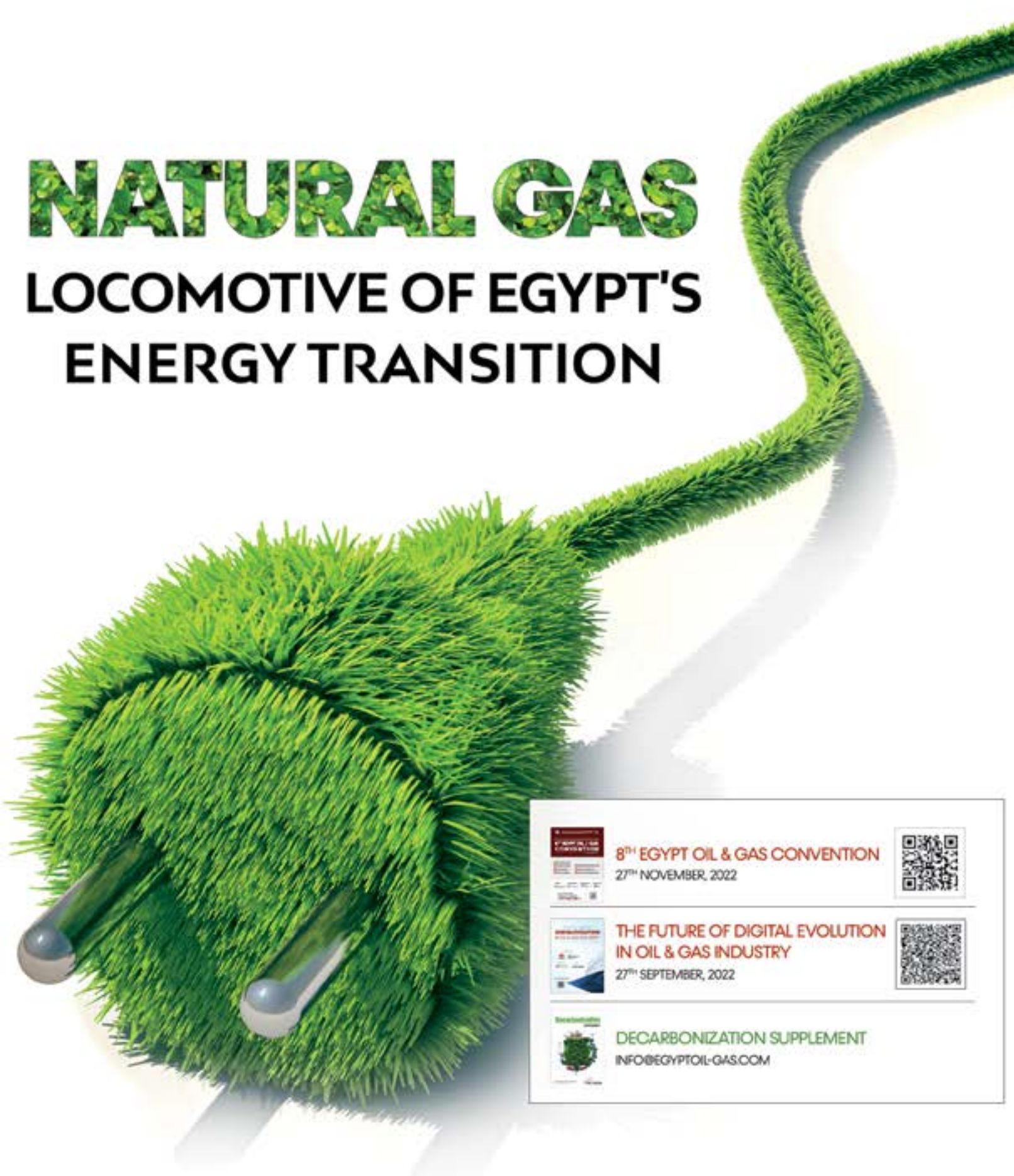
EGYPT OIL&GAS NEWSPAPER

Counting Down to COP27 SHARM EL-SHEIKH EGYPT 2022

NATURAL GAS

LOCOMOTIVE OF EGYPT'S ENERGY TRANSITION



EDITOR'S LETTER

Energy transition does need a fuel bridge; a notion that first appeared in the 1970s that views natural gas as a "bridge fuel" to facilitate the transition toward a cleaner energy future from the dominance of fossil fuel consumption in power generation, industrial production, and transportation sectors. Today, such a notion is getting stronger and more rational as many countries are torn between heavy energy needs and environmental pledges.

