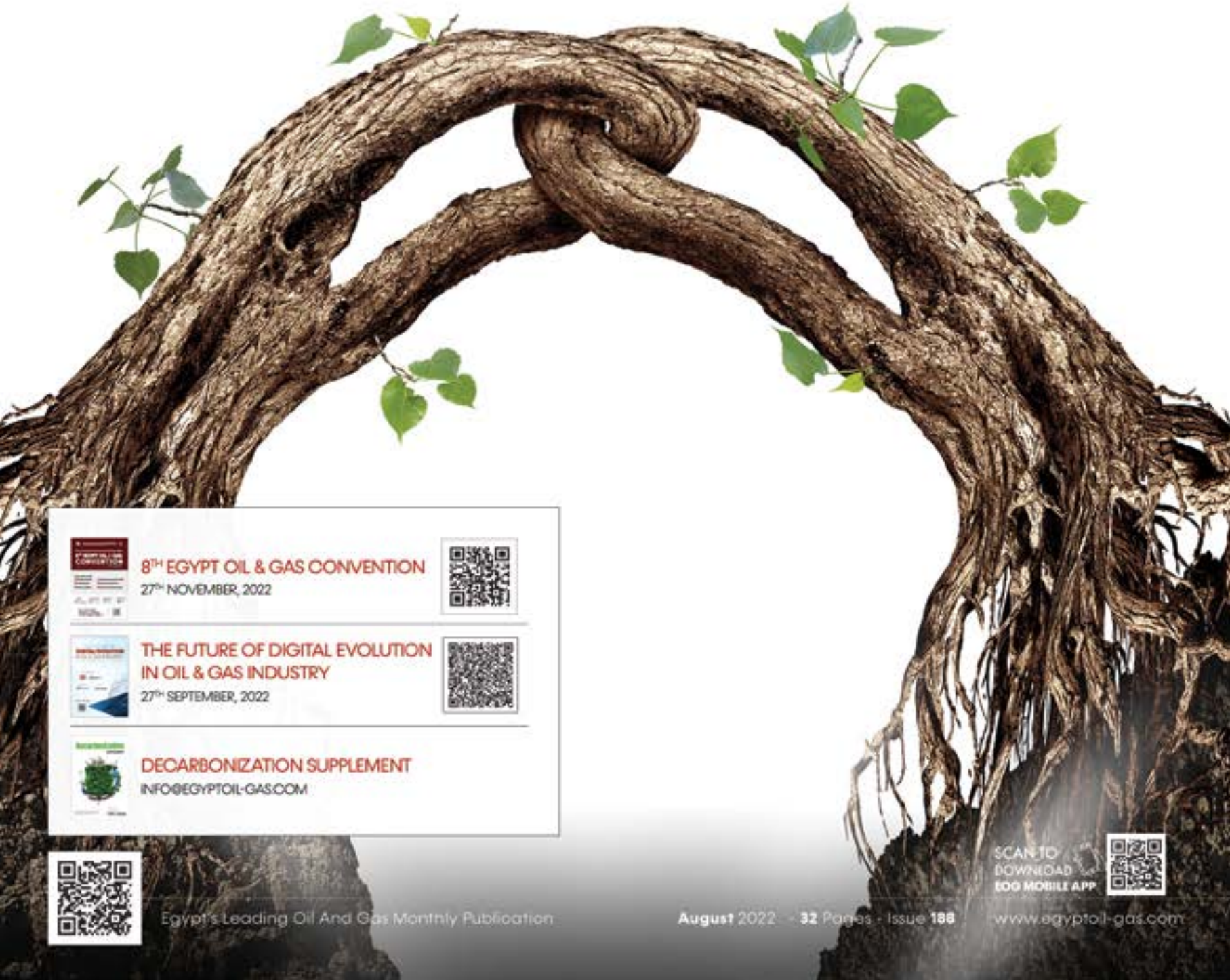


# **BUILDING RESILIENCE**

## IN TIMES OF CRISIS



	<b>8<sup>TH</sup> EGYPT OIL &amp; GAS CONVENTION</b> 27 <sup>TH</sup> NOVEMBER, 2022	
	<b>THE FUTURE OF DIGITAL EVOLUTION IN OIL &amp; GAS INDUSTRY</b> 27 <sup>TH</sup> SEPTEMBER, 2022	
	<b>DECARBONIZATION SUPPLEMENT</b> INFO@EGYPTOIL-GAS.COM	



# EDITOR'S LETTER

Don't wait until you're in a crisis to come up with a crisis plan. This is the lesson we have learned from Egypt's oil and gas sector throughout the last period, when it had to cope with the effects of crises, ranging from price fluctuation, pandemic, inflation, and military conflict between Russia and Ukraine.

Thanks to the reform agenda, which included a crisis management strategy, the sector was able to build resilience in the face of different crises. It was not only able to keep afloat, but also it has the room to add more achievements and success stories.

In our issue, we try to uncover some of the best crisis management strategies that enabled the petroleum sector to overcome the recent crises. Some of these strategies were tackled in our industry

insight, while our economic section cast the light on the role of hedging in coping with market instability. Our Overview delves into successes of the oil sector in Egypt in the shadows of different crises, while Technology Section highlights the role that technology can play in achieving efficiency in the oil and gas sector even in the most difficult times.

Our Research and Analysis team offers an interesting analysis of investments in the petroleum sector over the past five years. We also offer coverage of the first Egypt Mining Forum.

**IHAB SHAARAWY**  
Managing Editor

PROUDLY  
THE OFFICIAL  
PUBLICATION



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Petroleum Sector's  
Investments Over FYs  
(2016/17-2020/21)



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Tower No.12 - Bavaria Compound, Ring Round in front of sama Tower - Egypt

(+20) 2 27498191 (+20) 2 27498192

(+20) 2 27498190

[f](#) /EgyptOilandGas [t](#) /EgyptOilandGas [in](#) /Egypt-Oil-&-Gas [ig](#) /EgyptOilandGas [yt](#) /EgyptOilandGas

info@egyptoil-gas.com

[www.egyptoil-gas.com](http://www.egyptoil-gas.com)

General Manager  
**AYMAN RADY**

Research & Analysis Manager  
**MAHINAZ EL BAZ**

Managing Editor  
**IHAB SHAARAWY**

Senior Editors  
**RANA AL KADY**  
**NADER RAMADAN**

Senior Writer  
**SARAH SAMIR**

Staff Writers  
**FATMA AHMED**  
**ISRAA NOUR ELDEEN**

Senior Research Analyst  
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Research Analysts  
**YOUSTINA MOUNIR**  
**JOLLY MONSEF**  
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Statistician  
**NADA ABBAS**

Chief Reporter  
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Business Development Manager  
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Art Director  
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Web Developer  
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Administration  
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Senior Accountant  
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**MOHAMED FOUAD**

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



PART OF THE EGYPTIAN OIL AND GAS SECTOR MODERNIZATION PROGRAM

# 8<sup>TH</sup> EGYPT OIL & GAS CONVENTION

27<sup>th</sup> November, 2022

## EVENT STRUCTURE:



STRATEGIC ROUNDTABLE



SUSTAINABLE DEVELOPMENT FEATURE



PANEL DISCUSSIONS



CAPACITY BUILDING FEATURE



TECHNICAL WORKSHOP



OPERATIONAL EXCELLENCE AWARDS

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## TOP 5

## PUBLIC INVESTMENTS IN EGYPT'S PETROLEUM SECTOR INCREASE TO EGP 437B

Minister of Planning and Economic Development Hala El-Said stated that public investments directed to the petroleum sector reached EGP 437 billion during the previous eight years from 2014/15 to 2021/22, compared to EGP 152 billion pounds during the preceding eight years from (2006/07 to 2013/14), with a growth rate of 188%.

This came as Egypt's Ministry of Planning and Economic Development (MPED) released its latest report reviewing the country's efforts to achieve energy security in the petroleum sector over nine years.

When it comes to the most important programs and initiatives that have been implemented in the oil and gas sector, the MPED report indicated that they include enhancing the investment climate in the search for oil and gas, as the number of international oil companies operating in Egypt this field has increased to about 50.

## EGYPT RANKS SIXTH AMONG WORLD'S LARGEST UREA FERTILIZER PRODUCERS: EL MOLLA

Minister of Petroleum and Mineral Resources Tarek El Molla stated that Egypt comes in the sixth place in the world among the largest producers of urea fertilizer, with a quantity ranging between 6.5 and 7 million tons annually.

This production represents around 4% of the global urea production, which amounts to about 170 million tons annually.

El Molla's statement came during the meeting with Prime Minister Mostafa Madbouly to follow up on the position of the agricultural fertilizer production and distribution system.

Meanwhile, Egypt ranks eighth in the world among the largest consuming countries of nitrogen fertilizers, with a quantity of about 3.5 million tons of urea equivalent annually, El Molla noted. Egypt also occupies fourth place in the world among the largest exporters of urea fertilizer with a quantity of around 4.5 million tons annually, which represents about 9% of the total amount traded globally.

## EGYPT MINING FORUM 2022: EGYPT SEEKS TO ATTRACT MORE GOLD MINING INVESTMENTS

Minister of Petroleum and Mineral Resources Tarek El Molla has invited the international mining companies to invest in the concessions area of the Shalateen Mining Company for exploring gold and metals, especially after the Iqat discovery which confirms the existence of gold reserves in these areas.

This invitation was made during El Molla's virtual speech at the opening of Egypt Mining Forum 2022 in which he mentioned the ministry's latest efforts in developing and modernizing the mining sector.

El Molla affirmed that the current developments within the mining sector provide promising investment opportunities to be hunted by either local or foreign investors. He praised the forum which was attended by a prestigious group of investors seeking to explore commercial deals in Egypt and North Africa.

## EGYPT, GERMANY TO BOOST COOPERATION IN LNG, GREEN HYDROGEN, CLEAN ENERGY

President Abdel Fattah El-Sisi has met Germany's Chancellor Olaf Scholz to discuss boosting bilateral cooperation, especially in liquefied natural gas (LNG), green hydrogen and clean energy.

During the meeting, Scholz expressed his appreciation for the robust connection between the two countries, especially during the past few years and their economic and commercial cooperation.

For his part, El-Sisi asserted Egypt's desire to strengthen bilateral relations with Germany and its investments in Egypt during the upcoming period.

In addition, the meeting tackled ways of cooperation in the light of Egypt's hosting of the COP27 summit, showcasing the main topics that will be discussed during the event.

## EGYPT, ALGERIA DISCUSS OIL, GAS PARTNERSHIPS

As part of his participation in the ministerial delegation headed by Prime Minister Mostafa Madbouly in the eighth session of the Egyptian-Algerian Joint Higher Committee, Minister of Petroleum and Mineral Resources Tarek El Molla held a joint session of talks with the Algerian Minister of Energy and Mines Mohamed Arkab in the Algerian capital.

The two sides discussed bilateral cooperation relations, investment opportunities, and ways to enhance partnerships in oil, gas, and mining. This is in addition to discussing the results of technical meetings at the expert level and the understandings reached, especially in the fields of exploration, discovery, and development of fields, petrochemical industry, and butane marketing, as well as in the field of compressed natural gas (CNG) and hydrogen as a clean fuel.

## A BLAST FROM THE PAST



**In August 2016**, President Abdel Fattah El-Sisi inaugurated the Egyptian Ethylene and Derivatives Company (ETHYDCCO) complex in Alexandria, which became the largest petrochemical complex in Egypt and the Middle East.

The Ethydco Petrochemical Complex is one of the largest industrial entities in Egypt and the Middle East.

The designed capacity of the project reaches 460,000 tonnes of Ethylene, 400,000 tonnes of polyethylene, and 26,000 tonnes of butadiene. The investments in the project reached nearly USD 1.9 billion.

The petrochemical products provided by the project represent essential inputs in several complementary industries, especially polyethylene, which is used in the plastic products industry such as plastic bags and boxes, pipes, oils, and chemicals containers, greenhouses, medicines, and cosmetics containers.

In 2021, the complex had produced more than 274,000 tons of ethylene and over 280,000 tons of polyethylene to cover the local market's demands and export to foreign markets with a sales volume of EGP 7.1 billion.

ETHYDCCO succeeded in being the first Egyptian company to obtain a performance certificate in operational safety after the international company DNV-GL performed a comprehensive evaluation of the company's process safety system.

