of equal importance is our exports – about 85% of our production is exported via ships to various destinations around the world, mainly in Europe – providing revenues that further contribute to the country's economy.

We have also developed strong and successful partnerships in Egypt, within the Egyptian oil and gas sector and the local community. On the sector level, and through our ongoing collaboration and partnership with the Ministry of Petroleum and Mineral Resources, Egyptian General Petroleum Corporation (EGPC), the Egyptian Petrochemicals Holding Company (ECHEM) and other key holding companies, we were able to start a rich dialogue around Process Safety Management (PSM) within the sector. This enabled us to take real steps on the ground towards turning our joint PSM vision of safer processes, assets, and operations, into a reality. This led to the creation of a three-year roadmap to guide all petrochemical, oil and gas companies on their PSM journeys, aligning with the Minister of Petroleum's vision for the modernization of the sector. In just three years after signing our PSM Memorandum of Understanding (MoU) in 2020, we are now witnessing the development of 24 world-class PSM standards and guidelines created by the PSM Technical Sub-Committee under the leadership of the Egyptian PSM Steering Committee. Those standards and guidelines will set the path for companies in the Egyptian oil and gas sector to achieve the zero injuries and zero release goals set by the ministry.

As a responsible neighbor, we have been committed to making a difference to the communities in Damietta, through a focus on social investments in health, education, sustainable development, and training. Over the years, we have accelerated our social responsibility journey through strengthening our sustainability maturity and ensuring that positive impacts experienced by the community and local partners are enhanced and meaningful. We are also aligned with Egypt's Vision 2030 and the UN's Sustainable Development Goals (SDG) 2030 which form the framing structure of our social responsibility work in Damietta. I believe we have created a success story through our partnership with the International Labor Organization (ILO) in 2019 that extends ILO's flagship project, "Decent Jobs for Egypt's Young People (DJEP)", to the governorate to create decent employment opportunities for youth in Damietta, through promoting entrepreneurship and facilitating job matching processes. So far, this successful partnership resulted in empowering and training 1,891 young entrepreneurs, including 1,387 women, and creating more than 653 job opportunities within Damietta.

Can you share with us your take on EGYPS and your participation in this year's show?

I am excited that my first industry conference engagement as Methanex's CEO will be at EGYPS, the largest oil and gas show in Egypt and the region. There are great opportunities here to share knowledge with and learn from other leaders and brands in the industry, as well as engage with policy makers and government officials. We're all working together to achieve a better future for one of the keys enabling sectors of the global economy.

I am honored to be one of the strategic conference speakers, joining a panel with other senior leaders to discuss decarbonization. I will also be joining members of our Egypt team to celebrate the successful partnerships we have established during our 12-year journey in Egypt. We will be sharing our success stories about embedding Process Safety Management (PSM) within the Egyptian oil, gas, and petrochemical sector, as well as supporting the Damietta community on the journey to embracing sustainable development as a vehicle for growth through our agreement with the International Labor Organization (ILO). Methanex is also a finalist in Sustainability in Energy Conference's Safety Awards, recognizing our efforts in creating a PSM framework. So overall, I have many reasons to be excited about my participation in EGYPS 2023.

ENVISIONING TOMORROW: EXPLORING THE PETROLEUM SECTOR'S DIGITAL FUTURE

Under the patronage of Minister of Petroleum and Mineral Resources Tarek El Molla, Egypt Oil & Gas organized the "Future of Digital Evolution in Oil & Gas Industry" event in Dusit Thani LakeView Cairo Hotel on January 15th.

During their welcome speeches, Mohamed Fouad, CEO and Founder of Egypt Oil & Gas, and David Chi, Egypt Oil & Gas Committee Chairman and the Vice President of Apache Corporation and Country Manager for Apache in Egypt, expressed their thoughts on the importance of digital transformation. "Our leader within our sector through the Modernization program created room for everyone to integrate, not to compete. And I think this is what digital transformation needs," Fouad said.

Chi indicated that "One of the biggest challenges we all know is to practically produce energy in a more reliable, affordable, and responsible manner, and I think digitalization is a key enabler."

Meanwhile, El Molla expressed his confidence in the Egyptian oil and gas sector's ability to achieve digital transformation. "I am confident of the Egyptian oil and gas sector's ability to go on the digitalization journey, deploying the latest, cutting-edge technologies and applications in order to sustain the sector's four values of safety, innovation, transparency, and efficiency," El Molla stated during his opening speech. "I believe that the future will always be promising as long as we continue to engage, go through all sectors, renovate, and develop solutions for a successful industry," the minister noted.

The event featured a Strategic Roundtable that brought together the oil and gas sector's distinguished minds to discuss one of the most important aspects of the industry's future; digital transformation.

During the roundtable, the distinguished leaders discussed the nature of digital transformation in the oil and gas sector. "Digital transformation may seem to be just about deploying new technologies and optimizing processes of a new system, but in fact, digital transformation is going through all, as it requires fundamental integration of technologies into all areas of the business," El Molla said.

Sameh Sabry, Senior Vice President, Managing Director at Wintershall Dea Egypt, agreed, pointing out that "Digital transformation is not just for luxury; it is not just digitization. IOCs are sitting on massive amounts of data but mostly in silos. Digital solutions can use this data to create value, increase efficiency, and save costs and time."

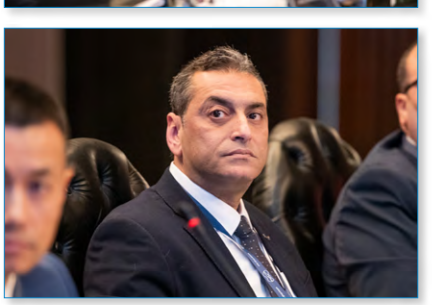
Accordingly, digital transformation is about enabling process transformation to play a key role in enhancing the sustainability of business operations. "The whole idea behind process transformation is that it allows you to benchmark the your processes against the industry best practice," Hoda Mansour, Head of Business Process Intelligence-Southern Europe, Middle East and Africa, at SAP stated.

Digital transformation is also about the data, and managing these data. "The real edge of digitalization and digital transformation (is not just) to have the data but to use the data (and) transform it into a solution," Sherif Bayoumy, Director at SLB Egypt and East Mediterranean, noted.

> ***I am confident of the Egyptian oil and gas sector's ability to go on the digitalization journey, deploying the latest, cutting-edge technologies and applications in order to sustain the sector's four values of safety, innovation, transparency, and efficiency,***

Minister of Petroleum and Mineral Resources

Tarek El Molla



In the strategic roundtable, oil and gas leaders discussed the role of digitalization in creating a sustainable E&P sector, enhancing the digital transformation's role in crisis management, accelerating decision making, and its long-term effects on operational efficiency and the return on investment (ROI). The discussion also shed light on the role of digitalization in the oil and gas sector in the light of energy transition.

"For sectors like the energy sector, without digital transformation, you will lose opportunities for sustainability and you will lose opportunities to have better processes and reduce carbon emissions," Mohamed Abdel Aziz, Chairman & CEO of Enppi, said.

Moreover, Osama Salem, Business Development, General Manager, Enppi explained that "the benefit of the EOG Digitalization Taskforce is to listen to the technology providers and understand their plans and their business. We need to understand and know about their technologies, their innovations, and how (they could) fit in our system."