In our issue, we are going to discuss the double benefit of natural gas as a reliable source of energy and a bridge for a greener future. We are going to explore how natural gas fits with Egypt's vision for industrial expansion and achieving energy transition.

We will also cover the economic and political dimensions of natural gas as a bridge fuel and how this can play into the dynamics of the natural gas industry.

Also in this issue, our Research and Analysis team offers an interesting analysis of Egypt's petroleum exports outlook in 2021. We also offer coverage of the Petrochemicals & Gas Industry in Egypt Conference and Exhibition (PGIE), an event that gathered the industry's movers and shakers all on one platform.

IHAB SHAARAWY
Managing Editor

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Natural Gas Locomotive of Egypt's Energy Transition

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EGYPT OIL&GAS NEWSPAPER

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TOP 5

EGYPT AIMS TO BOOST NATURAL GAS EXPORTS BY RATIONALIZING ELECTRICITY CONSUMPTION

Prime Minister Mostafa Madbouly held a meeting to follow up on the executive steps to activate electricity rationalization procedures with the aim of exploiting the gas that is pumped into power stations, exporting it, and saving foreign currency.

The meeting was attended by Mohamed Shaker, Minister of Electricity and Renewable Energy; Tarek El Molla, Minister of Petroleum and Mineral Resources; Mahmoud Shaarawy, Minister of Local Development; Ashraf Sobhi, Minister of Youth and Sports; Assem El Gazzar, Minister of Housing, Utilities and Urban Communities; and officials of the authorities concerned.

Madbouly began the meeting by noting that the Egyptian state is currently working on investing in the most important resource it currently possesses, which is natural gas being an asset that has received huge investments over the past period. Therefore, Egypt has tended to provide the largest amount of gas to be exported abroad and obtain foreign exchange, in light of the global crisis that the countries of the world are going through, especially the energy crisis that has affected various countries of the world.

EGYPT, EU SIGN AGREEMENT TO FUND EPAP III

Minister of Environment Yasmine Fouad signed a joint cooperation agreement with the European Union (EU) to obtain a grant of €4 million (equivalent to $4.07 million), within the framework of cooperation between the Ministry of Environment and the EU, in the field of environmental protection and in support of the Egyptian industry.

Fouad confirmed that this grant is part of the funding to implement the third phase of the Egyptian Pollution Abatement Program (EPAP III), with a budget of €145 million (equivalent to $147.72million). It will be executed in partnership with the EU, the European Investment Bank, the French Development Agency, and the German Construction Bank.

The EPAP is one of the Ministry of Environment's most important initiatives to help the Egyptian industry improve performance and achieve compliance with environmental laws and regulations, in addition to reducing energy and resource consumption in a way that supports sustainable development, Fouad noted.

EL MOLLA, EL HARRAR FOLLOW UP ON AGREEMENT TO EXPORT GAS TO EUROPE

Tarek El Molla, Minister of Petroleum and Mineral Resources, discussed with Karine El Harrar, Israeli Minister of Energy, in a telephone call, the latest developments in the natural gas sector in the region and bilateral cooperation to secure part of the European Union's energy needs.

The two officials discussed the developments of the implementation plan of the tripartite memorandum of understanding signed between Egypt, Israel and the European Union, in addition to the next steps assigned to the working group in coordination with the Secretariat of the Eastern Mediterranean Gas Forum. The two ministers also discussed potential areas of cooperation at the Cop27 Climate Summit, which Egypt will host next November.

El-Molla pointed out that bilateral and multilateral cooperation with the members of the Eastern Mediterranean Gas Forum comes at the top of the agenda of the two parties in light of the dynamics of the energy market, which is witnessing rapid and continuous changes.

EGYPT SIGNS AGREEMENT WITH BECHTEL, BP TO ENHANCE HSE

Minister of Petroleum and Mineral Resources Tarek El Molla has witnessed the signing of an agreement with Bechtel, bp and the American Chamber of Commerce to develop and enhance the health, safety and environment (HSE) practices within the petroleum sector, which includes the launch of a new training center that will teach HSE based on the latest international standards.

The initiative and plan was presented by Eng. Karim El-Dessouky, Bechtel Vice President & General Manager with the attendance of David Chi, Executive Vice President American Chamber of Commerce, Eng. Alaa El Batal, EGPC CEO, Eng. Waleed Lotfy, Petrojet Chairman and Managing Director, Nadir Imanov, BP Vice President.