## NUMBER OF THE MONTH

130



Signed Petroleum Agreements Since **Oct 2013**

The Ministry of Petroleum and Mineral Resources has succeeded to increase the number of petroleum agreements by offering new international bid rounds, while Egypt Upstream Gateway (EUG), which was officially launched in 2021, has helped in promoting upstream opportunities. This helped to attract major exploration and production (E&P) international oil companies (IOCs) to Egypt where nearly **50** companies are currently working.

In order to expand the exploration activities, the petroleum sector has implemented **32** development projects in the oil fields with investments of about **EGP 561** billion, according to a report published by the Ministry of Planning and Economic Development.



# i-Trak drilling automation services

Get safe, efficient, and predictable drilling performance

**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

## INVESTMENTS

## EGYPT SEEKS TO BECOME MAIN ATTRACTION FOR GERMAN INVESTMENTS

President Abdel Fattah El-Sisi participated in Berlin in a round table with representatives of the business community and heads of major German industrial companies, with the participation of a number of senior German.

The president expressed his pleasure to participate in this meeting, which embodies the spirit of distinguished cooperation between Egypt and Germany, stressing Egypt's keenness during the coming period to continue developing economic and commercial cooperation relations with the business community. This is in addition to developing joint investments to contribute to



supporting the economic development process in Egypt, similar to the successful models in this regard between Egypt and many large German companies.

## INVESTORS PRAISE ROLE OF EGYPT'S REFORMS IN CREATING ATTRACTIVE CLIMATE FOR MINING INVESTMENTS

CEOs and leaders of top mining companies have hailed the role of the Egyptian government in developing the mining sector to attract foreign investments in Egypt and expanding participation in gold mining bid rounds.

These remarks took place during a panel discussion held within Egypt Mining Forum 2022 entitled "Transforming Egypt as a Progressive Investment Destination for Gold and Precious Stones Mining". During the panel, the investors showed the reasons for their decision to invest in the Egyptian mining sector.



## MADBOULY, EL MOLLA REVIEW INVESTMENT OPPORTUNITIES IN REFINING, PETROCHEMICALS SECTOR

Prime Minister Mostafa Madbouly met with Tarek El Molla, Minister of Petroleum and Mineral Resources to review a number of investment opportunities in the refining and petrochemical sectors.

At the beginning of the meeting, the Prime Minister highlighted the state's interest in expanding the projects implemented in the petrochemicals sector, in support of this important industry, so that it would keep pace with the latest global technologies in this regard. He pointing to the role of this industry in providing added value to Egypt's wealth and natural resources, as its positive impact is reflected on the national economy.

Madbouly stated that there are a number of promising opportunities and important investment



projects in the petrochemical sector, which are to be presented to the private sector, whether to participate in them or be fully implemented by the private sector.

## DIGITALIZATION

## EL MOLLA: PETROLEUM SECTOR OPEN TO EXPANDING DIGITALIZATION AT REFUELING STATIONS

Minister of Petroleum and Mineral Resources Tarek El Molla said that the petroleum sector is open to expanding the application of digital transformation in all its activities, especially in the fuel distribution system through car refueling stations, as it meets the basic daily needs of citizens and within the framework of developing and improving the services provided to them.

El Molla explained that the digital transformation of car refueling stations is proceeding in more than one direction in accordance with the ministry's strategy that stems from Egypt's Vision 2030, whether through digitizing the work system at the stations by using modern solutions and technologies that raise the efficiency and speed of operation at the stations and the fuel distribution system for consumers or by expanding digital transaction solutions for citizens.

## EL MOLLA LAUNCHES NEW DIGITAL SERVICES AT FUEL STATIONS

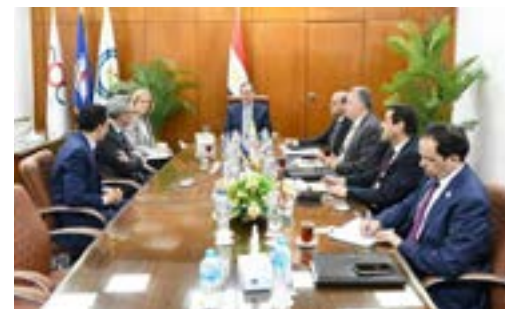
Minister of Petroleum and Mineral Resources Tarek El Molla announced the launch of a number of new digital services at fuel stations within the framework of the integrated program for digital transformation implemented by the ministry.

This comes as part of the development and modernization strategy, which aims to achieve the optimal economic exploitation of the resources and capabilities of the petroleum sector.

During his inauguration of the Integrated Petrol Station (Cargas) in Dokki, after its development, accompanied by Ahmed Rashid, Governor of Giza, El Molla explained that the first of these services is to provide an integrated system to manage and follow up the supply of vehicle fleets of contracting parties with fuel using electronic technologies instead of paper coupons. This ensures a more secure transportation and circulation process for petroleum products.

## COOPERATION

## EGYPT, NORWAY TO STUDY GREEN AMMONIA COOPERATION OPPORTUNITIES



Minister of Petroleum and Mineral Resources Tarek El Molla and the CEO of Norway's Scatec Terje Pilskog have agreed to study the available opportunities to cooperate in producing green ammonia.

In the presence of Norway's Ambassador to Egypt Hilde Klemetsdal, El Molla affirmed Egypt's support to all companies which desire to invest in green energy and emissions reduction in Egypt as it will promote Egypt's strategy to become a hub for trading all resources of energy.

The minister also assured that the petroleum sector has a strategy to develop green energy and reduce emissions to confront climate change.

## MINISTRY OF PETROLEUM, GE, ENPPI ORGANIZE EMISSIONS REDUCTION WORKSHOP



Under the patronage of Minister of Petroleum and Mineral Resources Tarek El Molla, the Ministry of Petroleum and General Electric (GE), in cooperation with the Engineering for the Petroleum & Process Industries (Enppi), organized a workshop to exchange visions on the latest technologies in the field of emissions reduction in various activities of the petroleum sector.

The Ministry of Petroleum aims to achieve its vision and strategy to reduce the carbon footprint in the petroleum sector's activities and work closely with sector partners to develop and implement realistic initiatives and projects for climate action in preparation for their announcement at the COP 27, which Egypt will host next November in Sharm El-Sheikh.

Head of the Central Administration of the Technical Office at the Ministry of Petroleum Alaa Hagar stated that within the framework of the ministry's efforts to switch to low-carbon energy sources, work is underway to study all advanced solutions and technologies, and to apply international best practices to reduce emissions in petroleum activities in order to achieve optimal utilization of energy resources.

## ACHIEVEMENTS

### SUEZ CANAL REVENUES REACH A RECORD \$7B IN 2022/21

Suez Canal Authority (SCA) Chairman Osama Rabie announced that the Suez Canal's revenues achieved an unprecedented record during the fiscal year (FY) 2022/21 reaching \$7 billion which is the highest in its history, Al-Ahram reported.

He added that the net number of loadings also increased to its highest level during the year recording 1.32 billion tons compared to 1.19 billion tons in 2021/20. Rabie noted that a significant number of ships passed through the canal in 2022/21, reaching 22,032 ships compared to 19,047 ships in 2021/20. This reflected a historic leap in revenues

The SCA's Chairman said that the number of petroleum tankers ranked



third among the ships that passed through the canal. Its number reached 5,451 with total load of 236,000 tons achieving revenues of \$1.2 billion due to the increased demand on oil. Also, the number of liquefied natural gas (LNG) tankers recorded 886 ships with total loads of 97,000 tons achieving revenues of \$435 million.

### EL MOLLA MEETS OAPEC'S SECRETARY GENERAL TO DISCUSS LATEST ACHIEVEMENTS

Minister of Petroleum and Mineral Resources Tarek El Molla has met with Secretary General Ali Sabt Bin Sabt of the Organization of Arab Petroleum Exporting Countries (OAPEC) to discuss the latest achievements of the organization.

During the meeting, El Molla reviewed the progress of OAPEC's working plan which has been approved by the organization's ministerial council to achieve its goals and cope with the latest global and Arab developments.

According to the statement, the working plan includes the development of 12 fields and it is considered a roadmap for the organization. The roadmap includes boosting the relationship between

the general secretary of OAPEC and Arab companies, improving scientific research, enhancing OAPEC's role in training, and developing the petroleum media's role.

### MOP: EGP 813 MILLION SAVED DUE TO IMPROVED ENERGY EFFICIENCY

The Ministry of Petroleum and Mineral Resources said that it has implemented an integrated program for improving energy efficiency in 31 petroleum companies, which saves EGP 813 million annually.

The ministry said that the program comes in line with the fourth pillar of the Modernization project that is aimed at reducing and improving energy efficiency.

According to the ministry's statement, it is currently establishing several projects for energy efficiency and carbon dioxide emissions reduction at a cost of \$1.5 billion at the Suez Oil Processing Company (SOPC) and the Dahshour compressor station at the Egyptian Natural Gas Company (GASCO). The ministry is also conducting five technical reviews for Energy efficiency in cooperation with the European Union (EU) and Japan International Cooperation Agency (JICA).

### CENTAMIN ANNOUNCES 11% YOY PRODUCTION INCREASE IN Q2 2022

Centamin reported increased gold production of 110,788 ounces (oz) for the three months ending on June 30, an 11% increase compared to the same period of 2021 and a 19% growth from the output in Q1 2022. The production increase reflects the benefits of the improved open

pit grade and the underground transition.

It is also reported strong revenues reaching \$207.2 million, which were generated from sales of 111,027 oz of gold at a realized average gold price of \$1,863/oz.

## MOUS

### EMRA SIGNS THREE MOUS FOR DEVELOPING THE MINING SECTOR DURING EGYPT MINING FORUM

On the sidelines of the Egypt Mining Forum 2022, the Egyptian Mineral Resources Authority (EMRA) has signed three memoranda of understanding (MoUs) for developing the Egyptian mining sector.

One of them was inked with the International Egyptian Oil Company (IEOC) affiliated with Italy's Eni to cooperate in identifying and

exploring available opportunities in metals that can be used in energy transition programs and clean energy projects such as lithium, nickel, cobalt, manganese, and graphite.

According to the MoU, the two parties will exchange the geological data as well as study and evaluate progress at mining sites.

## NATURAL GAS

### MOP CONNECTS 1.2 MILLION HOUSEHOLDS TO NATURAL GAS GRID IN 2021/2022

Despite the repercussions of the coronavirus, the current Russian-Ukrainian crisis and its direct impact on the global economy, the natural gas delivery program succeeded during the year 2021/2022 to connect 1.2 million housing units to the natural gas grid.

Tarek El-Molla, Minister of Petroleum and Mineral Resources, indicated

that natural gas has been delivered to about 13.5 million housing units since the start of the activity until the end of June 2022, which saves 243 million butane cylinders annually.

## ENERGY EFFICIENCY

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## QATARENERGY

### QATARENERGY SELECTS SHELL AS THE FIFTH PARTNER IN THE NFE EXPANSION PROJECT

Shell has been chosen by QatarEnergy to be the fifth partner in the North Field East (NFE) expansion project, which is the single largest project in the history of the LNG industry.

Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs, Ben van Beurden, the President

and CEO of QatarEnergy, and other top officials from both firms participated in the signing of the collaboration agreement at QatarEnergy's headquarters in Doha.

In accordance with the contract, QatarEnergy and Shell will join forces to form a new joint

venture business (JV), in which QatarEnergy would own a 75% stake and Shell the remaining 25%. With regard to the NFE project as a whole, which consists of 4 mega LNG trains with a combined nameplate LNG capacity of 32 million tonnes annually, the JV will own 25% of the project (MTPA).



## CONOCOPHILLIPS

### CONOCOPHILLIPS, SEMPRA INK HOA FOR LARGE-SCALE LNG PROJECTS, CCS

Sempra Infrastructure, a subsidiary of Sempra, is developing a new large-scale LNG facility in Jefferson County, Texas, that could expand ConocoPhillips' global LNG business.

In accordance with the Heads of Agreement (HOA) with Sempra, ConocoPhillips is to acquire

a 30% equity stake in Port Arthur Liquefaction Holdings, LLC and to acquire the ability to offtake approximately 5 million tonnes of LNG per annum (Mtpa) from the Port Arthur LNG project.

This project has been fully permitted, and the first phase will include two liquefaction trains, LNG

storage tanks, along with associated facilities capable of producing approximately 13.5 Mtpa of LNG under optimal conditions. ConocoPhillips will bring extensive commercial expertise and resources to the project as one of the top five natural gas marketers in North America.