Industry leaders further highlighted the importance of digitalization in creating opportunities in the energy sector. "The oil and gas sector will have to rely on data and digital platforms to generate new insights and other unearth new opportunities. Companies need to be closer to the citizens and offer their services in a modern, yet more cost-efficient way, and explore the transformational potential of digitalization to help create a highly interconnected energy system," Tarek Heiba, Senior Director and General Manager at Dell Technologies stated.

The roundtable also tackled the digitalization challenges facing the Egyptian oil and gas sector. "The challenge that we all will face with digital transformation is actually cyber security. So, cyber security is really important in several businesses," Tameer Nasser, Manager Egypt & Sudan at Baker Hughes, said. Moreover, Kristian Svendsen, Country Manager-Egypt (Upstream) at Chevron stated "I think we all find that sometimes data gets stuck internally, even in silos. We work really hard to create digital solutions where we can connect data sets together and make it available."

Furthermore, the roundtable guests talked about the digital transformation journey and what has been done on the road so far. "From the beginning, we chose to work with the most sophisticated software globally. We were selective

about the type of software that should be used in the sector because we wanted digital solutions that cater the most to the needs of our industry." Alaa Hagar, Under Secretary for Minister's Technical Office, at The Ministry of Petroleum and Mineral Resources stated.

Additionally, the sector paid attention to developing future generations to empower them in the digital transformation arena. "We have already established the ICT academy with the most of universities here in Egypt. We have today 79 ICT academies built together with university students. These students will graduate with technology degrees funded by us and will contribute to the oil and gas sector," Hao Wang, CTO of Energy, North Africa Region at Huawei stated.

In order to achieve its digital transformation goals, the Egyptian oil and gas sector should pay attention to efficient decision making. "By assigning the right information to the right place, we can make the right decisions in terms of how to do a lot of deals and how to introduce them in a more efficient manner," Chi explained.

Infrastructure is also one of the factors required for successful digital transformation. However, establishing the infrastructure is not a problem for the oil and gas sector. "Building the infrastructure for digitalization can be much faster [and] easier than building the physical infrastructure," Saed Habash, Regional Channel Director MEA at TeamViewer explained.

During the roundtable, several companies talked about their support in the digital transformation journey. "Digital transformation is Halliburton's core pillar towards achieving the ministry's strategy in supporting decision-making process and crisis management, especially in the field of drilling-operations digital transformation where massive efficiencies can be obtained," said Ahmed Helmy, MBA, Halliburton VP North Africa.

Meanwhile, Tamer Ahmed Abul Azm, Managing Partner, IBM Consulting, Egypt stated that "IBM offers deep industry expertise powered by the hybrid cloud, AI, and consulting services to accelerate business transformation for our clients in the O&G industry. We are committed to helping chemical & petroleum organizations to unlock their data potential and rethink their businesses to accelerate their energy transition, drive sustainable change and re-invent how business gets done."

TECHNICAL WORKSHOP

The event's technical sessions also witnessed nine presentations explaining how digital transformation has the potential to create revolutionary reforms within the petroleum sector by enabling it to realize its full potential.

Tackling digitalization and the positive social impacts that it will have on both communities and the energy sector, Ossama Maguid from Yokogawa Egypt/ AF1 Countries Manager delivered a presentation titled "Energy & Sustainability for a Better Society", which focused on how digitalization can further enhance sustainability while having a positive influence on communities. Adding to that point, Adel El Ansary, Senior Pre-sales Manager of Egypt, Libya & Levant at Dell Technologies also tackled the importance of using

innovative solutions to enhance the industry.

One such innovation was the Egypt Upstream Gateway (EUG). With the EUG being not only a major accomplishment but a trendsetter, Aser Abdelaziz, EUG Sales Lead, gave the audience an informative presentation about the EUG platform and its impact in attracting investments to the upstream sector from around the world.

Addressing digitalization from a slightly different angle, cybersecurity was what Iman Wafy, EGPC Chairman Assistant for Information Technology and Telecommunications, chose to focus her presentation on. Shed highlighted that though digitalization has always been a positive trend, in order for its impact to be meaningful, it also has to be secured and protected from attacks, especially when protecting assets that are as valuable as data.

Data has always been an important part of how the energy sector does business, especially with the sophisticated cloud solutions that are now available in today's market. This was a point of interest for Michael Shafik, Director, Solutions & Ecosystem Development, Cloud Business Group, Northern Africa Region – Huawei in an engaging presentation titled "Lighting the Future Community Cloud". The cloud was also a theme that revolved around Mohammad Al-Jallad's presentation as the CTO & Director - UK, Ireland, Middle East & Africa of Hewlett Packard Enterprise. He specifically focused on HPE edge to cloud during his presentation.

Yet, data can also enable workers to experience the reality of the workplace with the use of digital tools. With virtual reality becoming a major force within the industry, TeamViewer's Regional Channel Director MEA Saed Habash chose to address this subject in his presentation titled "Industrial Metaverse", which discussed how virtual reality can help in both enhancing operational efficiency and aiding onsite workers in performing their tasks in a safer and more productive manner.

Moving to discuss key digitalization enablers, Dawlat Hashem, Assistant Chairman for Communications & Information Technology, at Egyptian Natural Gas Holding Company (EGAS), chose to focus her presentation on the role and importance of ERP in digitalizing the oil and gas value chain. ERP was also the key focus of the presentation titled "What is the Path to ERP Implementation Success?" by Ahmed Ghassan the CEO Deputy Assistant for Planning and Projects at the ERP Projects Management Office at EGPC.

SHEDDING LIGHT ON

OIL & GAS EXPLORATION ACTIVITIES DURING 2021 & 2022

BY JOLLY MONSEF, MARIAM AHMED & YOUSTINA MOUNIR

Egypt has an impressive history of oil and gas exploration activities that date back to the late 1880s, according to Egypt Upstream Gateway (EUG). The exploration activities reflect the effort exerted in the petroleum agreements sector and achieve optimal exploitation of Egypt's resources, in addition to maximizing the reserves to meet the needs of local markets and exports.

More than 60 international oil companies (IOCs) are currently operating in the petroleum exploration and exploitation fields within 183 areas in the Mediterranean Sea, Western Desert, Eastern Desert Nile Delta, Sinai, and Upper Egypt under the supervision of the Ministry of Petroleum and Mineral Resources (MoP) affiliated, according to the MoP.

During 2021 and 2022, the MoP announced 105 new discoveries to increase oil and gas production, with 24 natural gas discoveries and 81 crude oil discoveries.

Flashbacks

Egypt is one of the first countries worldwide to take the lead in the petroleum sector. In 1886, the first crude oil well was drilled in the James area on the west coast of the Red Sea, as stated by MoP. In the early sixties, exploration for natural gas was started in the Mediterranean, Nile Delta, and Western Desert leading to the discovery of a number of natural gas fields. The start of natural gas discoveries in Egypt was in Abu Madi in the Nile Delta by Belayim Petroleum Company in 1967, according to the Egyptian Natural Gas Holding Company (EGAS).