EGYPT, SLOVENIA EXPLORE HYDROGEN PROJECTS, RENEWABLE ENERGY COLLABORATION

Minister of Electricity, New and Renewable Energy Mohamed Shaker has met with Slovenia's Ambassador to Egypt Mateja Prevolsek to explore ways of boosting cooperation in renewable energy and green hydrogen projects.

Shaker highlighted the trust of foreign investors in the electric and renewable energy sector of Egypt, noting that the ministry has cooperated with an international expert to set an optimum technical and economic strategy for the energy mix up to 2035 which aims to maximize renewable energy in the energy mix to 42%.

In addition, the Minister said that there is cooperation with international companies to prepare studies for implementing green hydrogen projects in Egypt.

A BLAST FROM THE PAST

On September 19, 2015, Tarek El Molla was sworn in as Minister of Petroleum and Mineral Resources for the first time. El Molla obtained a Bachelor's degree in Mechanical Engineering from Cairo University in 1986. He joined Chevron Corporation (formerly Caltex) from 1987 to 2010, where he assumed several positions and responsibilities. His last position at Chevron was the Regional Director of the company in South Africa.

In 2011, he moved to the Egyptian General Petroleum Corporation (EGPC), where he held the positions of Deputy CEO for Foreign Trade, Deputy CEO for Internal Trade, and Deputy CEO for Operations from 2011 to 2013. He was also EGPC's CEO from August 2013 to September 2015.

Two years after his appointment as Minister of Petroleum and Mineral Resources, El Molla was awarded Ordre National de la Legion D'Honneur" at the rank of Knight by French President Emmanuel Macron in appreciation of his efforts to advance Egyptian-French relations in the industry and petroleum sectors.

On 10th November 2020, the President of the Hellenic Republic awarded him the "Grand Commander of the Order of Phoenix."

On August 13, 2022, President Abdel Fattah El-Sisi renewed confidence in El-Molla for the fourth time. Under his leadership of the oil sector, Egypt has become an attractive destination for foreign investments in the oil and gas sector, which succeeded in the same period to achieve great discoveries and new accomplishments on many fronts.

NUMBER OF THE MONTH

33.6%

Increase in the Transported Petroleum Products Quantities in H1 2022

In H1 2022, the Suez Canal witnessed an increase in the volume of transported petroleum products to reach **124** million tons (mmt), up from **92.8** mmt in H1 2021. This came with thanks to the expansion works of the Canal as it is currently able to receive **61.2%** of the world's oil tanker fleet.

This is in addition to the marketing incentives offered by the Suez Canal Authority (SCA), which include the reductions granted to crude oil tankers coming from the American Gulf and Latin American ports to Asia until the end of December 2022, as stated by the SCA.