## EQUINOR

### EQUINOR'S STRIKE-AFFECTED FIELDS RESUME PRODUCTION

After a strike by members of the Norwegian Organization of Managers and Executives (Lederne) was called off, the Gudrun, Oseberg

South, and Oseberg East fields have started production.

In connection with this year's basic collective bargaining agreement, the government proposed

compulsory arbitration between Lederne and Norwegian Oil and Gas (Norog).

Following the strike, production was safely restarted at the affected facilities.



## SDX

### SDX ENERGY'S MA-1X WELL SHOWS GOOD FLOW RATES OF GAS DURING TESTING

SDX Energy Plc announced that the MA-1X well has shown good flow rates of c. 8.0 million standard cubic feet of natural gas per day (mmscf/d) during the testing process for the well which targeted the Mohsen prospect, within the Exploration Extension Area of South Disouq.

According to the statement of the company, the well is in line with the high-quality Kafr El Sheikh Formation reservoir around the well bore, which has an average porosity of 31.9%.

"However, the well-head pressure decline observed over a three-day production test was higher than expected, which could indicate that a lower volume of gas is connected to the MA-1X well bore compared to pre-drill estimates," said the company.



## CHEVRON

### PETROSAFE, CHEVRON EXPLORE COOPERATION OPPORTUNITIES IN HSE

Petroleum Safety and Environmental Services Company (PetroSafe) and Chevron have discussed cooperation opportunities in line with Chevron's strategy to expand its exploration and production (E&P) activities in Egypt during the upcoming period.

Petrosafe presented its capabilities in providing studies and consulting services in health, safety and environment (HSE) field and its capabilities in combating petroleum pollution in addition to its strategies in securing workers on petroleum sites

Additionally, Chevron's delegation has visited the Oil Spill Response Center in Alexandria to review its capabilities and equipment.



## BP

### BP AWARDS 3D SEISMIC IMAGING PROJECT OFFSHORE EGYPT TO CGG

bp and joint venture partner Pharaonic Petroleum Company have awarded a 3D seismic imaging project to CGG for the first OBN survey to be conducted in the Nile Delta's Atoll field.

Accordingly, CGG will use its unique high-end OBS & FWI imaging technologies, as well as its expertise and specialized HPC from its UK and Cairo imaging centers in order to deliver a high-

quality 3D seismic imaging of the pre-Messinian targets with greater velocity model detail, image bandwidth and AVO reliability for improved field development planning and near-field exploration.



## UOG

### UOG'S ASV-1X ENCOUNTERS PRIMARY, SECONDARY RESERVOIRS IN ABU SENNAN

United Oil & Gas Plc announced that the ASV-1X exploration well has encountered primary and

secondary reservoirs in the Abu Sennan license, onshore Egypt.

The company said that the testing program started on 30 May, but there is no hydrocarbons have yet been recovered. It added that the testing





is still ongoing and the operator and partners will continue to review the test results.

In this regard, Brian Larkin, CEO commented: "While the failure to flow hydrocarbons from ASV-1X to date is not encouraging, the data gathered

from the well test and drilling results will feed into optimising future drilling targets across the licence."

## PETROSAFE

### PETROSAFE CARRIES OUT SIMULATION TO COMBAT PETROLEUM POLLUTION IN HURGHADA

Petroleum Safety and Environmental Services Company (PETROSAFE) carried out a simulation training (Mahrousa) to combat petroleum pollution of the second level in Hurghada as part of Egypt's Sustainable Development strategy.

The training sessions showed the capability of the working teams of the Petroleum Pollution Control Centers which are equipped with the latest devices in confronting the incidences of petroleum pollution.

The training was implemented by supposing the presence of petroleum pollution estimated at about 50 cubic meters as a result of a leakage from a sinking ship, and an emergency plan to combat marine oil pollution was activated, and dealing with oil pollution began.



## SHALATEEN MINING COMPANY

### SHALATEEN CHAIRMAN: EGYPT'S IQAT GOLD MINE TO BEGIN PRODUCTION IN Q4 2022

On the sidelines of Egypt Mining Forum 2022, the Chairman of Shalateen Mining Company Ashraf El Amir said that he expects that the Iqat gold mine will start production during Q4 2022.

In an interview with Al Sharq Bloomberg, El Amir declared that the Iqat has reserves estimated at 1.3 million ounces of gold, noting that the investments in the mine reached \$300 million.

Iqat will be the third mining company in Egypt for extracting gold and accompanied minerals after Sukari Mining Company and Hammash Mir for Gold Mine company.



## PETROJET

### PETROJET EYES MORE COOPERATION OPPORTUNITIES WITH LIBYA'S NOC

The Chairman and Managing Director of Petrojet Waleed Lotfy has met with the Head of Libya's National Oil Corporation (NOC) Mustafa Sunallah and the Project and Maintenance Manager of NOC Najmi Kareem to discuss cooperation opportunities in petroleum projects in Libya during the next period.

The parties were looking for cooperation in maintenance projects and establishing warehouses, pipelines, oil and gas processing stations and offshore platforms in the various fields. They also discussed the capabilities of using Petrojet's technical workshops to serve Libyan petroleum sector needs.

For his part, Sunallah expressed his appreciation for Petrojet's role and achievements in Libya during the past period affirming his desire for more cooperation during the upcoming period.



## APEX

### APEX TO RAMP UP OIL PRODUCTION IN EGYPT'S WESTERN DESERT

In a meeting with Minister of Petroleum and Mineral Resources Tarek El Molla, Apex Chairman of the Board of Directors Roger Plank, Apex CEO based in Cairo Thomas Maher and their accompanying delegation discussed the company's plans to

intensify its activities and increase production in the Western Desert.

Plank reviewed the most important indicators of the company's performance over the past years, noting that the company's total investments since

the beginning of its work amounted to \$38 million and plans to reach investments of \$82 million. He added that the company's current crude oil production rate is about 6,000 barrels per day (bbl/d), with plans to reach 7,000 bbl/d.



## SHELL

### SHELL SHOWS COMMITMENT TO RAMP UP EXPLORATION, DISCOVERY OPERATIONS IN EGYPT

During a meeting with Minister of Petroleum and Mineral Resources Tarek El Molla, Cederic Cremers, Shell's Executive Vice President, LNG East, stated that Shell is committed to ramping up its exploration and discovery projects in Egypt after conducting seismic surveys on its sites.

He noted that Shell is preparing a working plan for exploring several wells over phases based on the seismic survey. Cremers also praised the developing role of the East Mediterranean Gas Forum (EMGF) which will facilitate cooperation between the member countries.

The meeting discussed Shell's operation in Egypt and its plans during the next period in addition to the readiness of Egypt for hosting COP 27. They also reviewed the impact of the current oil prices on the oil and gas industry.



## ACWA POWER

### ACWA POWER EYES HYDROGEN PRODUCTION PROJECT IN EGYPT

The Chairman of ACWA Power company, Mohammed Abunayyan said his company is willing to transfer its expertise in hydrogen production to Egypt which now enjoys great infrastructure thanks to the newly established projects in this field.

Abunayyan's remarks came during his meeting with Prime Minister Mostafa Madbouly in presence of the Minister of Electricity and Renewable Energy, Mohamed Shaker.

During the meeting, Abunayyan referred to the contract he signed with the Ministry of Electricity

worth \$1.5 billion to construct the biggest station for generating electricity from wind energy in the Middle East.





# OVERVIEW OF PETROLEUM SECTOR'S INVESTMENTS OVER FYS (2016/17-2020/21)

BY JOLLY MONSEF, MARIAM AHMED & YOUSINA MOUNIR

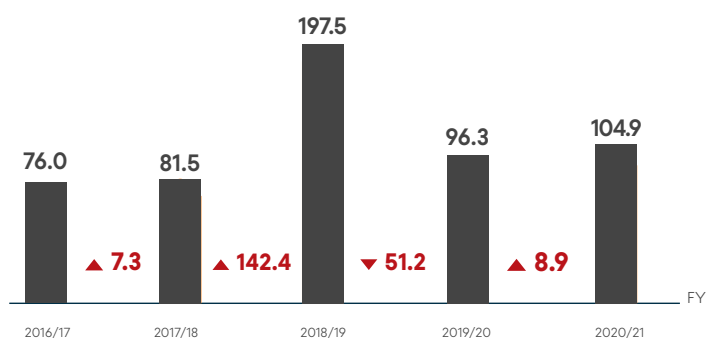
Over the past five fiscal years (FYS), the petroleum sector has witnessed many developments and an increase in the volume of investments, especially in the activities of both crude oil and natural gas extractions as well as oil refining. Achieving this growth in investments came in line with the intention to implement the modernization project which started in 2016, with its first pillar focusing on accelerating upstream investments. This is in addition to the bid rounds launched to encourage more companies to pump more investments in the sector.

## Petroleum Sector's Investments

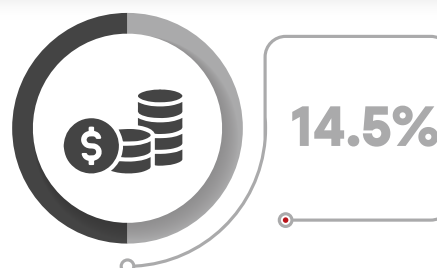
Over the five FYS (2016/17-2020/21), the total Investments in the petroleum sector reached EGP 556.2 billion. It is worth noting that starting from FY 2016/17, the investments witnessed an increasing trend until FY 2018/19.

In FY 2018/19, the investments jumped by 142% year-on-year (YoY) to reach its peak. This growth is accelerated by crude oil discoveries that increased by 18% YoY, in addition to the largest gas discovery in the Mediterranean to date, Zohr gas field, which started production in December 2017. Yet, in FY 2019/20, investments saw a decline caused by the surge of global COVID-19 pandemic.

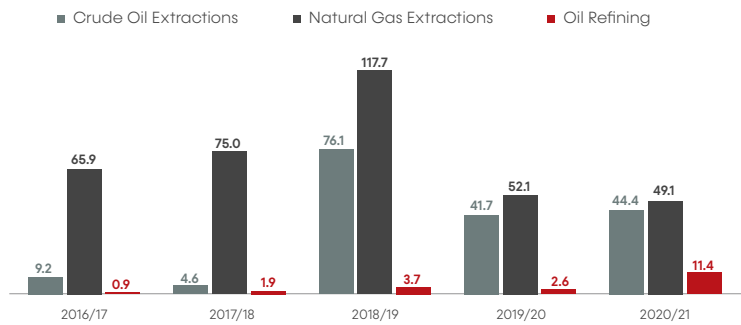
TOTAL PETROLEUM SECTOR'S INVESTMENTS (EGP billion)



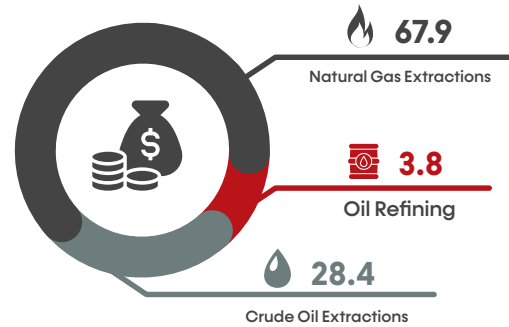
Average Share of Petroleum Sector's Investments in Total Investments over FYS (2016/17-2020/21)



### ANNUAL INVESTMENTS PER ACTIVITY (EGP billion)



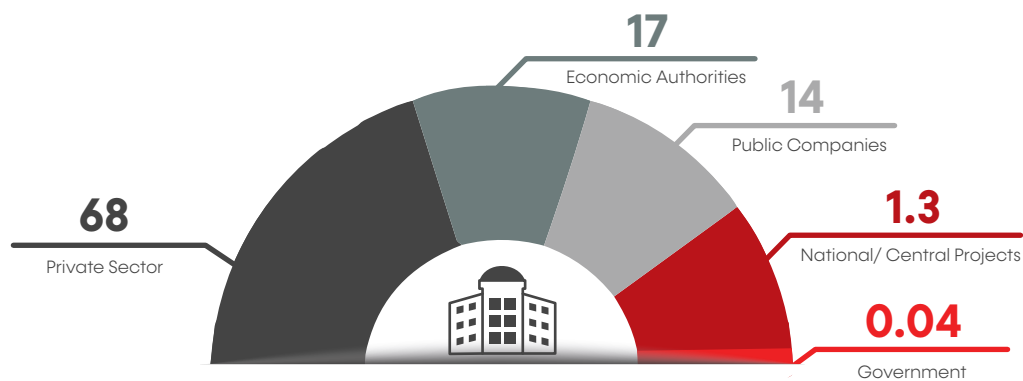
### ACTIVITIES' AVERAGE SHARES FROM PETROLEUM SECTOR INVESTMENTS OVER FYS (2016/17-2020/21)



## Sector's Investments per Entities

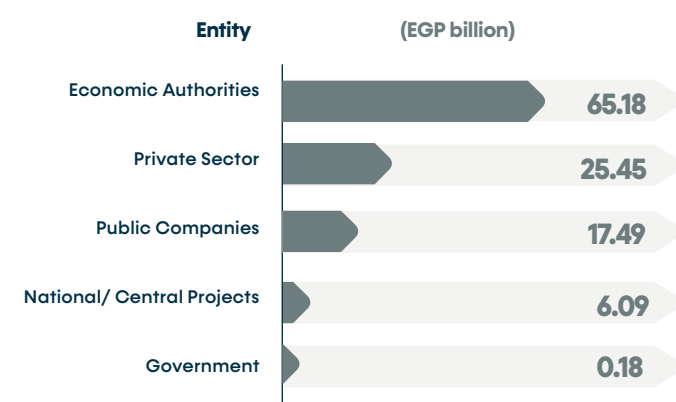
Over the mentioned period, entities in Egypt pumped investments in different activities in the petroleum sector. The private sector is the highest entity contributing to the sector's investments with EGP 326 billion. It is worth noting that in the same period there were no government or national/central project investments in natural gas extraction activities. As for the oil refining activities, only public companies pumped investments.