OIL & GAS INTERNATIONAL BID ROUNDS

Egypt established the EUG in February 2021 to become the first upstream digital platform and a tool for exploration and production data preservation. The platform aims at promoting international bid rounds through easy online access to the sector's data. In this context, the EUG has published three international bid rounds in different areas during the past two years in order to attract more exploration and discovery investments, as follows:

Digital Oil & Gas Bid Rounds

1ST BID ROUND

Starting Date: Feb 2021

Closing Date: Sep 2021

Concessionaire: EGPC & EGAS

Location: The Eastern & Western Mediterranean, Western Desert & Gulf of Suez

RESULTS

8 Awarded Blocks

7 Awarded IOCs

$23.7 million Signature Bonus

$250 million Minimum Investments

33 Wells Drilling Commitment

2ND BID ROUND

Starting Date: Nov 2021

Closing Date: Jan 2022

Concessionaire: EGAS

Location: North King Mariout

RESULTS

Natural Gas Explorations Activity

bp Awarded company

$99 million Signature Bonus

$25 million Minimum Investments

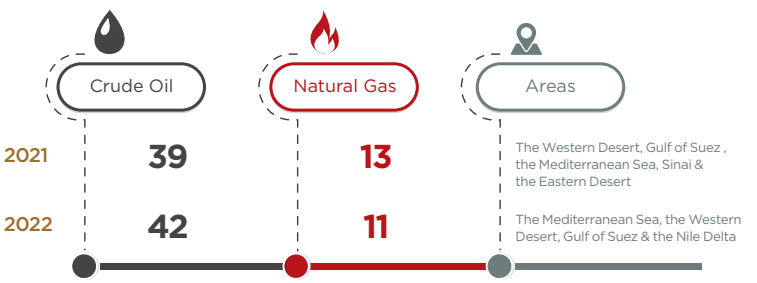
3 Wells Drilling Commitment

3RD BID ROUND

OIL & GAS EXPLORATION ACTIVITIES

Egypt has a long history in Hydrocarbon Exploration & Production for more than a century. Egypt's exploration activities have yielded vast progress in securing the national oil and natural gas resources. In this regard, 2022 witnessed an increase in achieved discoveries by about 8% compared to 2021, according to the MoP.

Discoveries



The MoP has an ambitious plan for the petroleum agreements and attracting more investments, to contribute effectively in developing oil and gas resources and to strengthen the energy security in Egypt.

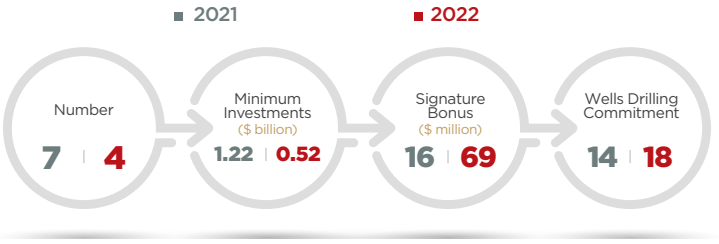
In this regard, the Ministry succeeded in signing 11 agreements for exploring oil & gas in 2021 and 2022, as well as 38 agreements in the issuance phase. This is in addition to signing 30 development leases for new discoveries, according to the MoP.

Development Leases

	2021	2022
Number	17	13
Areas	The Western Desert The Eastern Desert	The Mediterranean Sea The Western Desert Gulf of Suez
Signature Bonus	$7 million	-

Agreements

SIGNED



IN ISSUANCE PHASE

RIGS ACTIVITIES

During 2021 and 2022, the Western Desert had the largest number of rigs, which was 758 on average, with a share of 60.66%, while Ganoub Elwadi had the lowest number of rigs, which was 2 on average, with a share of 0.12% of total rigs.

During the mentioned period, Standby/Stacking represented the type of rigs with the largest number as it reached 677 on average with a share of 35.1%, while the Semi - Submersible type represented the lowest type of rigs with 1 on average and with a share of 0.05%, according to the Egyptian General Petroleum Corporation (EGPC).

Rigs

PER AREA

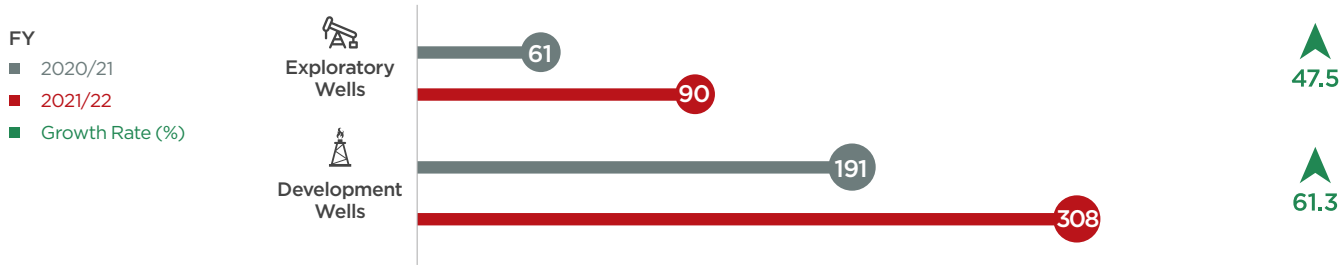
1,125 (2021) → 1,374 (2022)

PER TYPE

1,921 (2021) → 1,931 (2022)

DRILLING ACTIVITIES

Drilled Wells



The MoP has continuous efforts to support exploration activities, including offering international bid rounds and encouraging IOCs to invest in upstream activities. These efforts are directly reflected in promoting the conducted exploration activities, the added reserves, and the achieved growth in the oil and gas sector.

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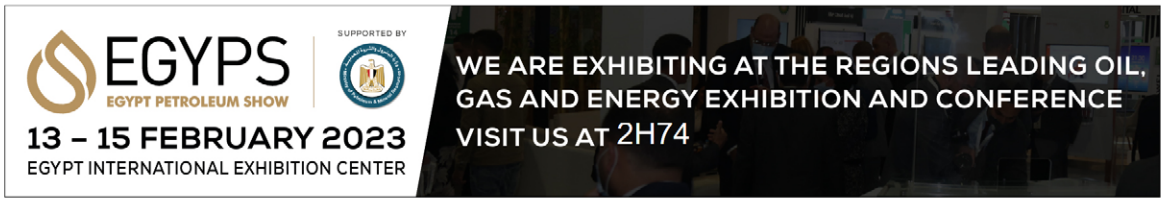

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CONNECTING THE REGION: EGYPT STANDS OUT AS A REGIONAL ENERGY HUB

BY SARAH SAMIR

Thanks to its geographical location near different markets, Egypt positions itself at the center of a new energy market and a regional natural gas trading hub. With the recent energy turbulence, Egypt has had the chance to realize its aspiration and tap into new markets, empowered by its strong natural gas infrastructure.

Egypt Consolidating its Position as Gas Hub

Egypt has been consolidating its position as a regional hub through various efforts to achieve this goal, and through using its two liquefaction plants to re-export liquified natural gas (LNG) to Europe. The country has signed a number of agreements and memoranda of understandings (MoUs) in this regard. In June 2022, Egypt signed a framework agreement with the European Union (EU) and Israel to export natural gas from Israel to Europe via Egypt's liquefaction plants, which reflects Egypt's significant role connecting the region.

Furthermore, June 2022 witnessed the signing of a tripartite agreement with Lebanon and Syria to export around 650 million cubic meters per year (mmcm/y) of natural gas from Egypt to Lebanon through Syria via pipelines. Later on, in October 2022, the Ministry of Petroleum and Mineral Resources (MoP) announced a framework agreement for developing the Gaza Marine gas field offshore Gaza, according to which the Egyptian Natural Gas Holding Company (EGAS) is set to take over the field's development.