Prodigi™ Intelligent Fracturing Service

Automated stimulation Control

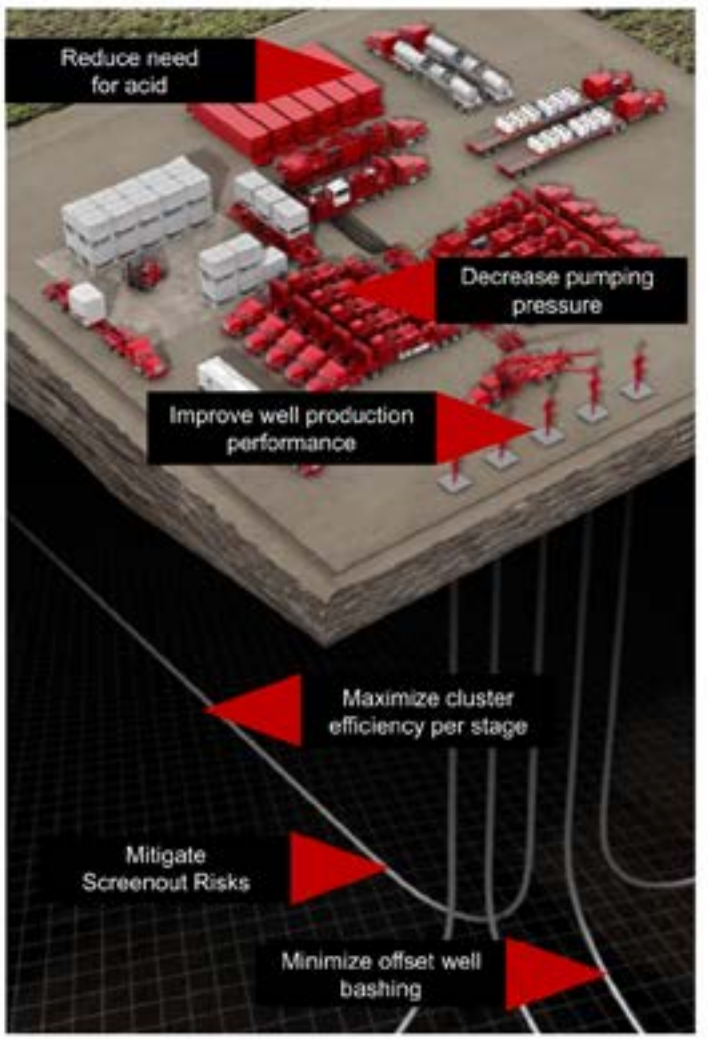
Overview

Halliburton's Prodigi™ Intelligent Service incorporates data from thousands of stages along with real time information to automatically control pumping parameters to deliver uniform fluid distribution. The data rich approach coupled with an advanced control system architecture allows the Prodigi™ Intelligent Fracturing Service to maximize cluster efficiency and achieve more uniform fluid distribution between clusters to a degree not possible with manual manipulation.

Automation Drives Consistency

Fiber optic sensors have revealed that conventional treatments with manual rate control lead to an uneven flow distribution across the clusters and can vary up to 14 bpm between individual clusters. This can be mitigated by applying Halliburton's Prodigi™ Intelligent Service mitigates the disproportion of flow across clusters by intelligently breaking down the formation using highly trained algorithms directly controlling job treatment rate.

The breakdown process can be optimized on every stage of every well maximizing your stimulation spend. By achieving more uniform distribution of fluid and proppant where numerous benefits can be achieved and reducing risk of screenout by halting the effect of NWB complixity.



Intelligent Algorithm

- Uses real-time measurements
- Adjusts to stage design and formation variability
- Validated with fiber optic monitoring
- Lowers treating pressure and reduced screenout risk

Automated Pump Control

- Dynamically controls pump rate
- Instantaneous reaction to algorithm decisions
- Design and execution consistency stage to stage
- Breaks down all available clusters

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PRODUCTION

SDX ENERGY'S H1 PRODUCTION REACHES 3,724 BOE/D

SDX Energy announced that it has produced 3,724 barrels of oil equivalent per day (boe/d) during the six-month period that ended in June 2022, which is higher 2% than the mid-point of the full year guidance estimated at 3,480-3 – 3,795 boe/d.

According to the data, the company's production from South Disouq reached 2,710 boe/d compared to the full year expectations of 2,500 – 2,700 boe/d. While its production from West Gharib amounted to 376 boe/d, which is within the full year guidance of 380 – 470 boe/d.

Additionally, the financial results showed that SDX achieved net revenues of $22.3 million during the six months of H1 in 2022, compared to $27.1 million during the same period in 2021. It also stated that its Netback recorded $17.9 million which is 19% lower than the same period in 2021.

UOG ENCOUNTERS SEVEN METERS OF NET OIL WHILE DRILLING AJ-14 IN ABU SENNAN

United Oil & Gas (UOG) announced that it has encountered seven meters of net oil pay in the Primary Abu Roash C ("ARC") reservoir while drilling Al Jahraa-14 development well ("AJ-14") in the Abu Sennan license.

Brian Larkin, CEO of UOG commented: "This is the seventh consecutive successful development well on the Abu Sennan licence since 2019. With oil prices remaining high, and the speed with which additional production can be quickly brought on stream through existing facilities, Abu Sennan's strong cash generation and extensive reserve and prospect inventory provides a solid foundation on which to build United's strategy."

AJ-14 was drilled by using Sino Tharwa-1 rig and it will be used to drill the ASH-4 development well, targeting 2.2 million barrels gross mean recoverable reserves in an undrilled compartment of the ASH Field.

EUG HOLDS TECHNICAL WORKSHOP ON ACCELERATING EXPLORATION, PRODUCTION

The Egypt Exploration Gateway team organized a technical workshop titled "EUG: Choosing Opportunities to Accelerate Research and Exploration and Increase Production Rates".

The workshop started with an inaugural session initiated by Mohamed Mohy, Executive Vice President of the Egyptian General Petroleum Corporation for Agreements and Exploration, who stated that EUG is one of the fruits of the Modernization program. It is in line with the sector's digitalization vision due to its advanced technologies that facilitated the availability of all geological and geophysical data, project data and facilities available in the areas of research, exploration and development and auction areas.

This was done through a national data bank to contribute to encouraging and attracting new investments and promoting exploration and research areas.