### ENTITIES SHARES IN THE PETROLEUM SECTOR INVESTMENTS (%)

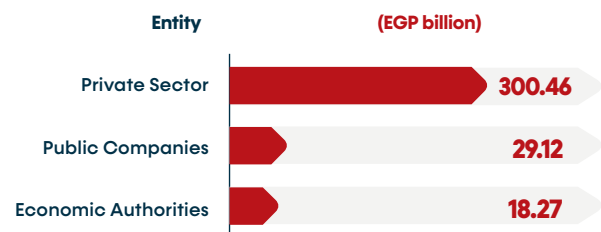


### PETROLEUM ACTIVITIES' INVESTMENTS PER ENTITY

#### CRUDE OIL EXTRACTIONS



#### NATURAL GAS EXTRACTIONS



#### OIL REFINING

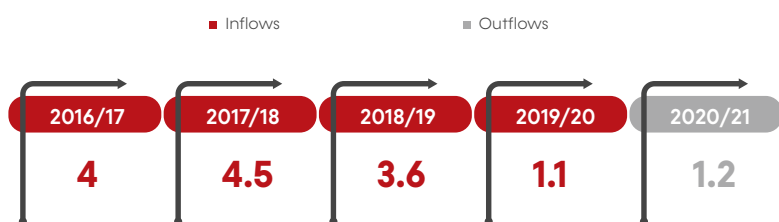


## Oil Sector Foreign Direct Investments

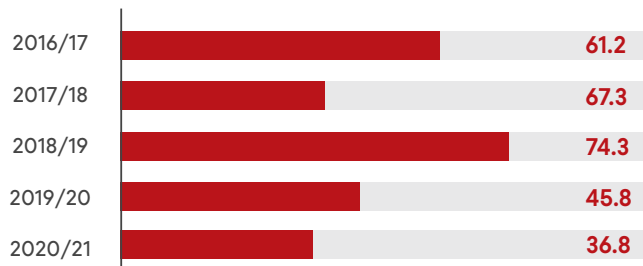
Over FYs (2016/17-2019/20), foreign direct investment (FDI) inflows passed through fluctuations until the investment reversed into net outflows of \$1.2 billion in 2020/21, from net inflows of \$1.1 billion in 2019/20. This came as a result of inflows of \$5.1 billion by foreign oil contractors were offset by outflows of \$6.3 billion.

Over the referred period, the petroleum sector has the biggest share in total FDI Inflows compared to other sectors. However, this share decreased in the last 2 FYs due to the spread of Covid-19 pandemic in late 2019 and the lock down which had affected the global demand negatively.

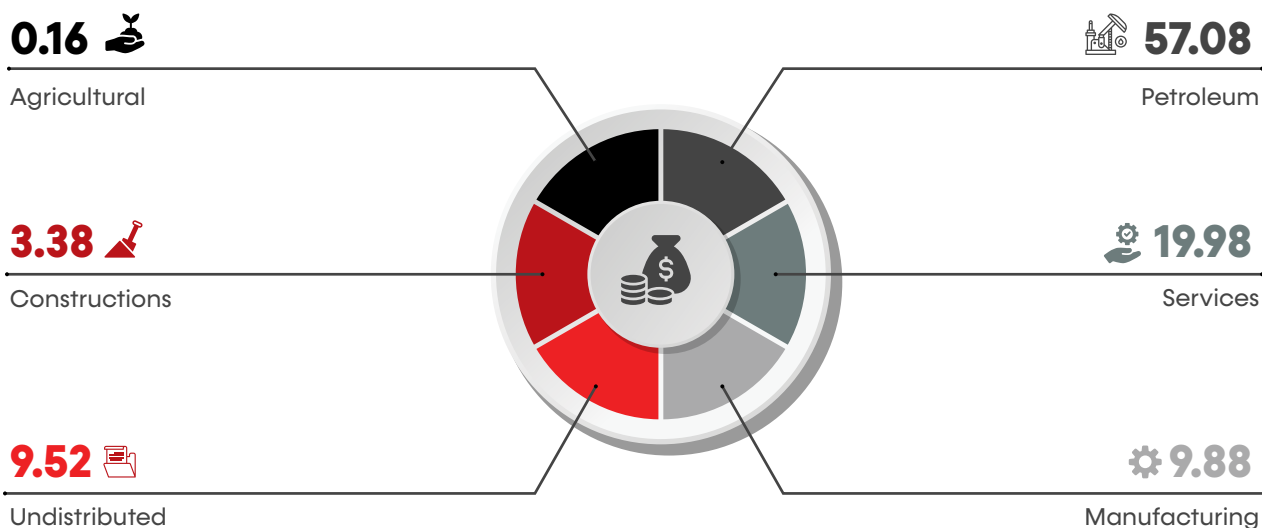
**NET FDI INFLOWS/OUTFLOWS IN THE PETROLEUM SECTOR (\$ billion)**



**SHARE OF PETROLEUM SECTOR IN TOTAL FDI INFLOWS**



**SECTORS' AVERAGE SHARES IN TOTAL FDI INFLOWS OVER FYs (2016/17 – 2020/21)**



The petroleum sector is one of the fundamental pillars of economic growth, also it's a major source of Egypt's energy needs. Therefore, Egypt is keen to encourage petroleum investments by foreign and local companies. Total petroleum investments targeted in the FY 2021/22 plan is EGP 65.3 billion, of which EGP 48.7 billion are for extraction activities, and EGP 16.6 are for petroleum refining activities, according to the Ministry of Planning and Economic Development (MPED) Data. For FY 2022/23, it planned to increase investments in Egypt-owned oil companies to EGP 30 billion, also Egypt anticipates \$7 billion FDI in the sector, according to the Ministry of Petroleum and Mineral Resources.





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# SHARPENING EGYPT'S MINING INDUSTRY

BY SARAH SAMIR & ISRAA NOUR EL DEEN

In the framework of Egypt's strategy to enhance its mining sector and promote economic development, the Ministry of Petroleum and Mineral Resources hosted the Egypt Mining Forum 2022 at the Ski Executive Resort on July 4<sup>th</sup>.

The forum was held under the theme 'Putting Egypt on the International Mining and Minerals Map' and was supported by the Egyptian Mineral Resources Authority (EMRA).

## Attracting Investments

Minister of Petroleum and Mineral Resources Tarek El Molla opened the forum virtually stating that "the reform and development witnessed by the mining sector in Egypt yield promising investment opportunities that international and local investors should seize as Egypt vies to turn into a global mining destination."

The minister also encouraged investors to explore the potential of Egypt's mining sector. "International companies should seize the opportunity to invest in the Shalateen Company's concession areas to search for gold and minerals after achieving a distinct gold discovery, confirming the presence of gold reserves in these areas. This is in addition to the investment opportunities available in the Golden Triangle area," El Molla said. "Investors should take advantage of the competitive elements available in the mining sector, as it possesses a distinct geological nature, many types of minerals as well as energy sources, distinguished mining cadres, and the infrastructure of roads and transport networks, airports, and ports overlooking two of the most important maritime trade routes."

## Developing Egypt's Mining Sector

During the Egypt Mining Forum 2022, EMRA signed three memoranda of understanding (MoUs) for developing the Egyptian mining sector.

One of the signed MoUs was inked with the International Egyptian Oil Company (IEOC) affiliated with Italy's Eni in order to cooperate in identifying and exploring available opportunities in metals that can be used in energy transition programs and clean energy projects such as lithium, nickel, cobalt, manganese, and graphite.

The second MoU was signed with the American Chamber of Commerce to cooperate in providing a number of training programs and building capabilities within the mining sector in order to support the sector's Modernization project adopted by the Ministry of Petroleum and Mineral Resources.

EMRA further signed an MoU with MSALAB company to develop the capabilities of EMRA's employees in order to prepare them to check for gold and basic minerals in soil, rock, and excavation samples in Marsa Alam.

In addition to the exciting opportunities made possible by these MoUs, the Egypt Mining Forum featured an enriching and enlightening series of sessions and panel discussions, attended by some of the most widely renowned names in the industry.

## Embarking on Gold Exploration Journey

In a panel discussion about 'Transforming Egypt as a Progressive Investment Destination for Gold and Precious Stones,' the Egypt Mining Forum gave room to industry leaders to discuss the role of the Egyptian government. Four mining leaders talked about what they are expecting from governments. The panel reviewed efforts for developing the mining sector to attract foreign investments in Egypt and expanding participation in gold mining bid rounds.

"There are three things that make a jurisdiction attractive... the geology has to be rough ... the second thing we need to have is a stable regime .... Thirdly, we look at the official regime and the legal regime," James Ferguson, Senior Vice President Tax and Treasury at Barrick Gold Corporation, explained what makes a country attractive for mining investments.

Meanwhile, Mike Cinnamond, Service Vice President of Finance at B2Gold Corporation agreed, highlighting that the operating companies need governments to provide security of properties, fiscal stability, and economic regime.

As the discussion progressed, speakers began to focus more on the mining market. Martin Horgan, Centamin's CEO, viewed the mining market as a competition, advising Egypt to "sell itself" to attract investors, who will go where they believe is profitable for them. The session clarified the vision of investors and what encourages them to invest in Egypt, pointing to the efforts which include amending the necessary legislation, applying the systems prevailing globally in mining agreements, and integrating the advantages that Egypt possesses from huge mineral wealth and the availability of manpower and the necessary training for human capital.



Moreover, the panelists highlighted the attractive points of investing in Egypt, highlighting the tax royalties and concession agreements that state a 50%-50% profit-sharing partnership with the Egyptian public sector, represented in EMRA. In this regard, Horgan described the profit-sharing agreements with the Egyptian mining sector as "fantastic, very clear, unambiguous, and actually simple to manage." Meanwhile, Cinnamond pointed out that the 50%-50% profit sharing agreements are "fair."



legalizing local artisanal miners in South Egypt, exploiting old mines, and adding value to mineral ores.

### Advancing Phosphate Supply

The second half of the forum started with a session, entitled 'Advancing phosphate and Fertilizer Supply: Supporting the Global Quest for Agricultural Productivity'. The session discussed what Egypt can do to enhance its agricultural productivity by advancing phosphate and fertilizer production and what Egypt can add to expand the fertilizer business around the world and develop the production levels to meet global demands and also referring to the new investment opportunities available for the international investors.

### Investment Opportunities

Throughout this session, which was under the theme 'The Golden Triangle Economic Zone: Investment Opportunities and Incentives for International Players', professionals discussed how the Golden Triangle, an area that extends from the Nile Valley to the east coast and spreads across an area of 900 square kilometers, can create new investment opportunities. Experts discussed how a comprehensive study has been made to cover the area and finalize a master plan for its agricultural, industrial, and tourism development.