Moreover, Egypt is working on boosting its natural gas production and rationalizing consumption to supply gas exports to countries affected by the shortage caused by the Russian invasion of Ukraine. President Abdel Fattah El-Sisi gave his directives to accelerate oil and gas exploration to gain the highest economic exploitation of the country's resources and to maximize natural gas added reserves to cover both local demands and exports.

EMGF Role

In 2018, Egypt had taken the initiative to bring together the many countries in the East Mediterranean to work together through establishing the East Mediterranean Gas Forum (EMGF) in order to unlock the region's gas potential. The EMGF came as Egypt "saw that – although there are several challenges ahead of monetizing these resources – through cooperation, these resources can be optimized and monetized for the benefit of the people," Osama Mobarez, Acting Secretary General of the EMGF, previously announced.

In June 2022, President Abdel Fattah El-Sisi said that the EMGF can play a pivotal role in resolving the global energy crisis.

This comes as the forum plays an important part in securing energy supplies via active regional cooperation, especially with the looming geopolitical challenges. Moreover, the EMGF contributes to ensuring energy security and increasing exports to Europe.

Egypt Leads African Energy Transition

Egypt does not only play a role in the East Mediterranean region, but it speaks for the African continent as well. In EGYPS 2022, Egypt gave a platform for Africa to talk about its readiness for energy transition. It was showed that shifting to new and renewable energy is not feasible to many African countries at the time being, but it is convenient to use natural gas as an alternative fossil fuel that is more environmentally friendly.

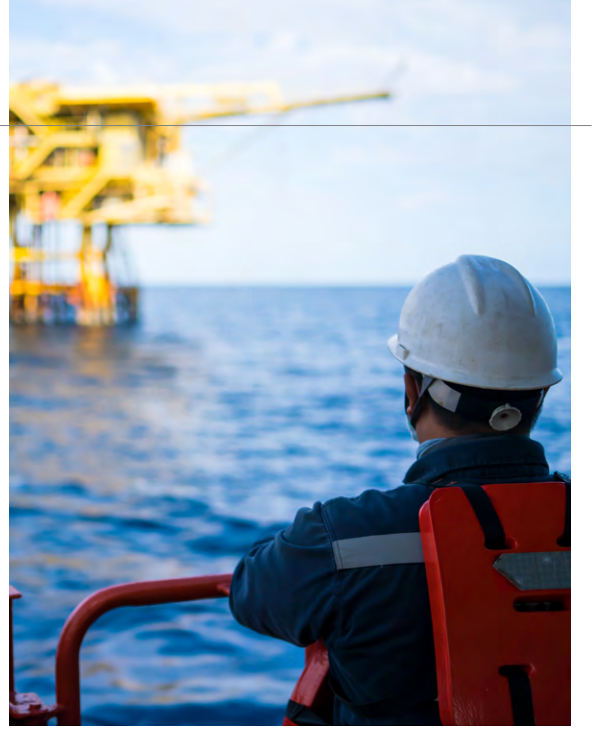
Moreover, Egypt launched an initiative to support African countries in having access to clean energy. The initiative was launched under the leadership of the COP27 presidency of the Arab Republic of Egypt. "The Africa Just and Affordable Energy Transition Initiative (AJAETI) initiative aims to provide all Africans with access to clean energy, whilst meeting the energy requirements for Africa's economic development," COP27 president Sameh Shoukry said.

The AJAETI initiative aims to grant access to affordable energy to at least 300 million people in Africa by 2027, which will contribute to the sustainable development goal (SDG 7.1) that aims to secure universal energy access by 2030, according to COP27 Africa Just and Affordable Energy Transition Initiative (AJAETI) Brochure.

Through these efforts exerted by Egypt to support natural gas in the region and to secure energy supply, Egypt strengthened its role as a regional energy hub. Not only in the East Mediterranean region, but also in Africa, and in supporting Europe in energy security.

> **Egypt has been consolidating its position as a regional hub through various efforts to achieve this goal, and through using its two liquefaction plants to re-export liquified natural gas (LNG) to Europe.**

SEEKING INVESTORS, DEVELOPING INVESTMENTS



BY RANA AL KADY

Attracting investors in the oil and gas industry has been an ongoing chess game for decades. With worldwide pandemics, financial crises, stock crashes, and technological advances, it becomes a question of which piece must be sacrificed to save the king. There is no denying that oil and gas businesses are finding it difficult to get investors. The energy environment is changing, and oil prices are still erratic. According to a PwC poll of oil and gas sector experts and company executives, both groups are aware that finding investors would be difficult in the future. Though many are making progress, others aren't quite there yet. Oil and gas businesses should keep searching for fresh approaches to up their game in order to regain investor trust and funding.

> **Oil and gas businesses should keep searching for fresh approaches to up their game in order to regain investor trust and funding.**

General Overview

Firstly, Tarek El Molla, Minister of Petroleum and Mineral Resources, said that in order to fulfil the goals, wishes, and dreams of the people for stability and progress during this time, everyone must work together. El Molla conveyed that attempts to create a favourable investment environment to boost the appeal of the Egyptian oil and gas sector in the eyes of foreign firms to gain many investment opportunities that add value to the quick motion of exploration and discovery in numerous land and sea areas of Egypt and to speed up the pace of business, establishing the explored resources, are crucial and essential.

Keeping this in mind, El Molla indicated that the activity to convey gas to households under the umbrella of national goals has achieved an unparalleled record, as the distribution levels were raised to approximately 1.2 million clients annually during the financial year 2021/2022, with preference given to cities and towns that gas had not previously managed to reach, generating a new record.

Furthermore, the sector has to look closely at actual revenues and costs at a micro level, in ways hardly anyone in the sector have achieved before, in order to provide attractive profitability independent of fluctuations in the price of oil. Utilizing already-existing—yet immense information on all interactions, one must decide if such actions and resources are accretive or dilutive in order to obtain a "high-resolution image" of the firm.

Incentives: A New Spin

While the Ministry of Petroleum and Mineral Resources (MoP) has that it will take steps towards increasing investment opportunities to attract investors, the next question is: how? With Egypt just stepping out of the pandemic and entering a phase of inflation (which is of great concern to both local and international investors), how can opportunities in the oil and gas sector be deemed attractive enough to appeal to investors? The short and simple answer: incentives.

As suggested by a Data Scientist in the oil and gas sector, "In 2023, for eligible entities that want to maybe expand [their] investment portfolios more than the traditional investment areas, [I believe that] if people continue to invest in local oil and gas exploration and production, this may be the most rewarding steps to take so that the investment is worth it." The approach to petroleum agreements needs to have provisions that boost and motivate international allies to spend in order to begin putting this strategy into action. This is particularly important considering the high cost of explorations development overall and the deep-water zones (especially in the Mediterranean), as well as the potential risk. In order to achieve an adequate financial return, a few provisions were included in the new contracts. This motivates the international partners to increase their incentive to invest and begin production as quickly as feasible in order to meet national market demands, particularly for gas, and to keep an equilibrium between the interests of all stakeholders.

Keeping that in mind, a bold strategy was implemented inside a framework of the strategic goals of the MoP in the petroleum agreements and to attract more ventures in order to favourably and successfully aid in the exploration of Egypt's oil and gas deposits and to fortify Egypt's security of supply. This initiative aims to achieve equitable regional growth distribution while also strengthening Egypt's energy security.