APACHE TO BOOST PRODUCTION FROM EGYPT'S FIELDS

Minister of Petroleum and Mineral Resources Tarek El Molla met with Apache Corporation CEO and President John Christmann, who is currently visiting Egypt.

The meeting took place in the presence of David Chi, Vice-President of Apache Corporation and Country Manager for Apache in Egypt. They discussed the work system of the two joint companies with Apache (Khalda Petroleum Company and Qarun Petroleum Company) in light of the memorandum of understanding (MoU) signed between the two sides in this context during EGYPS 2022 and activating the merger of the two companies.

During the meeting, El Molla welcomed Apache's intention to pump more investments in its

concession areas in the Western Desert, whether to improve the productivity of aging wells or to intensify research and exploration activities and make new discoveries in light of the promising results of seismic research, which showed positive petroleum potential and reservoirs.

EL MOLLA CALLS FOR INNOVATIVE APPROACHES TO INCREASE PETROLEUM PRODUCTION

Minister of Petroleum and Mineral Resources Tarek El Molla affirmed that the current period needs innovative solutions and efforts to increase petroleum production amidst high global oil prices and the sector's commitment to supporting the national economy.

El Molla's remarks came during a meeting he held in Khalda Petroleum Company's fields in the Western Desert to review the working plan for several petroleum companies. He confirmed the necessity of implementing production and development programs in addition to the continuous follow-up for these programs.

El Molla stressed achieving the ministry's strategy of boosting production, securing the working places and leveraging operation efficiency. He also noted the key role of the Egyptian petroleum sector's partners to cooperate in using the available opportunities for investments in Egypt.

NEW APPOINTMENTS

CBE GOVERNOR AMER RESIGNS, APPOINTED AS PRESIDENTIAL ADVISER

The Governor of the Central Bank of Egypt (CBE) Tarek Amer has presented his resignation to President Abdel Fattah El-Sisi, who accepted it expressing his appreciation for Amer's efforts in the CBE, Al-Ahram reported.

Additionally, El-Sisi has decided to appoint Amer as a presidential adviser.

It should be noted that this announcement came a day before a planned meeting for the central bank's monetary policy committee to review the interest rate.

WALEID GAMAL EL-DEIN BECOMES NEW SCZONE CHAIRMAN

President Abdel-Fattah El-Sisi issued Republican Decree No. 356 of 2022, appointing Waleid Gamal El-Dein as a new Chairman for the General Authority of Suez Canal Economic Zone.

Gamal El-Dein was SCZONE's CEO from January 2020, then Vice-Chairman of SCZONE for Investment and Promotion Affairs by a presidential decree issued in May 2022.

He is an investment executive with more than 25 years of experience in investment management. He has a proven track record in investment banking, money management, and real estate development.

EL-SISI APPOINTS HASSAN ABDALLA AS CBE'S ACTING GOVERNOR

President Abdel Fattah El-Sisi has appointed Hassan Abdalla, the CEO of United Media Services (UMS), as Acting Governor of Central Bank of Egypt (CBE), according to Al-Ahram.

El-Sisi has accepted the resignation of Tarek Amer, the former Governor of CBE, and appointed him as a presidential adviser.

ENERGY COOPERATION

EGYPT, CYPRUS DISCUSS ENERGY COOPERATION, COP 27

Minister of Petroleum and Mineral Resources Tarek El Molla met with Costas Kadis, Cypriot Minister of Agriculture, Rural Development and Environment, Cypriot Ambassador to Egypt, and the accompanying delegation to discuss bilateral cooperation.

El Molla highlighted that the strength of the Egyptian-Cypriot relations contributes to supporting economic cooperation and helps maximize the use of natural resources to achieve the common benefit of the two countries. He added that cooperation in the field of oil and gas represents one of the important axes in supporting economic relations between the two countries.

NATURAL GAS

EGYPT DELIVERS NATURAL GAS TO 120 VILLAGES WITH HAYA KARIMA INITIATIVE

Minister of Petroleum and Mineral Resources Tarek El Molla confirmed that more than 1,450 villages in the governorates of the country will benefit from the natural gas delivery projects implemented by the petroleum sector within the first phase of the Haya Karima initiative to develop Egyptian rural villages launched by President Abdel Fattah El-Sisi.

El Molla explained that within the framework of these projects the delivery of natural gas to 120 villages has been completed, providing this civil service to about 413,000 households within the scope of these villages. This is in addition to the implementation of the ground networks necessary to connect about 530 other villages in preparation to start pumping natural gas to their homes is underway. As soon as the networks are completed, this will bring the number of villages of the initiative benefiting from natural gas to 650 villages.