By offering a number of jobs along the Golden Triangle project, which is to be executed within the next five decades, a significant portion of the population will be attracted to areas in Upper Egypt.

Representing Golden Triangle Economic Zone, Mohamed abo El-Gheit, talked about the current global instability, global recession, the volatility of the stock market and energy prices, and more importantly, the lack of supply chain. This makes it the right time for global leaders, global industrial developers, and donors to start paying more attention and directing their industrial capacities towards creating more new communities specifically in the economic zone in order to create more jobs and increase sustainability and business continuity.

### Airborne Surveillance for Mineral Exploration

During this session, Hany Hussein, Airborne Survey Project General Manager made a presentation, entitled 'Next-Generation Air-Borne Surveying for Mineral Exploration' to talk about helicopter-borne geophysical surveys and how they are the most effective and rapid means of evaluating mineral exploration.

"Given the large size of the targeted area and the nature of the research sector's location, the ideal method to save time and cost is by using helicopters to carry out aerial geophysical surveys. This is in line with the directives of the Egyptian state to enhance efforts to develop the mining sector in Egypt in coordination with the state's strategic development vision," Hussein stated.

Petroleum Air Services (PAS) is an Egyptian joint stock company that operates in two methods simultaneously: contacting service and equipment providers to obtain data on equipment compatibility with PAS' helicopter types and contacting mining companies to hold meetings with Petroleum Air services' chairman and company representatives to explore methods to provide the service in Egypt.

Adding that PAS is trying in every way to offer innovative solutions with its partners to provide magnetic surveys at a competitive cost, especially in comparison to fixed-wing magnetic surveys that could be executed with low altitude and low speed leading to a higher resolution.

The "Exploring the Nubian Shield" seminar covered how Egypt is growing to be a big player in the non-precious metals trade and how the mineral-rich Nubian Shield can play a significant role in the global minerals trade in the years to come.

### Mineral Fertilizer Encouraging Growth

At the last session "Mineral Fertilizer Encouraging Growth", Secretary-General of the Arab Fertilizer Association (AFA), Raed Soub discussed how the AFA initiated the mineral fertilizer industry in Kuwait in 1975 and its entrance into the Egypt market in 1992 and how after three years from now the organization will be half a century old, covering all Arab countries that are using fertilizers.

He added that in three years they are planning to play a major role in Arab food security and sustainability, in addition to paying attention to climate change when it comes to green hydrogen and green ammonia.

Egypt Mining Forum successfully concluded as an occasion that effectively demonstrates that Egypt has a promising and encouraging investment climate for the mining industry and global investors, which will pave the way for further cooperation with mining leaders.

In this regard, Mike Silver, Co-Founder and Chief Executive Officer, at Lotus Gold Corporation, concluded the panel by encouraging investors saying that "now is the time" for partnerships in the Egyptian promising mining sector.

### Enhancing Egypt's Mining Prospects

The Egypt Mining Forum featured a keynote on Augmenting Mining Prospects in the Eastern Desert Region. The keynote was delivered by Ashraf El Amir, Chairman at Shalateen Mineral Resources Company, Tamer Fahmy, Vice Chairman at Eqat Gold Mines, and John Chisholm, Managing Director at Master Drilling.

The session discussed how the Shalateen Mineral Resources Company is working to transform the Eastern Desert region into a global mining destination, reflecting the potential of the Eastern Desert and offering insights into the plans of Shalateen Mineral Resources Company to further develop the region by leveraging international partnerships.

The speeches showcased the Shalateen Concession and what makes it interesting for miners. Shalateen has gold ore areas that are offered for investments, such as the Fatiri area, located 70 km to the west of Safaga city, and gold ore areas under exploration, such as the South Ilbah, operated by Afaq Mining Company.

Shalateen Concession is very attractive for investors seeking gold mining as it has numerous old working brownfields and optional relinquishments. It further enjoys customs exemptions, VAT exemptions, tax exemption for expats' allowances; traveling expenses; accommodations allowances and benefits;...etc.

The distinguished speakers talked about the reasons behind establishing the Shalateen Mineral Resources Company, which include mineral ores exploration,



# IT/OT CONVERGENCE ROLE IN OIL & GAS OPERATIONAL EFFICIENCY

BY FATMA AHMED

Just as many other industries around the world, the oil and gas industry, has recently passed through several crises, including the consequences of COVID – 19 pandemic, prices fluctuation, and the impact of the Russian–Ukrainian war. Many of these industries resorted to advanced technologies to respond to or mitigate the effects of such crises. The convergence of Information technology and operation technology (IT/OT) has become one of the growing trends in the oil and gas sector in this regard as it can enable businesses to close the gap between traditional systems that support the OT and modern IT layers.

## IT/OT CONVERGENCE IN OIL & GAS: HOW IT WORKS

IT/OT convergence is a tool for oil and gas operators to benefit from the huge amount of data generated when connecting internet of things (IoT) devices to the operations equipment. This data can build valuable insights across the various phases of operation and production. This data has appeared in the form of time series and analyzed by using artificial intelligence (AI) and machine learning (ML) techniques to predict any possible damage or technical issues, according to an article published on Birlasoft.

Bringing IT and OT systems together can be achieved through three stages. First, the OT layer which consists of supervisory control and data acquisition (SCADA) systems and sensors installed in the facilities should be linked to the right network technology to transmit data to IT systems. Then, this data is collected by advanced platforms and saved in data silos to be ready for use in various cases. After that, via AI and ML applications, this data can provide a predictive analysis, which is useful in automated operations and control systems. It will also be beneficial in increasing production, reducing incidents, and providing accurate production plans.

## IT/OT CONVERGENCE APPLICATIONS IN OIL & GAS

An article published by TechTarget indicates that IT/OT convergence applications in the oil and gas industry such as predictive maintenance through the internet of things (IoT) sensors enable workers to predict any leaks or failures in oil and gas pipelines before they break down. The article also referred to the acoustic sensors which can analyze oil flow in the pipelines. Additionally, remote asset management technologies are applications for such convergence as well. It has an important

role in helping employees control operations remotely. This role was essential during COVID – 19 time. One of the most recent applications for IT/OT convergence is the digital twin which implements simulation for the various assets virtually.

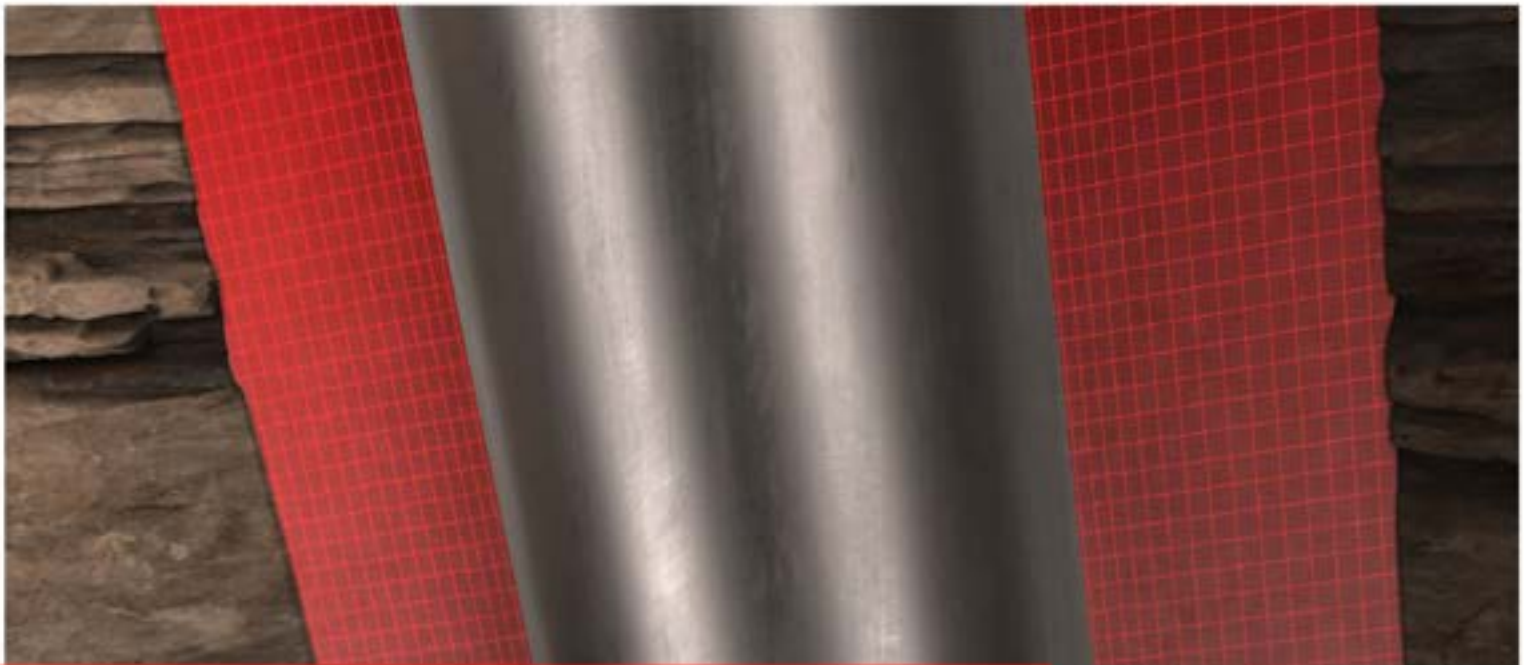
## IT/OT CONVERGENCE EQUIPS OIL & GAS INDUSTRY

IT/OT convergence techniques move the petroleum sector forward. By providing predictive analysis through IT/OT convergence techniques, costs will be decreased due to reduction in maintenance spending. It also helps in keeping production levels, as workers can predict any problem before it happens. In addition, remote and automated control can save workers time as well as traveling costs as they can handle operations from their offices without any need to go to the fields.

Moreover, IT/OT convergence also provides a safe workplace. According to Birlasoft, “wearable safety devices can be integrated into a centralized communication system and configured for triggering alarms when a hazard is detected nearby or when unsafe situations like falling objects or hazardous chemicals are detected at a location.”

However, IT/OT convergence is not free of obstacles. For example, this technique may face cybersecurity threats from hackers. This issue needs oil and gas companies to have strict cybersecurity controls and implement zero-trust security paradigms. Furthermore, implementing IT/OT convergence requires the companies to have equipment and devices that can integrate with the new systems. When oil and gas companies identify these challenges and deal with them, they will gain uncountable benefits from this innovative technique. It also will support the sector’s digitalization by raising its efficiency with the lowest costs.





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# BUILDING RESILIENCE IN TIMES OF CRISIS

BY SARAH SAMIR

Over the past few years, Egypt has been working on its assets and potential to cope with global changes. Despite challenges like the Coronavirus and the Russian attack on Ukraine, the Egyptian oil and gas sector has proved worthy of investments as it has made worth-noting achievements thanks to the efforts exerted to develop this sector.

## Steps towards Energy Security

Egypt has been walking on the right track to ensure attracting investment opportunities to the hydrocarbon industries to guarantee energy security. The Egyptian political leadership had implemented several economic reform programs that supported the national economy and energy sectors. These economic reforms have enhanced the country's investment climate and attracted foreign investments to the oil and gas sector.

Meanwhile, the Ministry of Petroleum and Mineral Resources adapted in 2016 the Modernization Program, which aims to develop the sector and its performance across the upstream, midstream, and downstream levels. A part of the program is for the ministry to ensure the digitalization of the oil and gas sector.

Thanks to the digital transformation, Egypt was ready to keep going despite the Coronavirus Pandemic's social distancing. Additionally, implementing digital means in the transportation of hydrocarbon products guaranteed the delivery of all market needs and standing up to the black markets of petroleum products.

The Egyptian government is still working on its energy security to ensure the availability of all the citizens' needs in time. In this regard, Egyptian President Abdel Fattah El Sisi, and Prime Minister Mostafa Madbouly are holding periodic meetings with the Minister of Petroleum and Mineral Resources, Tarek El Molla, to follow up on the exploration and production (E&P) activities, and the availability of hydrocarbon products.

## Egypt's Energy, A Success Story

Egypt successfully had several achievements in the oil and gas industry, despite the global challenges, which shows a capable sector as well as wise and timely reforms. The performance of the Egyptian petroleum sector over the past eight years reflects the efficiency of planning and implementation of the strategic objectives set by the Ministry and launched through an integrated vision for the development and modernization of the sector and a national economic reform program, El Molla commented on the sector's success story.