Overall, large oil company capex in 2022 was approximately 50% of the historical norm. In 2023, E&P expenditures will rise. Although the conclusion of COP27 was underwhelming since the objectives for reducing carbon emissions were not raised, it indicated that the majority of nations still saw oil and gas as being significant in the coming decades. Reservations over energy security also contributed to the lack of consensus for the phase-down of oil and gas, and the COP27 agreement now contains a clause to promote "low-emissions energy," which is understood to include natural gas.

> **The sector has to look closely at actual revenues and costs at a micro level, in ways hardly anyone in the sector have achieved before, in order to provide attractive profitability independent of fluctuations in the price of oil.**

OCEAN IRON FERTILIZATION OPENS NEW WINDOW FOR CARBON CAPTURE

BY FATMA AHMED

Since climate change has become a controversial issue, carbon capture solutions emerged as some of the best methods for reducing carbon dioxide emissions and consequently overcoming climate change. One of the techniques that could help in carbon capture is the Ocean Iron Fertilization method. Even though this innovative method is not a new idea, the topic has made a comeback on the scene as it has great potential to be a great carbon capture solution.

Iron Ocean Fertilization Interpretation

According to an article published by the NichInstitute, this technique refers to stimulating the growth of phytoplankton in order to absorb the carbon from the atmosphere and push it into the ocean. This would be done by spreading iron in the sea in places where iron is low concentration and could impact the growth of phytoplankton. This theory was subjected to more than 16 experiments during the last 30 years, according to an article published by a geoengineering monitor.

An article published by ecofriend gave more explanation about this process stating that "Late oceanographer, John Martin, found out that iron was the best macronutrient for phytoplankton growth. The algae thus get iron nutrition from the intentional introduction of the element. After that, these aquatic eukaryotic organisms absorb the abundance of carbon dioxide from the air for photosynthesis. The process thereby helps to mitigate a generous share in global warming."

Iron Ocean Fertilization: The White Points

According to a report released by the International Monetary fund (IMF) in 2019, phytoplankton can capture about 37 billion metric tons of CO2 which represents 40% of all CO2 produced at that time. It added that after calculations, this amount of captured CO2 is equivalent to the amount captured by 1.70 trillion trees—four Amazon forests' worth. Additionally, laboratory experiments suggested that every ton of iron added to the ocean could remove 30,000 to 110,000 tons of carbon from the air; the iron fertilization across the entire Southern Ocean could erase 1 to 2 billion tons of carbon emissions each year which means 10-25 % of the world's annual total, according to a feature published by Oceanus in 2007.

Moreover, this method of carbon capture considers lower costs than any other carbon sequestration method. According to an article published by frontiers, the cost of iron fertilization has been estimated at $ 22–119 and 457 per ton of captured CO2 in 2013. Additionally, there are lower cost estimates for Fertilization using macronutrients, at around $20 per ton of CO2 in 2014, but scalability is questionable and monitoring costs are excluded. Thus, the average of all estimates is $230 per ton of CO2, indicating very low-cost effectiveness.

Besides that, this technique can benefit the marine food chain because iron aquatic plants need iron for their healthy growth, the article released by ecofriend stated. Also, this method will lead to an increase in fish stock. In addition, "iron fertilization able to sequester carbon into the deep ocean for a decade to century time scales, it can take place in the open ocean so there are limited impacts on humans, and it has successfully been carried out in small-scale experiments", according to an article released by Ocean First Journal.

Criteria of Successful Iron Fertilization

As mentioned above, this technique is still under study and is yet to be applied. The article published by NichInstitue, mentioned that there are three criteria for successful iron fertilization. First, this method must be targeted at areas of the ocean and times of the year where and when iron currently limits phytoplankton growth, so that new phytoplankton growth follows iron fertilization. Second, it must consistently generate additional carbon storage that can be stored for a predictable time period in order to be able to determine long-term costs and benefits. When applying this technique, it should prove a reduction in atmospheric carbon, acceptable environmental impacts, and beneficial economic effects.

According to a report released by the International Monetary fund (IMF) in 2019, phytoplankton can capture about 37 billion metric tons of CO2 which represents 40% of all CO2 produced at that time.

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CHEIRON'S APPROACH TO SUSTAINABILITY AND SUPPORTING THE COMMUNITY

With Egypt becoming established as a regional energy hub with a strong focus on sustainable development, the international energy companies have been working to assist the nation in meeting its commitments to respect the environment and promote cleaner energy sources. Cheiron is making its contribution to this story, as it invests to increase production at the same time as striving to reduce Green House Gas emissions, preserve the natural environment and support the communities it works in.

Over the past few years, Cheiron has been working to reduce GHG emissions by increasing the use of natural gas as the fuel of choice (to replace diesel) for power generation and reducing gas flaring and venting. These measures have proved effective in achieving some good results, with the emissions intensity of the company's Egyptian assets declining by 12% last year and total operated emissions have been reduced by 20% (excluding new acquisitions).

The company is also in the process of installing high efficiency, centralised gas-fired power generators and electricity distribution systems at its onshore fields and has recently inaugurated a 27-kilometre pipeline to import gas into its North Bahariya fields in the Western Desert

Looking to the future, Cheiron is continuing to evaluate new ways to reduce emissions and, in cooperation with its Joint Venture Companies, such as Bapetco, is studying new opportunities such as waste heat recovery, fugitive identification and elimination, Carbon Capture Utilisation and Storage and the use of renewable energy sources at remote locations.

Cheiron's sustainability efforts fall within the framework of the company's commitment to achieve a 25% reduction in its emissions intensity by 2025 and to eliminate routine venting and flaring by 2030 at the latest.

Cheiron is also committed to protect the natural environment and has contributed an estimated $10 million in new facilities to ensure that produced water from treatment plants in Geisum (PGM) and Amal (Amapetco) will meet the highest environmental standards. These facilities are expected to be operational shortly and are part of a sector-wide initiative which is being carried out in coordination with the Ministry of Petroleum and Mineral Resources and the Ministry of Environmental Affairs.

The preservation of Egypt's rich natural assets, in the Red Sea in particular, forms a critical component of Cheiron's sustainability agenda and values. For the planning for the new Geisum GNN field development, Cheiron monitored the environmental state of the essential marine ecosystems that make up the core of Egypt's biodiversity including the fish, turtles, coral reefs, sea meadows and coastal mangrove areas. These data were used to help minimise the environmental impact of the field development, with the field infrastructure and pipeline being located in areas to avoid any vulnerable ecosystems and habitats.

Corporate social responsibility is also a core company value and Cheiron has a record of helping the communities that it operates in. Over the years it has provided financial support for many community initiatives including Hepatitis C screening, treatment and monitoring, vocational training schemes, orphanages, hospitals, schools, sports and social facilities, and the provision of eyesight tests and glasses for school children and their families.

The company is also is ready to assist in times of need and during the coronavirus pandemic provided vaccinations, medical equipment, and education to help communities overcome the crisis. Most recently, in cooperation with the Ministry of Petroleum, Cheiron has contributed to program to support communities affected by the floods in Upper Egypt and been involved in cleaning coastal areas contaminated by shipping and industrial activities.

Looking to the future, Cheiron is continuing to evaluate new ways to reduce emissions and, in cooperation with its Joint Venture Companies, such as Bapetco, is studying new opportunities such as waste heat recovery, fugitive identification and elimination, Carbon Capture Utilisation and Storage and the use of renewable energy sources at remote locations.