EL MOLLA ASSERTS IMPORTANCE OF RAPID NATURAL GAS EXPANSION FOR MOTORISTS

Minister of Petroleum and Mineral Resources Tarek El Molla highlighted the importance of adhering to the timelines for implementing the state's plan to expand the use of natural gas in cars and accelerating the plan for the rapid deployment of stations through coordination between petroleum and natural gas marketing companies, ministries and relevant authorities in the country.

This came during a periodic meeting to follow up on the implementation of the national project to expand the use of natural gas to fuel cars and the plan for the rapid deployment of gas supply stations. This comes while global economy is facing new challenges which have led to an increase in the prices of raw materials and main components, whether necessary for the establishment of stations or needed in the processes of converting cars to run on natural gas.

El Molla also directed the expansion in conversion and maintenance centers and their spread in major cities and high-density population centers in various governorates of Egypt to meet the needs of citizens wishing to convert their cars to run on natural gas.

EGYPT INSTALLS 1.4M PREPAID NATURAL GAS METERS

During a meeting to follow up on the expansion of natural gas deliveries to households, Minister of Petroleum and Mineral Resources Tarek El Molla explained that work to accelerate deliveries through the national project for deliveries and the presidential initiative Haya Karima ('Decent Life') continues.

In the implementation of the state's directives to expand the use of prepaid meters in all state utilities to raise the efficiency of collecting state dues, about 1.4 million meters have been installed so far, the meeting clarified.

The Minister said that there is integration and cooperation with all concerned parties, and that increasing the beneficiaries of this civil service is a goal that deserves solidarity and more effort.

El Molla stated that the results of the project to deliver natural gas to households caused a boom in Egypt, reflected in the quantities of butane consumption, which witnessed a noticeable decrease compared to previous periods. Now, this essential civil service benefits more than 60 million citizens.

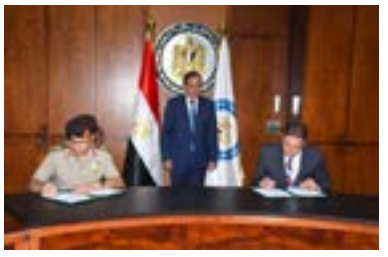
AGREEMENTS

MOP SIGNS PROTOCOL WITH ARMED FORCES TO BENEFIT FROM SERVICES OF NATIONAL EMERGENCY NETWORK

Minister of Petroleum and Mineral Resources Tarek El Molla witnessed the signing ceremony of the cooperation protocol with the Armed Forces to benefit from the services of the National Network for Emergency and Public Safety.

Bakr Mohamed Al-Bayoumi, Director of the Signal Department of the Armed Forces, and Ahmed Al-Saeed, Head of the Central Department of Information Technology at the Ministry of Petroleum and Mineral Resources were the two signatories of the protocol.

The protocol comes within the framework of the directives of President Abdel Fattah El-Sisi, as the Supreme Commander of the Armed Forces, to establish a



national network for emergency and public safety to be the backbone of communications for the state's administrative authorities. Hence, this would enable the state's administrative apparatus to raise the level of all government services provided to citizens, secure digital transformation, and implement Egypt's Vision 2030.

PETROSAFE, LOC EGYPT SIGN MARITIME SAFETY MOU

The Petroleum Safety & Environmental Services Company signed a memorandum of understanding in the fields of maritime safety studies and works with LOC Egypt, the representative of the ABL Group, specialized in the fields of studies, consulting, and maritime safety works.

The MoU comes within the framework of PetroSafe's efforts to develop and diversify the services it provides to improve performance levels in the areas of occupational safety, health and environmental protection within petroleum sector companies and the service and industrial sectors in Egypt.

SCZONE, TOYOTA TSUSHO SIGN AGREEMENT FOR ESTABLISHING ENERGY PROJECTS

Suez Canal Zone Authority Zone (SCZONE) Chairman Waleid Gamal El-Dein has signed an agreement with Japan's Toyota Tsusho to establish several Japanese projects within the zone.

The agreement includes establishing new infrastructure projects and developments related to achieving carbon neutrality. The developments involve logistics, renewable energy and water, green and blue hydrogen production as well as green and blue ammonia production.

PROJECTS

EGYPT, EBRD DISCUSS GREEN PROJECTS, COP27

Egyptian Minister of International Cooperation Rania Al-Mashat met with Heike Harmgart, Managing Director for the Southern and Eastern Mediterranean (SEMED) region at the European Bank for Reconstruction and Development to discuss cooperation and joint initiatives during COP27 to be held in Sharm El-Sheikh next November.