Accordingly, Egypt has witnessed a shift from having a deficit in the oil trade balance to achieving a surplus, as the sector achieved for the first time in

many years a surplus in the trade balance for the year 2018/2019, which amounted to about EGP 9.9 billion. The surplus in the petroleum trade balance during 2021 amounted to around EGP 46.4 billion.

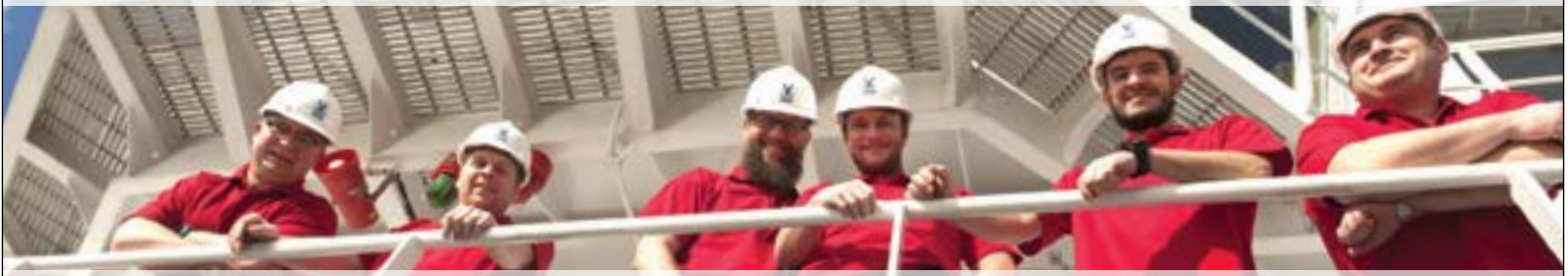
Moreover, the amount injected from the oil and gas sector into the state's public treasury for the year 2020/21 amounted to about EGP 33 billion, compared to a deficit of around EGP 77.4 billion in 2016/17.

Meanwhile, the petroleum sector successfully converted the growth rate of the gas industry during the previous years from a negative 11% to a positive 25% in 2018/19, which enabled the country to achieve self-sufficiency in gas, and secure all the citizens' natural gas needs, and resume exports. Additionally, the growth rate of the refining sector reached about 25% in 2019/20.

Over the past eight years, the Ministry of Petroleum and Mineral Resources has made several achievements thanks to the efforts of the leadership and employees and the unity between all sectors. Today, the Egyptian oil and gas sector is standing out, attracting investors who have trust in the sector's capabilities and its crisis management approach.



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Tel.: +2033913820 (10 Lines) Fax: +2033913829 Email: Offshore@pan-marine.net

# PREVENTATIVE CRISIS MANAGEMENT: THE KEY TO OPERATIONAL EXCELLENCE

BY RANA AL KADY

Oil and gas facilities, which include oil and gas refineries, offshore production platforms, pipeline networks, and various chemical plants, are among the most complicated and dangerous industrial processes in the world. Everyone on site contributes to the operational hum of business as usual. But what happens when a disaster strikes? Can staff deal with the situation swiftly and efficiently? Can work be delegated to staff to help alleviate the situation? Can we readily communicate essential information to employees, emergency personnel, and the general public?

It's no mystery that firms in the oil and gas industry are frequently chastised from all sides. This criticism is frequently picked up by activist groups, non-governmental organizations, or media outlets, implying that minor criticism may swiftly escalate into a big problem and a danger to a company's reputation. As a result, it is crucial for oil and gas companies to be ready for key dialogues and crisis communication at all times. Consumers arguing about excessive gasoline or natural gas prices, environmental organizations opposing new projects, and disastrous occurrences like oil spills or other disasters are just a few of the issues that might impact their day-to-day operations.

Meanwhile, it is critical for oil and gas firms' public relations and communications teams to watch the entire debate about their businesses, be conscious of the mood against them, and monitor the company's reputation as well as public opinion towards the company. With all of those daily activities, as well as crisis surveillance, communication, and management, it might be difficult to stay on top of everything without sinking.

## GENERAL OVERVIEW

First of all, oil pollution and its environmental repercussions, contentious procedures such as fracking, or simply swings in crude oil prices- there are several issues that have the potential to turn into crises for corporations in the petroleum sector. It is critical for crisis tracking and management to stay current on talks regarding these subjects and to respond as early as possible to avoid long-term harm to brand reputation.

The number of potential catastrophes and situations that might interrupt, disturb, or stress production is growing. If handled correctly, not many of these incidents will be crucial or constitute a crisis; however, those that lead to huge losses or increase demand on the company will have severe repercussions for the company, its stakeholders, the country, and the prestige of all those affected. These difficulties, as well as a general lack of awareness of the investment necessary to be crisis equipped, can all have an influence on emergency preparedness.

## THE IMPORTANCE OF PREVENTATIVE CRISIS MANAGEMENT

Structure, skillset, and mentality are required for a really successful crisis management team and functional crisis preparedness system. This is the foundation of the team's crisis performance framework. It may utilise the performance framework to help an organisation based on its needs and level of crisis preparation maturity. Trainings and capacity building programs would be beneficial, even if they take place locally or internationally, either in-person or remotely. Organizations must provide tailored and integrated crisis preparedness solutions, such as crisis management training, crisis preparation, crisis response drills and scenarios, crisis leadership, and role-specific mentoring.

The preventative crisis management plan puts emphasis on maintaining output, particularly gas production, for as long as is practically possible while providing industry and government time to address the issues. It should not go into depth about potential crises that might affect oil and gas output, nor does it go into detail about the implications. The main concepts will apply to any event, and the processes will be implemented appropriately.

The importance of crisis management planning is comparable to the importance of crisis management. And, like crisis management, crisis management planning assists you in improving employee well-being and public health. If you were sitting on a stockpile of dangerous materials, for example, it would be imprudent not to plan for an inadvertent leak or pollution. An industry expert, who preferred anonymity, indicates that "crisis management is a growing topic in [our] industry. It is our responsibility to make sure that all staff are trained to make sure they know what to do in the case of an emergency, especially because emergencies in this field could escalate if we don't act quickly and correctly." She also added that, "communication strategies are the core part of any emergency and could make a big difference between a success and a failure response."

Another important point to consider is that a crisis might potentially be illegal. In other words, another benefit of crisis management preparedness is that it may assist organizations in mitigating any legal liability in the event of a crisis, both to the organization and to key stakeholders. Regulators frequently require planning for particular firms and sectors. As a result, failing to plan ahead of time exposes you to the risk of fines and penalties.

Furthermore, it is not unusual for a crisis to shut down an organization - even if only for a few hours. Even in those few hours, though, money is lost. Without appropriate planning, a few hours may turn into days, if not weeks. Effective planning may save downtime, increasing output and productivity. This is a well-known successful phenomenon identified as Shutdown on Demand for Preventative Maintenance procedures.

## CASE STUDY

An important case study to consider is that of the Deepwater Horizon disaster seven years ago. It was believed to be one of the worst disasters in history, resulting in human deaths and oil leaks that harmed the ecology. Professionals debated whether the failure of BP to assure safety and adequate crisis management was the primary cause of the tragedy. However, BP adopted the federal state's policy to rectify the issue. It became involved in the recovery and focused on those who had been impacted directly or indirectly by the accident. The group was concerned with health, safety, and welfare. It assisted in the economic rehabilitation of businesses damaged by the oil disaster, such as tourism and fisheries. Of course, this incident was a learning process as BP considered the importance of preventative crisis management and continues to be one of the leading organizations in the industry.

## CONCLUSION

In the oil and gas business, such terminology can include "accident" or "explosion." However, crises are not always associated with such catastrophic catastrophes; they may also be associated with a firm's management or widespread criticism of business practises. In all of these circumstances, it is critical that PR and communications managers are notified as soon as possible so that they can develop an effective crisis communication plan that will be applied during the crisis response.



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# HEDGING OUT OF THE CRISIS

BY NADER RAMADAN

With the Russia-Ukraine war raging on, economists have been thrown into uncharted waters as the conflict rewrites all the energy market's financial equations. The war has forced global energy prices to go through the roof, creating one of the most daunting economic crises the world has ever seen. With the world's economy in flux and gas-starved Europe bracing itself for a long winter, corporate leaders, government officials, and the world's top experts have been hard at work to implement a strategy that can help navigate the world out of this deep abyss, but crisis management is a complex science with its different opinions and approaches. In the world of energy economics, taking the right measures to counter a negative trend is a key part of mitigating its fallout. And for many economists, hedging does just that.

Hedging can be thought of as a type of insurance. It is a risk management strategy that involves reducing the impact of market crises through the use of financial instruments and approaches to offset dangerously severe price fluctuations, particularly those caused by significant global events. These financial tools are known as derivatives, of which there are two types, options and futures.

In energy markets, there are six main futures contracts, four of which are traded on the New York Mercantile Exchange, WTI crude oil, Henry Hub natural gas, NY Harbor ultra-low sulfur diesel, and RBOB gasoline. Brent crude oil and gasoil are futures that are traded on the Intercontinental Exchange (ICE).

Future contracts give buyers the right and obligation to purchase a commodity at a fixed price given in the contract regardless of the price fluctuations in the market. This same rule applies to the seller. The seller of the contract will have to sell the commodity to the buyer of the contract at the agreed price specified in the contract. In addition to futures, hedging in the oil and gas industry can include swaps, put options, and costless collars.

It's not just a source of financial security for just individual buyers and sellers. Hedging has also proven to be an effective tool to improve the immunity of economies around the world from the price fluctuations of various commodities. Since oil and gas price fluctuations can have a domino effect on other markets, hedging plays an essential role in mitigating the economic fallout of inflation.

Hedging has taken center stage recently as an essential component of Egyptian economic policy, particularly in the energy market. In 2018, the Egyptian government took steps to protect fuel subsidies against oil price fluctuations by using insurance contracts that would help the country hedge against prices exceeding \$73 per barrel (/bbl). During the following year, both the Ministry of Petroleum and Mineral Resources, as well as the Ministry of Finance, also changed the hedging mechanism in the fiscal year 2020/19 due to oil price fluctuations. Then in 2019, the Egyptian government finalized a contract with two international banks to hedge against soaring prices, targeting prices of less than \$70/bbl (within the range of \$64-\$68/bbl). These measures ensured that the market conditions at the time would not burden the state budget.

The question remains: would hedging be considered an adequate and effective escape route that could mitigate the effects of an energy economics crisis, such as the one the world currently faces? While hedging is noted for its effectiveness in its security against adverse price changes, it should be noted that it is designed only to reduce loss, which also means there's a possibility it can limit gains as well. Hence, opinions will differ from one economist to another as to how much benefit hedging can bring to an economy.

As Egypt is set to become one of the main exporters that will quench Europe's thirst for liquefied natural gas (LNG), hedging can be thought of as a double-edged sword. On one hand, the Egyptian government could use hedging to fix LNG at its current high prices to protect its profits even when natural gas prices begin to take a dip in the future. On the other hand, it is always well-known that the downside to hedging is that it is only good for minimizing losses (or protecting profits) rather than maximizing profits. If natural gas prices rise even more in the future, then using the current fixed prices might make Egypt miss out on potentially big gains. It's a complicated balancing act that both officials and producers have to perform and get right in order to be triumphant.

With inflation on the rise and an unstable market suggesting an insecure outlook in the near future, implementing the right monetary strategies to bring immunity to Egypt's economy is essential for maintaining both national and regional stability. Though hedging is one of the more effective strategies in providing the economy with some level of financial security, Egypt's long-term prosperity depends deeply on rapidly developing economic self-sufficiency and a highly competitive market today so that it will be able to ride the rough tides of tomorrow.



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# IN HIS FIRST MIDDLE EAST TOUR, BIDEN BITES OFF MORE THAN HE CAN CHEW

BY IHAB SHAARAWY

**A**ccording to the White House, United State President Joe Biden's visit to the Middle East in mid-July was intended to reassure regional allies of continued engagement, affirming the US enduring commitment to the security and territorial defense of its partners, and recognizing the region's increasingly important role as a trade and technology crossroads between hemispheres.

During the visit, President Biden reiterated the importance the US places on its decades-long strategic partnerships in the Middle East region. He also forcefully affirmed the centrality of the Middle East region to the long-term security and prosperity of the US and its people.

However, the visit was seen by many commentators as a chance to correct the fatal mistake of the US to withdraw from this strategic region. It's also an attempt to stave off the Russian and Chinese influence there and to provide more security guarantees to Israel.