PETROLEUM SECTOR EXCELS AGAINST ALL ODDS

BY NADER RAMADAN

It is a matter of consensus among experts that economic forecasts are about making calculated best guesses. Though some may say numbers never lie, it is undeniable that numbers cannot always get the picture exactly right. Egypt's petroleum sector is a living example of why forecasts cannot be taken as unquestionable truths since it has had a history of defying expectations, despite the impact of global challenges. Throughout the past years, the role of Egypt's petroleum sector in supporting the national economy has grown and will only continue to demonstrate endurance in the face of difficulties that many nations across the world are facing.

The first and most significant contribution to any healthy economy is its primary exports. Highlighted as a key export that is bound to become one of the country's biggest moneymakers when it comes to trade with Europe, natural gas is the first industry that is noted by many to be a rapidly expanding field within the Egyptian hydrocarbon trade.

The discovery of major natural gas reserves has been a major contributor to the remarkable surge witnessed in petroleum exports recently. In a statement, Minister of Petroleum and Mineral Resources Tarek El Molla noted that, in 2022, Egypt witnessed a record achievement, with its petroleum exports reaching $18.2 billion. In the previous year, petroleum exports were only $12.9 billion, and in 2020 it was $7 billion. The root cause behind this significant growth in hydrocarbon exports was none other than the expansion of Egypt's booming natural gas industry which was only made possible through increased exploration pushed by the surge of international investments in upstream activities.

This figure is only expected to increase within the coming year, according to the World Bank (WB), which forecasted a 30.6% increase in Egyptian oil and gas exports during fiscal year (FY) 2022/23, predicted to be valued at $23.5 billion.

Apart from the role of the petroleum sector in enhancing the country's exports, the industry's role in the GDP's growth has been phenomenal. As one of the main indicators of economic health, the general improvements in Egypt's GDP in recent years correlate with the enhancements and developments taking place within the national petroleum sector.

The WB report indicated that Egypt's account deficit in FY2021/22 shrank to 3.5% of the GDP, compared with 4.4% in the previous year. Experts highlight that this development is directly related to enhancements in oil-related trade in FY2021/22, especially the stellar performance of Egyptian liquefied natural gas (LNG) exports amid skyrocketing global gas prices.

Development in the natural gas field has taken a sharp turn even over a longer period of time. Studies have indicated that the most productive year for the petroleum industry overall was FY 2018/19 when Egypt's natural gas GDP reached EGP 303.1 billion due to the tireless efforts of the Ministry of Petroleum and Mineral Resources. This is in addition to the fact that between FYs 2011/12 and 2020/21, the annual average natural gas GDP was EGP 170.4 billion. In FY 2020/2021 alone, natural gas contributed up to EGP 134 billion from the public sector, EGP 230.4 billion from the private sector, and EGP 157 billion from wholesale into the country's GDP. The discovery of the Zohr field as well as other valuable natural gas reserves have coincided with the general improvement of natural gas as a substantial contributor to the GDP, in addition to being an essential resource that is now being connected to homes across Egypt for everyday use.

Yet, natural gas should not take all the credit for itself as the secret ingredient behind Egypt's general economic improvement. The oil trade has also taken a leap forward and the economy has enjoyed the fruits of these recent developments, with the oil industry pumping EGP 140.2 billion from the public sector, EGP 225.2 billion from the private sector, EGP 162.7 billion from wholesale into the national GDP in FY 2020/2021

The discovery of major natural gas reserves has been a major contributor to the remarkable surge witnessed in petroleum exports recently.

As Egypt continues to pursue its vision of becoming a regional energy trading hub, many improvements will be needed to make this dream a reality, but it is an undeniable truth that the development of the energy sector, specifically oil and gas, goes hand-in-hand with the country's general economic performance in addition to the financial well-being of its people. In a country that is struggling to achieve self-sufficiency, the petroleum sector is in essence a vital financial backbone and was a key factor in adding EGP 77.4 billion to the State's Public Treasury in FY 2020/21. This was a major accomplishment since years earlier the deficit reached EGP 33 billion. With the Modernization program underway, one can expect more changes to swiftly change the landscape of Egypt's newly reformed economy.

COMPENSATION LAWS IN THE ENERGY SECTOR

How the application of compensation legislations has a great impact on country development policies...

The compensation concept and philosophy have old roots that stem from the co-responsibility between different partners towards each other and the public community or the country, then regulations and laws have been issued to handle the rights and duties related to the different co-partners of human activities in countries worldwide.

Developed countries prepared a group of well-issued strict regulations and laws for dealing with most of the different compensation cases for individuals, companies, organizations, and governments and tried to cover the most human activities to be included in that laws and legislations. The compensation concept value and its philosophy come from the great impact that compensation regulations have on economic stability, investment safety, and development plans for the individual as well as governmental organizations through keeping all rights protected and applying strict rules on damages and losses which affect others as well as the surrounding environment. These regulations force them to carry their responsibilities to the other parties and pay suitable compensation in the form of money, service, or repair for the occurred damage.

The energy industry is one of the most vital sectors related to compensation cases. Accidents may have an impact on economic development, due to unforeseen incidents that may or may not involve energy industry activities, and could negatively affect individuals, the environment, and society. There is no doubt that the compensation concept is essential for achieving balanced development for all parties and it is considered a key element in achieving justice through a well-studied group of legislations and regulations that can organize the tight relationship between the partners within any activity, economic or social or environmental, while protecting the public's rights. Throughout the last decades, environmental protection has been a top priority globally; most countries set a huge budget for dealing with the different challenges of environment conservation, then environment protection, and conservation subject has been regulated through a new group of laws and legislations, like environment protection law # 4 / 1994 in Egypt. One of the most important articles in environment protection laws is compensation for removing negative environmental impact resulting from economic/industrial activities by cleaning or clearing the environment from pollution.

Energy industries have often been associated with negative environmental impacts and environmental pollution/damage many times. Legislated compensations have been developed strictly for the sector to avoid an environmental crisis and high-cost invoices for the resolution of environmental negative effects or pollution that may be related to the activities of the energy industry and hydrocarbon production.

On other hand, the compensation legislations and regulations aim to protect the rights of individuals, organizations, the governmental rights by resolving any disputes that appear during contract implementation between the operators and contractors in a proper manner to maintain a healthy investment climate.

The main objective of regulating compensations through strict legislations is not just to punish those responsible for mistakes but it is legal framework for organizing the relationship between the contractors themselves and between contractors and different governmental parties to ensure a win-win situation for everyone.

Compensation legislations is need to be regularly updated to be compatible with new economic activities and technological projects, which may have a deep social and environmental impact. It will need strict guarantees and sophisticated protection mechanisms to avoid social or environmental crises.

The costs of compensation may be a financial burden for any parties within a contract but it can be considered as a boundary between the different stakeholders even if it is between the state and business developers or between investors to avoid a big loss for any given party. In addition, it can be considered an effective tool for enforcing the laws & rules in a respectful manner..

The compensating principle may be used for executing quality assurance measures in megaprojects with regards to design, materials, and timing.

Contractual compensation is categorized under three groups, individuals' compensations, organizations/ companies compensations, and governmental compensations. All three categories are included in compensation legislations in detail, covering all probable dispute cases and deserved compensations for each contracting party.

Compensation legislations application mechanisms can be different from one country to another. In some countries, it has to get court decision and in other countries, it may be applied through an official governmental decision. These types of cases should be promptly resolved due its serious effect on the economic atmosphere in the country.