The meeting especially discussed the "Nouwfi" program, and the promotion of soft development funds that will stimulate the private sector.

Al-Mashat highlighted the importance of supporting areas of cooperation in financing green projects in Egypt, and collaboration opportunities in light of the "Nouwfi" program to fund a variety of green government projects in the fields of energy, food, and water, which fall under the umbrella of the National Strategy for Climate Change 2050.

EL-SISI FOLLOWS UP ON HYDROGEN, RENEWABLE ENERGY PROJECTS

President Abdel Fattah El-Sisi has met the Minister of Petroleum and Mineral Resources Tarek El Molla, Minister of Electricity and Renewable Energy Mohamed Shaker, Minister Of Planning and Economic Development Hala Al-Said and Minister of Finance Mohamed Maait to review the latest developments of hydrogen projects as well as efforts to generate electricity from renewable resources.

This came as part of the country's sustainable development strategy which aims to generate 42% of Egyptian electricity from renewable resources by 2035.

During the meeting, all parties presented their efforts to increase power capacities generated from wind energy by using highly efficient turbines.

BP

BP'S OPERATIONAL CASH FLOW REACHES $19.1B IN H1

bp announced that its operating cash flow in Q2 2022 was $10.9 billion and for H1 it reached $19.1 billion respectively, compared with $5.4 billion and $11.5 billion for the same periods last year.

The increase, the company clarified, is driven largely as a result of higher realizations, according to the company's statement.

Additionally, profit attributable to bp shareholders in the second quarter was $9.3 billion, compared with $3.1 billion in the same period of 2021 largely as a result of higher realizations.

The replacement cost profit before interest and tax for the second quarter and half year was $3,531 million and $5,512 million respectively, compared with $640 million and $1,574 million for the same periods in 2021.

EXXONMOBIL

EXXONMOBIL TO EXPAND INVESTMENTS IN EGYPT

Minister of Petroleum and Mineral Resources Tarek El Molla has met a delegation from ExxonMobil chaired by Hugo Detré, the company's EAME Retail Sales and Marketing Manager, to discuss the expansion and development of the company's investments in fuel distribution in Egypt.

El Molla affirmed that ExxonMobil has demonstrated excellent leadership in fuel marketing and distribution according to international standards in Egypt. He also reviewed the company's current program to build more new "Mobil" fuel stations which will be operational soon.

The Minister also showcased the current cooperation with ExxonMobil to provide stations supplying natural gas in cooperation with Gastec and Cargas companies. For his part, Detré expressed his company's desire to maximize its investments in Egypt's market.

BAKER HUGHES

BAKER HUGHES ACQUIRES QUEST INTEGRITY

Baker Hughes announced an agreement for its acquisition of Quest Integrity, a subsidiary of Team, Inc and a global leader in the development and delivery of technology-enabled asset inspection and reliability management solutions across the pipeline, refining, petrochemical and power generation sectors.

Pipeline inspection services are one of Baker Hughes' asset integrity solutions that find, describe, pinpoint, and measure irregularities in a pipeline's wall that could jeopardize the integrity of the pipeline.

Furnace Tube Inspection (FTIS) and InvistaTM technology from Quest Integrity are included in the deal. New inspection capabilities are made possible by InvistaTM and can be used for pipelines, marine loading lines, petrochemical, chemical, refining, power, utility, and other industrial segments and facilities, such as airports.

GAZPROM

GAZPROM INCREASES GAS FLOW TO HUNGARY THROUGH TURKSTREAM PIPELINE

According to a Hungarian foreign ministry official, Russian gas giant Gazprom has increased its flows to Hungary via the Turkstream pipeline, Reuters reported.

Due to Russia's invasion of Ukraine, Hungary has maintained pragmatic relations with Moscow, causing tensions with some European Union allies.

85% of Hungary's energy comes from Russian gas and hence the country firmly opposes any EU sanctions on Russian gas imports. Prime Minister Viktor Orban has also lobbied hard to exempt Russian crude oil from EU sanctions.

EQUINOR

EQUINOR'S H2H SALTEND FACILITY PROGRESSES THROUGH PHASE-2 OF CLUSTER SEQUENCING PROCESS

Department for Business, Energy, and Industrial Strategy (BEIS) announced that Equinor's Hydrogen to Humber Saltend (H2H Saltend) production facility has been successfully progressed through Phase-2 of the government's cluster sequencing process.