It was also difficult not to think of the visit as a chance to convince Gulf oil-producing countries to ramp up production to bring the oil prices down. However, the vague summit communicate has poured cold water on many of the US hopes, generating a torrent of criticism against the president's moves that left everyone disappointed.

## Split Over Iran Policy

The US president began his Middle East tour with a stop in Israel, where he attested to the "bone-deep bond" between the US and Israel, reaffirming the unshakable commitment to Israel's security, including partnering with Israel on the most cutting-edge defense systems in the world.

Biden, at the same time, reiterated the long-standing US policy supporting a two-state solution for Israel and the Palestinian people. However, he publicly stated that "the ground is not ripe at this moment to restart negotiations," and that his support for a vision of a two-state solution is not one that is realizable "in the near term." Biden's statements left little doubt that his administration will not be seeking or promoting any real Israeli-Palestinian diplomatic progress.

Addressing the Iranian threat, there was a clear split between Israel and the US over the way to deal with the Iranian nuclear ambition. During the visit, Israel's caretaker prime minister, Yair Lapid, pushed President Biden to go beyond his public pledge to prevent Iran from acquiring nuclear weapons. Israel has carried out a series of covert sabotage and assassination operations to slow Iran's ability to enrich nuclear fuel. However, Biden has insisted that diplomacy, and a restoration of the 2015 Iran nuclear agreement, are the best way to find a permanent solution.

## REGAINING ALLIES

During the second leg of his Middle East tour, which took him to Saudi Arabia, Biden vowed to remain engaged in the region and to help the countries there to resist the pressures of influence from Iran, Russia, and China. "Let me say clearly that the United States is going to remain an actively engaged partner in the Middle East," Biden said at the Gulf Cooperation Council (GCC) meeting in Jeddah.

"We will not walk away and leave a vacuum to be filled by China, Russia, or Iran," Biden added, noting that the US wants to help step up protection of international shipping in the Middle East, seen as a clear reference to Iran. "The United States will not allow foreign or regional powers to jeopardize freedom of navigation through the Middle East," he said.

However, several analysts indicated that Biden has missed one of his important goals during his journey, which is bolstering an alliance that brings Israel and Arab countries together against the Iranian threat.

Biden's visit came just weeks after Israel said that it was working with regional partners on an air defense alliance that is led by the US. Israel's Defense Minister

Benny Gantz told the Knesset, Israel's parliament, that he hopes the program will "take another step forward" during Biden's trip to the region.

However, the Saudi FM, Prince Faisal bin Farhan Al-Saud, said that no type of military or technical cooperation with Israel was raised or discussed and that there is no such thing as an "Arab NATO," reiterating that there was no discussion of a "defensive alliance" with Israel. Furthermore, he said that the Joint Arab Action system has reached a stage of "maturity", adding, "We know what we want and we know how to achieve it... We do not wait for anyone to fulfill our needs."

## Seeking More Oil

Biden's visit to Saudi Arabia was haunted by Biden's promise three years ago to make Saudi Arabia a pariah state for the murder of a prominent dissident. The US president opted to greet Crown Prince Mohammed bin Salman with a fist bump reportedly to avoid a handshake. The president's remarks against the Kingdom's human rights record cast a shadow over US-Saudi relations and hindered Biden's efforts to convince Saudis to pump more oil into markets since the beginning of the

## RUSSIA-UKRAINE CONFLICT.

Biden's trip came at a time he struggles to bring down gasoline prices at home that have contributed to a dip in his approval ratings. Oil was expected to top the agenda of his Middle East talks as Washington is eager for Saudi Arabia and

the United Arab Emirates, which holds most of the spare capacity within the Organization of the Petroleum Exporting Countries (OPEC), to pump more oil to reduce gasoline costs.

However, the Saudi Crown Prince insisted that there's no guarantee the increase in oil production beyond current levels will happen and that his country was almost tapped off and could not produce more than 13 million additional barrels per day. Saudi Minister of State for Foreign Affairs Adel al-Jubeir, meanwhile, indicated that Saudis have no intention of breaking their OPEC+ arrangement with Russia, in which the parties agreed to slowly restore their monthly collective production at the rate of only 400,000 more barrels a day.

A telephone call between Saudi Crown Prince and Russian President Vladimir Putin, 6 days after Biden's visit, underlined the importance of further cooperation within the OPEC+ group of oil producers and highlighted the kingdom's desire to keep Russia on board to increase leverage in the oil market.

Meanwhile, several experts doubted the current ability of the OPEC to increase production in a way that can stabilize markets. The OPEC+ group — which brings together the cartel's full membership and several other major producers, most notably Russia — has been behind in production quotas since late last year. There is no indication that the group is closing the gap. OPEC data shows global demand at 100.3 million barrels of oil per day (mmbopd), while world production is 94.5 mmbopd, of which OPEC generates 28.5 mmbopd, leaving a deficit of approximately 6%.

While some cartel members have the potential to boost production with the current infrastructure, their abilities can be hindered by deficient asset integrity and maintenance, political and security issues, and a lack of capital investment.

Still, many experts see one of the most important goals of Biden's tour was to reaffirm Washington's leadership role and commitment to the region. However, failing to achieve any diplomatic breakthrough left everyone dispirited.







# THE GLOBAL ENERGY CRISIS:

## A GAME OF POLICIES AND INTERESTS IN THE MIDDLE EAST

**BY** Eng. Mohsen Ahmed Farhan Ali - Oil & Gas Well Drilling Specialist - Kuwait Oil Company (KOC) Consultant - Oil & Gas Industry Trainer & Coach

It was not expected that Russia would have the courage to take harsh measures against European countries that oppose its war against Ukraine, especially concerning energy supplies from crude oil and natural gas, as the Russian economy has recently become highly dependent on oil and gas sales. But it seems that the US and Western sanctions against Russia have prompted Russia to take these harsh decisions, which will negatively affect the economies of European countries and the US, as well as the Russian economy.

However, the Russian government seems to have anticipated the American and Western reactions to its war on Ukraine before it began, and has taken precautionary measures to avoid the negative effects that would be inflicted on the Russian economy as a result of new legislation to impose sanctions.

Russian decisions and measures did not stop at limiting natural gas supplies to European countries, but also included the nationalization of some European and American companies and properties located inside Russia and the inclusion of their assets and bank balances into Russian public ownership. This came in response to the freezing of the assets of many Russian businesspersons and Russian companies in the US and EU. Also, the decision of some American and European companies to leave the Russian market after the beginning of the Russian war on Ukraine came to give an opportunity for the corresponding Russian companies to these foreign companies to expand their business inside Russia and achieve a high growth rate while American and European companies incurred heavy losses as a result of their exit from the huge Russian market.

With regard to energy, Russia has tried to use natural gas for leverage against Europe. A shortage of this vital resource poses a threat to the European economy in general and may lead to the suspension of many industries within those Western countries as well as portend a major problem that the residents of these countries will face during the coming winter due to the lack of availability of natural gas used for heating. Another painful blow dealt by Russia to the countries prone to its war against Ukraine was the issuance of a decree to nationalize the largest company for the production and processing of natural gas in Siberia by seizing Japan's share in the company, representing 25%, and Britain's share in the company, representing 25% as well, and thus constituted a major crisis for Japan, which depends on gas in heavy metallurgical and automobile industries.

Although the US will not be directly harmed by the suspension of Russian gas supplies to European countries, it has become essential to provide an alternative to Russian gas for its Western allies, and has hinted at the possibility of exporting American gas to Europe, but it seems that this solution is not practical at the present time. In addition, US sanctions on Russian oil have deprived the global oil market of about 10 million barrels of daily production, which represents approximately 10% of global daily production. This led to a rise in crude oil prices globally to nearly \$120 US per barrel of Brent crude, which constitutes an additional burden on

the US economy itself since imported crude oil constitutes more than 50% of US consumption of crude oil. At the same time, the global economy is suffering from a severe wave of stagnation and inflation, which has led to a rise in fuel prices in most countries of the world.

Russia tried to sell its crude oil production to its strategic ally, China, or to some countries that consume huge quantities of oil, such as India, at a price lower than the global market. However, it seems that this approach did not achieve tangible success in pumping Russian oil out of the global oil market, which contributed to the rise in the price of a barrel of crude oil globally during the last period.

The US worked to calm the differences and clear the political atmosphere between Algeria and Morocco, allowing Algeria to pump natural gas to Spain, Greece and some European countries through the pipeline passing through Morocco to compensate for the shortage in Russian gas to Europe. At the same time, international oil and gas companies have started an extensive activity of search and exploration for natural gas in new areas in Algeria, which contain huge reserves of natural gas, for increasing Algeria's production of natural gas. Indeed, new discoveries of natural gas have been recorded recently in Algeria.

The US is currently seeking to finalize a nuclear agreement with Iran and all the necessary legislation, which would allow Iran to pump its crude oil production, estimated at about 4 million barrels per day, into the global market. On the other hand, the US is moving towards urging its allies from the Arab Gulf states, led by Saudi Arabia, to increase their daily production of crude oil. At the same time, the US is working to support political and security stability in both Iraq and Libya in order to secure an additional 4 million barrels of crude oil per day from Iraq and about 2 million barrels of crude oil per day from Libya, which would increase global oil supplies and keep global prices under control.

From the above, we can conclude that the recent accelerating events, as well as the intertwined interests between the major industrial countries (oil consumers) and oil producers in the Middle East, necessitate that producers work to maximize their revenues given the current situation, while there needs for creating the needed plans and legislation in these countries for the development of parallel economies that do not exclusively depend on oil and gas revenues in the future.

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Fugro has an enviable track record in seep hunting and geochemical campaigns with an exceptionally high success rate. Our specialized services deliver expertise in all phases, underpinned by a world-class safety culture. By analyzing and interpreting hydrocarbon potential in frontier regions, we lower costs and risks and reduce exploration uncertainties. Benefits include:

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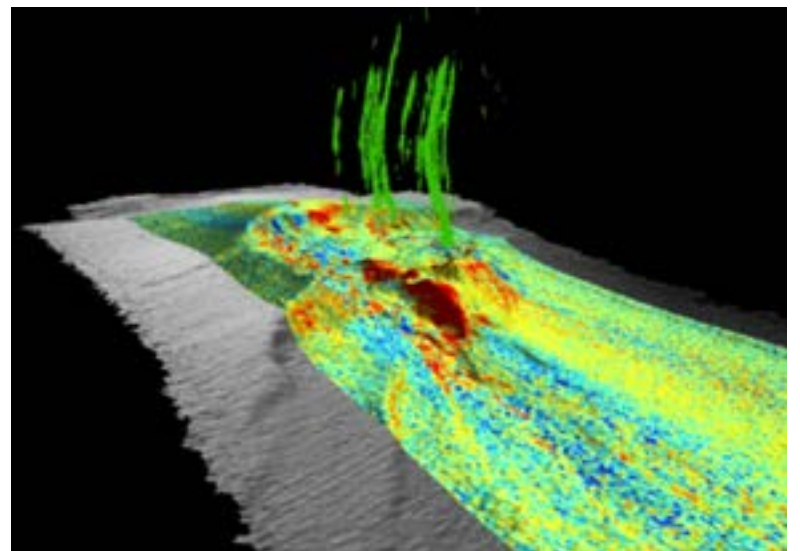
- » Obtaining data for future exploration work, undertaking regional shallow hazard assessment, and making preliminary development considerations
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## DIGITAL PAYMENT SERVICES COME TO EGYPT'S FUEL STATIONS



The petroleum sector is moving forward toward digitalization and modernization. A lot of efforts are directed to improve human skills and other efforts to modernize systems.

The digitalization of Egypt's oil and gas sector falls within the framework of the country's sustainable strategy and Vision 2030. As one of the main contributors to the country's GDP, the oil and gas sector holds an extremely important position in the Egyptian economy. Executing this initiative within the oil and gas sector is essential for enhancing production and cutting down on operational costs which have an impact on the overall ROI and also have an effect on living standards.

The state has taken significant steps to expand digitalization in all of its activities, particularly to ensure efficiency in the country's fuel distribution system through car refueling stations. This will help meet the basic daily needs of citizens

The expansion of cash withdrawal services, branded as "Cash out", is also in progress from the stations of the Cooperation and Egypt Petroleum companies, such that it will include a nationwide network of 2,231 stations for both companies. During its first stage, it was launched in more than 400 stations of the two companies as a joint effort between the Ministry of Petroleum Mineral Resources and the service developer "e-finance" group. This new service allows citizens to make cash withdrawals using a bank card. Now, service stations will no longer have to rely on selling fuel alone, but can use a myriad of different services to make the required income.