The governmental commitment towards compensations cases is essential for creating a good legal environment for economic and business development & attracting new capitals to its local economy. At the same time, the government has to achieve all of its contract duties toward its investors/ contractors to ensure their trust, safety, and avoid any disputes relating to co-contracts with those investors by application of clear, fair, and realistic contractual legislations.

Nobody can deny the importance of applying compensation principles through clear, detailed, integrated strict legislations and regulations in environmental protection cases, especially when these types of cases entail a severe environmental and social impacts.

Values and morality are the most vital protocols of the well-reputed international enterprises/companies in addition to legal commitment and respecting the laws; then they could be able to avoid burdens of penalties and compensations.

BY ENG. MOHSEN AHMED FARHAN ALI - Oil & Gas Well Drilling Specialist - Kuwait Oil Company (KOC)
Consultant - Oil & Gas Industry Trainer & Coach

ONE YEAR AFTER RUSSIA-UKRAINE WAR - RIPPLE EFFECTS OF CONFLICT RESHAPE GLOBAL ENERGY SCENE

BY IHAB SHAARAWY

A year has passed since the beginning of the Russia-Ukraine conflict with no clue about how and when this crisis may end. The Ukraine crisis has left the world with severe economic pain and a new global energy system.

The conflict, in 2022, accelerated a global energy crisis as the military confrontation, and subsequent Western sanctions, piled more pressure on oil and gas supplies already strained from the rapid economic rebound from the pandemic.

Biting the bullet

The Russia-Ukraine conflict and subsequent Western sanctions against Moscow led to a breakdown in supply relationships that had existed for decades.

Russia is one of the world's top oil producers and exporters and a giant in natural gas markets. Revenues from oil and natural gas made up 45% of Russia's federal budget in 2021. One year before the Russian operation, the country produced 762 bcm of natural gas, and exported approximately 210 bcm via pipeline, when

European countries used to receive about 45% of their natural gas via Russian pipelines.

However, the widening rift between the western countries and Russia and the desire to prevent Russia from weaponizing its energy supplies unleashed major energy crises, which left several world economies scrambling to find energy sources. In their efforts to dispense with Russian supplies, some countries pushed to accelerate the deployment of solar and wind - but also to buy coal and even put climate change targets on the back burner.

The conflict bushed natural gas prices to multi-year highs and oil to nearly $140 a barrel, not far from an all-time record. It led major international energy companies to exit Russia.

Western nations began to implement a price cap on Russian oil, while Europe is discussing a gas price cap and investing more heavily in liquefied natural gas (LNG) to meet energy needs.

New Energy Flow Routes

Citing different reasons, Russia cut gas flows to the EU by around 80% between May and October 2022, leaving the bloc with a significant shortfall in its energy mix, and a pressing need to find energy alternatives from other places.

Despite the EU nations' decision to end imports of Russian oil brought in by sea, and a ban on refined oil products that should come in from 5 February, Russia has broadly kept its oil production and exports at close to pre-invasion levels by increasing exports elsewhere, including to China, India, and Turkey.

According to a report by BBC, India, China, and Turkey ramped up their purchases of Russian oil last year - and together they now make up 70% of all Russian crude flows by sea.

Additionally, Russia was offering its oil at a significantly lower price than the global benchmark Brent crude, which, according to a study by the Centre for Research on Energy and Clean Air (CREA), cost Moscow a loss of nearly $175m a day from fossil fuel exports due to these measures.

An oil price cap approved by Western allies in December also aims to prevent Russia from getting more than $60 for a barrel of crude oil, but still unharmful to Russian exports as Urals oil is currently being exported from Russia's northwestern seaport of Primorsk for around $40 per barrel for example.

LNG Revolution

However, what seemed a bigger challenge to Europe is reducing gas imports from Russia. In their struggle to shift from Russian supplies, EU states increasingly looked to ship LNG in tankers from producers such as the US and Qatar.

In 2022, Europe was the largest customer in the global LNG market, with the region importing substantially higher volumes than rival buyers as it seeks to replace dwindling Russian pipeline gas supplies.

EU nations imported 101mn tonnes of LNG in 2022, 58% more than the previous year, data

from Refinitiv showed. The bloc accounted for 24% of global LNG imports during the period.

Analysts warn, however, that Europe will need to import more LNG in 2023, as it starts the year largely void of Russian pipeline gas, as Moscow moved to halt supplies.

However, several experts warn that there aren't enough LNG terminals in Europe to meet its needs which require speedy development of new necessary infrastructure.

The International Energy Agency warned in December that the EU could face a potential gas supply-demand gap of 27bn cm in 2023 if Russian pipeline gas deliveries drop to zero and China's LNG imports rebound to 2021 levels. the IEA suggests that improvements in energy efficiency and more rapid development of renewables would help to fill the gap. These shifts will be needed "to satisfy the conditions of refilling gas storage levels to 95% and maintaining gas supply security through to the spring of 2024 without excessive strains on markets and European consumers," the IEA indicates.

In their efforts to dispense with Russian supplies, some countries pushed to accelerate the deployment of solar and wind - but also to buy coal and even put climate change targets on the back burner.

In their struggle to shift from Russian supplies, EU states increasingly looked to ship LNG in tankers from producers such as the US and Qatar.

EXPLORATION HISTORY OF THE SEA BIRD BLOCK NORTHERN RED SEA

The Seabird block covers about 241 km2 and is located in the northern part of the Red Sea about 10 km northeast of Hurghada city. It also lies about 30 km southwest of Geisum's offshore production facility and close to the West Tawila concession in the South. Conoco (now called ConocoPhillips) discovered the Seabird field (150 km2) in 1987, based on the interpretation results of a 2-D seismic survey comprising three vintages, and acquired in 1983, 1984, and 1987.

Exploration activities in the Seabird block started in 1987 when Conoco drilled the first well Hareed - 1 (SB-1) on an anticlinal feature. This structure was originally delineated from an aeromagnetic map, and confirmed by the interpretation of 2-D seismic data. Gas indications were encountered while drilling in the Belayim Dolomite and hydrocarbon shows were observed in the Basement. Besides the above wells, two other wells, namely SB N-2 and SB N-3 were drilled (in 1991-1992) by Asamera in the same area, but were plugged and abandoned as dry holes. Several companies operated the block as follows:

- ☑ In 1987, Conoco started drilling activities by drilling four wells. Then, the block was awarded to British Gas.
- ☑ In January 2001, British Gas relinquished the concession and ownership was returned to the EGPC.
- ☑ Then it was granted to Geisum in 2001 (the area of the block was 575 km²).

Conoco drilled four exploratory wells SB-1, SB-2, SB S-3 and SB N-1 in the Seabird field and tested gas and oil in the Precambrian granitic Basement, Middle Miocene Belayim Carbonate and Kareem Sand. These results confirmed the hydrocarbon potentiality of the area and its economic viability. In (Oct. - Nov. 2002), the well SB A-2 was drilled by Geisum as a first candidate in order to delineate the boundary of the discovered field and appraise the gas and oil potential of the reservoirs of interest. Fortunately, the drilling results were very encouraging and confirmed the presence of movable hydrocarbons in the Kareem Sand with the possibility to be down to the underlying Basement. The well tested gas and condensate from the Kareem Formation from two discrete sand units. Additionally, gas readings were reported in the altered granite, which added another play interval in the area. Currently, several companies have shown interest in acquiring this block to explore for oil and gas.

AHMAD MOSTAFA

EXPLORATION DEPARTMENT MANAGER

GANOPE

GREEN HYDROGEN: A FUEL THAT WILL POWER UP EGYPT'S FUTURE

Green hydrogen is produced when water is separated by electrolysis, which requires passing an electric current through it. Thus, the water separates into hydrogen and oxygen. When hydrogen is burned with oxygen inside a fuel cell, it produces zero carbon energy, resulting in environmentally friendly combustion.

Hydrogen can be extracted from fossil fuels, water, or a combination of both. The main source of hydrogen production at the present time is natural gas, and coal comes after natural gas, due to its widespread use in China.

This fuel provides energy without carbon emissions that are harmful to the environment. It can be used in cars, various vehicles, and electric trucks powered by hydrogen fuel cells, as well as in ships. More than 60% of the $150 billion global hydrogen market is in the ammonia production process, followed by oil refining and methanol production.

Hydrogen contains nearly three times as much energy as fossil fuels. It can also be considered an electricity multiplier. With some water and a little electricity, you can generate more electricity or heat. It is also widely available.

Green hydrogen helps in protecting the environment and combating global warming, as it adopts carbon removal and reduces its percentage in the air. Globally, about 120 million tons of hydrogen are produced annually, mostly using fossil gas and coal, which together account for 95% of global production. As the demand for green hydrogen increases, so will the demand for renewable energy sources, since green hydrogen depends only on renewable energy sources.

President Abdel Fattah El-Sisi requested the preparation of a comprehensive national strategy for the production of green hydrogen in Egypt. The government is looking to launch an initial phase of projects, the value of which may reach $4 billion, in partnership with private sector investors.

Therefore, a deal was signed between the Ministry of Electricity and Renewable Energy and Siemens, one of the largest international companies with great experience in the field of clean energy. This was a continuation of previous success stories that have been achieved with the company in many major projects in Egypt, the most important of which are power stations.

While the private sector is studying the possibility of launching projects, the government is working on putting in place the right regulatory framework to attract investment. It requires clear regulations and legislation, as well as a stable and attractive investment environment for which the government bears responsibility.

As global demand for green hydrogen surges due to fears of global warming and the increasing need for alternative energy resources, Egypt is working on producing green hydrogen and using it and expects good progress in this field.

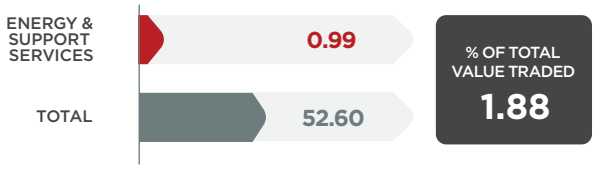
ENG. MOHAMED ABDELRAOUF

Production Gen Mgr in Khalda Petroleum Company

EGYPT OIL&GAS
RESEARCH & ANALYSIS

01 VALUE AND VOLUME OF SHARES TRADED FOR ENERGY & SUPPORT SERVICES SECTOR IN DECEMBER 2022

VALUE TRADED (EGP BILLION)



VOLUME TRADED (BILLION SHARES)

02 PERFORMANCE OF PETROLEUM COMPANIES IN THE EGYPTIAN EXCHANGE IN DECEMBER 2022

NATIONAL DRILLING

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

ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	6.37	↑ 74.04

EGYPT GAS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	36.19	↑ 0.28

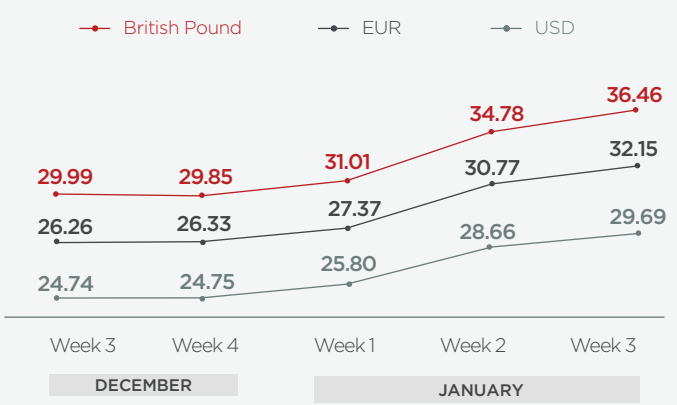
SIDI KERIR PETROCHEMICALS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	13.17	↑ 68.85

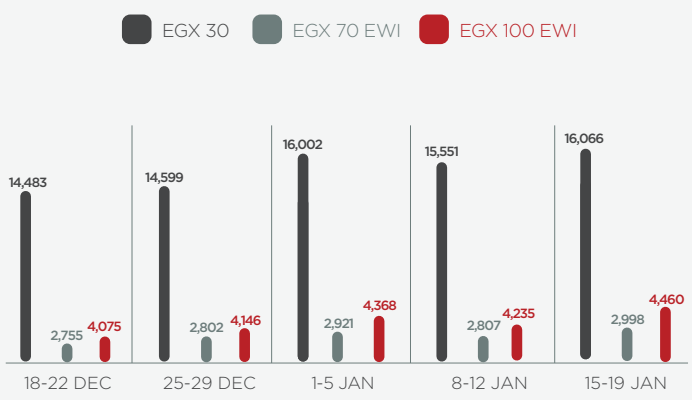
Source of Raw Data: CBE, CAPMAS, Egyptian Exchange, PMI by S&P Global

03 MAIN ECONOMIC INDICATORS

04 EXCHANGE RATES



05 CAPITAL MARKET INDICATORS



01 HOUSE OF REPRESENTATIVES APPROVED NEW OIL EXPLORATION LICENSE

Date	Location	Contractors	Purpose
January 2	Southwest of Meleiha in the Western Desert	The Minister of Petroleum and Mineral Resources EGPC IEOC	Petroleum Exploration & Exploitation

02 NEW NATURAL GAS DISCOVERIES IN ONSHORE & OFFSHORE EGYPT DURING JANUARY 2023

IN THE ONSHORE NILE DELTA

- **Block**: East Damanhour Exploration
- **Location**: Around **3** km North of Disouq Field
- **Well**: ED-2X Exploration
- **Tested Peak Production**: **15** mmscf/d

IN THE OFFSHORE MEDITERRANEAN

- **Concession**: Nargis Offshore
- **Well**: Nargis-1 Exploration
- **Drillship**: Stena Forth
- **Area**: **1,800** km²
- **Depth**: **309** m

03 COMPLETION OF DRILLING OPERATIONS AT ASW-1X EXPLORATION WELL

Company	License	Total Depth	Reservoirs
UOG	Abu Sennan	**3,640** m	The Bahariya, Alam El Bueib, and Abu Roash

2023 DRILLING CAMPAIGN

Targeted Wells ASH-8 & ASD-3

04 EARLY PRODUCTION UPDATES OF NORTHERN GEISUM FIELD PROJECT

Company	Location	Increase Company's Fields Production to
Petrogulf	Gulf of Suez	**20,000** bbl/d

THROUGH DRILLING ACTIVITIES

No. of Wells **3**

Put on Stream During **H1 2023**

05 INTERNATIONAL OIL PRICES

	BRENT PRICES ($/BBL)	OPEC BASKET PRICES ($/BBL)	NATURAL GAS PRICES ($/MMBTU)
07 November	97.92	97.29	6.94
25 November	83.63	83.80	7.02
01 December	86.88	84.28	6.74
28 December	83.26	81.96	4.71
04 January	77.84	76.88	4.17
20 January	87.63	84.9	3.17

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