### Advantages of Closed Cash Management Systems for Fuel Stations:

#### 1. Safety

This new system can successfully create a safe and secure environment for both customers and employees. With all the cash money completely secure inside the system, nobody will have the easy access needed to steal as is the case with traditional cash registers.

#### 2. Cutting Costs

Through the use of an automated cash handling process, administrative expenditures will no longer be a concern for fuel retailers.

#### 3. Better for Customer Service

Employees will be able to invest more time in customer service rather than engaging in long manual processes such as counting cash.

#### 4. Better for Germ Control

Physically handling cash at fuel stations has become a hygiene concern, particularly where food and beverages are being sold at the same location.

#### 5. More efficient

Closed cash management systems can take operational efficiency at fueling stations to another level since it saves time on cash counting and reconciliation.

**ENG. MOHAMED ABDELRAOUF**

Qarun Petroleum Company Prod Gen Mgr.

## EXPLORATION MISSION IN OIL INDUSTRY



Oil is one of the main sources of energy, it provides around 40% of the world's energy needs and more than 90% of transportation fuel. Exploration is the backbone of the oil industry and it is the first part of the energy chain that is followed by drilling, development, production, and transportation of hydrocarbons.

The exploration role is to find trapped hydrocarbons and hence the importance of the geoscientist's role. Exploration is composed of several sequential stages. It starts with the surface acquisition of geophysical data such as seismic, gravity, and magnetic. Seismic theory is based on the transmission of acoustic waves that are reflected and bounced back by the subsurface layers of the earth. These waves are recorded using sensitive receivers that are laid out on large areas on land or at sea level.

The recorded seismic waves are then processed using sophisticated algorithms that require huge computer capacity. The output of the processing stage provides an image that resembles the subsurface structure of the earth. The difference between the densities of the earth's layers yields what is so-called seismic reflectors that represent the boundary between the layers of the earth.

Petroleum geologists can trace these seismic reflectors on two /three dimensions to map the subsurface structures and define hydrocarbon traps. The maps that are the key outcomes from seismic data interpretation are then integrated with other geological and geophysical data to recommend hydrocarbon prospects that can be drilled.

The seismic exploration is a key aspect of the exploration industry and with technological advances in data acquisition and processing; it unlocks many exploration opportunities, in different parts of the world.

Hydrocarbon exploration in Egypt has a long history that started many decades ago. There are three main hydrocarbon provinces in Egypt; the Gulf of Suez, the Western Desert, and the uprising gas province of the Nile Delta where Egypt plans to place itself as a main energy hub for the Mediterranean region backed by great facilities, infrastructure, and unique geographical location.

**DR/ MOHAMED HASSAN MANSOUR.**

**ENG/ HESHAM MOHAMED AMIN.**

Section Head of exploration at Gupco.

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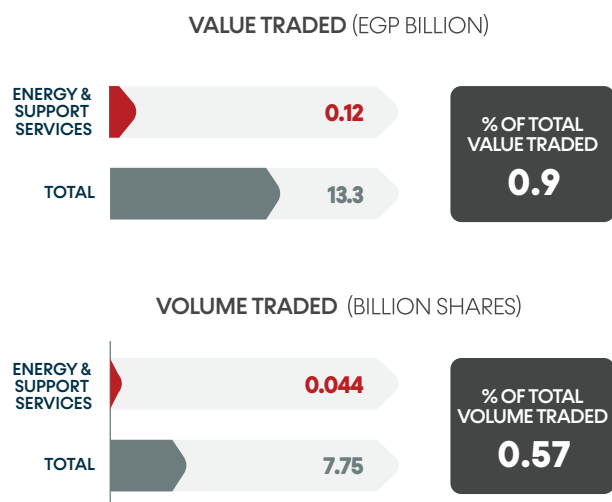
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Performance of Petroleum Companies in the Egyptian Exchange in June 2022



NATIONAL DRILLING

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



ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	3.56	▼ 2.73



EGYPT GAS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	29.99	▼ 16.9



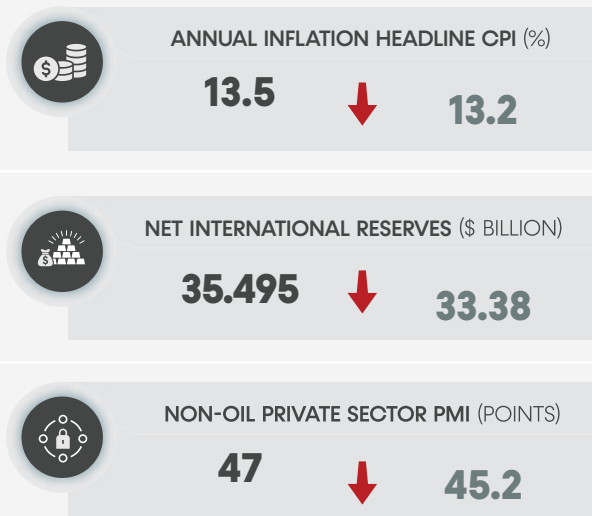
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CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	7.23	▼ 7.31

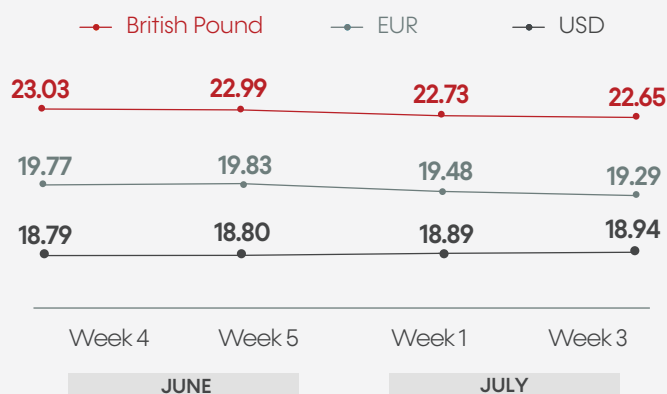
Source of Raw Data: OBE, CAPMAS, Egyptian Exchange, IHS Markit

MAIN ECONOMIC INDICATORS

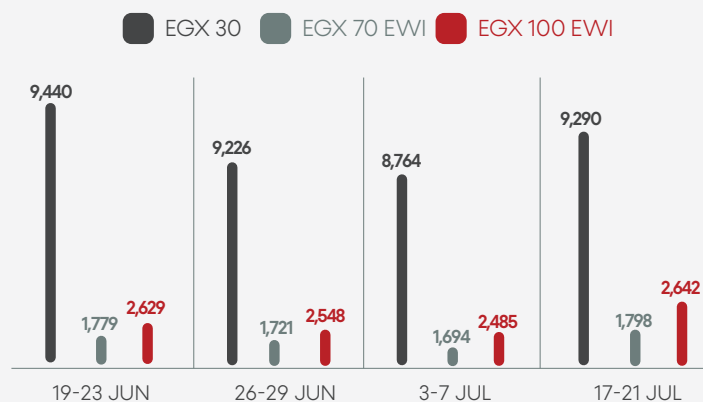
May 2022 June 2022



EXCHANGE RATES

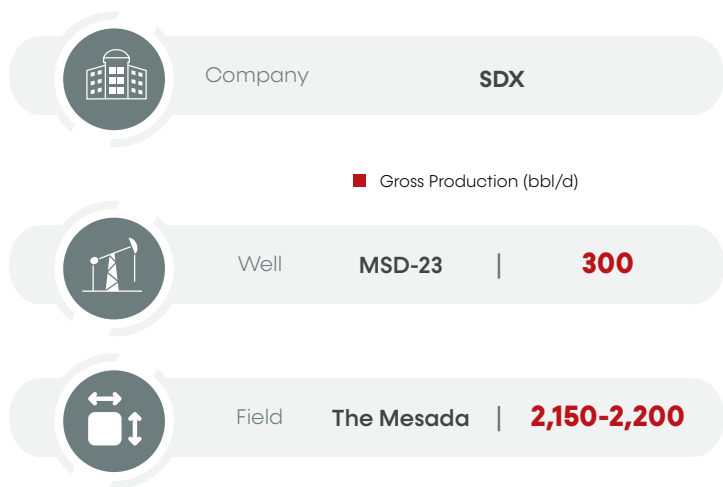


CAPITAL MARKET INDICATORS



\*Week 2 in July was off, a public holiday.

### SPUDDING NEW DEVELOPMENT WELL AT WEST GHARIB CONCESSION

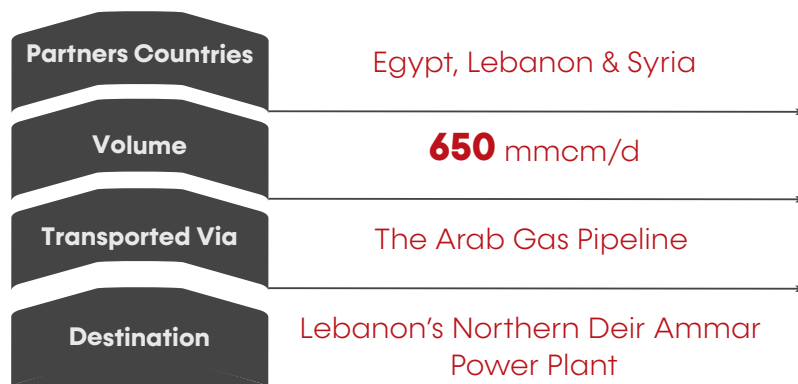


### THE PETROLEUM SECTOR'S INVESTMENTS OVER 9 YEARS\*

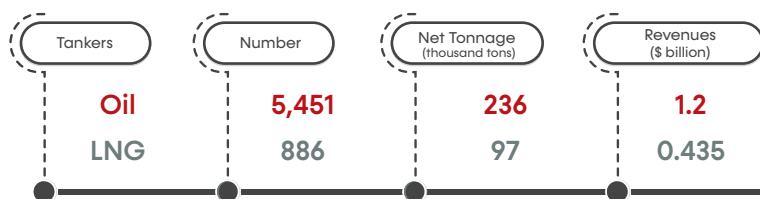


\*Until Apr. 2022

### NEW SIGNED AGREEMENT TO EXPORT NATURAL GAS

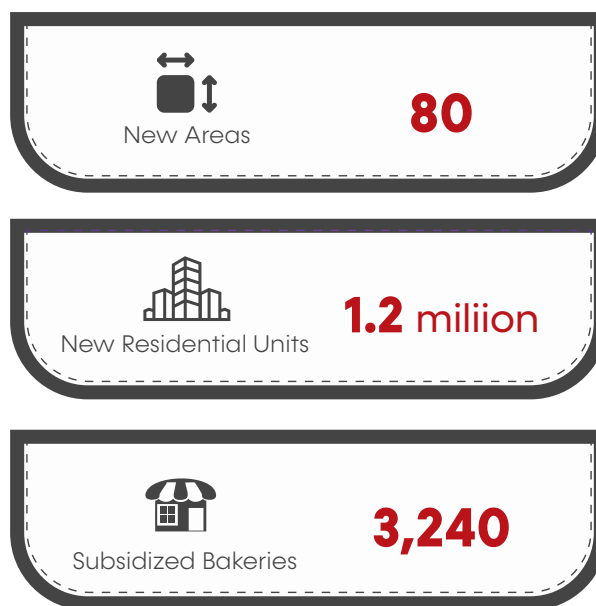


### CROSSING PETROLEUM TANKERS THROUGH THE SUEZ CANAL IN FY 2021/22



### NATURAL GAS DELIVERY PROGRAM IN FY 2021/22

#### CONNECTIONS



#### SAVINGS



## INTERNATIONAL OIL PRICES

	BRENT PRICES (\$/BBL)	OPEC BASKET PRICES (\$/BBL)	NATURAL GAS PRICES (\$/MMBTU)
05 May	110.90	112.94	8.78
24 May	113.56	114.96	8.80
07 June	120.57	120.16	9.29
28 June	117.98	117.55	6.55
06 July	100.69	106.73	5.51
21 July	103.86	107.50	7.93

# THE FUTURE OF **DIGITAL EVOLUTION** IN OIL & GAS INDUSTRY

Strategic Roundtable | Technical Session

27<sup>TH</sup> SEPTEMBER, 2022

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