As part of the Phase-2 cluster sequencing process, the selected projects will now go through due diligence to connect with the East Coast Cluster's CO2 infrastructure and become operational by the mid2020s.

As part of Phase-1 of the cluster sequencing process, the East Coast Cluster, which connects the Humber and Teesside via CO2 transport and storage infrastructure, was selected as one of the first two "CCUS clusters" in the UK.

Also successful were Equinor's bids for two new gas-fired power stations with carbon capture at Keadby, developed with SSE Thermal, and in Teesside, developed with bp.

ARAMCO

ARAMCO ACHIEVES 90% YOY INCREASE IN NET INCOME

Aramco announced its second quarter results for 2022, posting a 90% year-on-year increase in net income and declaring a dividend payment of $18.8 billion.

As a result of higher crude oil prices, volumes sold, and refining margins, the company set a new quarterly earnings record since its IPO in 2019.

"In fact, we expect oil demand to continue to grow for the rest of the decade, despite downward economic pressures on short-term global forecasts," Aramco chief executive Amin Nasser said in the earnings report.

In the second quarter of 2022, Aramco achieved a record quarterly and half-year net income of $48.4 billion and $87.9 billion, respectively, compared to $25.5 billion and $47.2 billion for the same periods in 2021.

GAZPROM

MOLDOVA UNABLE TO PREPAY RUSSIAN NATURAL GAS IN AUGUST

Moldova is not able to pay for natural gas from Russia's Gazprom PAO in August and will have to hope for a deferral, according to the state-owned gas company's head, Reuters reported.

A five-year contract between Moldova and Gazprom began on November 1 last year, and prepayment is due by the 20th of each month.

"I can tell you right now that we are unable to pay," Moldovagaz Chairman Ion Ceban told the Moldovan news site NewsMaker. "We will cover July, but we cannot make the advance payment for August. That is clear."

According to Ceban, the small ex-Soviet country, which has been struggling to pay its gas bills over the past year, hopes to reach a new agreement in the fourth quarter.

E.ON

E.ON REDUCES NORD STREAM 1 STAKE VALUE

The value of E.ON's stake in the Nord Stream 1 gas pipeline has been reduced by roughly EUR 700 million ($715 million) due to "heightened uncertainty" on the effects of Russia's conflict in Ukraine. E.ON is the largest energy network operator in Europe, Reuters reported.

E.ON (EONGn.DE) reported in March that the indirect pension fund holding of 15.5% of the company's shares had a book value of EUR 1.2 billion, a 58% decrease in the value of the participation.

"The current energy crisis finally makes clear that Europe needs to transform its energy system. To be independent of Russian gas. To ensure supply security," Chief Executive Leonhard Birnbaum said in a statement.

The value decrease was recognized in equity in other non-operating income, E.ON said, adding that the situation "indicated no triggering events that would necessitate impairment charges on noncurrent assets".

SAIPEM

SAIPEM TO CLOSE RUSSIA'S ARCTIC LNG 2 PROJECTS

According to its interim financial report, Saipem is in talks with Novatek to end two contracts related to Russia's $21-billion Arctic LNG 2 project led by Moscow-listed gas producer Novatek, Reuters reported.

The backlog of projects for Saipem in Russia amounts to approximately EUR 1.4 billion, and these two are related to the building of a liquefied natural gas (LNG) plant in the Arctic.

One of these contracts was entered into by Saipem in a joint venture with Turkey's Ronesans, and the second by France's Technip.

SHELL

SHELL ACQUIRES SPRNG ENERGY GROUP

Shell Overseas Investment B.V., a wholly owned subsidiary of Shell plc (Shell), has secured its total acquisition of Solenergi Power Private Limited and the Sprng Energy group of companies from Actis Solenergi Limited (Actis).

Actis' Sprng Energy, founded in 2017, develops and manages renewable energy facilities, such as solar and wind farms and infrastructure assets, based in Pune, India.

Through the deal, Shell will triple its present renewable energy capacity in operation and help deliver its Powering Progress strategy. An important part of this strategy is to develop an integrated power business, which will help Shell reach its target of becoming a profitable net-zero emissions energy business by 2050.

HF SINCLAIR

HF SINCLAIR'S REMARKABLE PROFIT GROWTH DEFIES WALL STREET'S EXPECTATIONS

HF Sinclair's growth for the second quarter sped way ahead of Wall Street projections due to strong demand for fuel and refined products, Reuters reported.

Western sanctions against Russia came at a time when fuel demand was surging past pre-pandemic levels, resulting in refiners like Valero Energy and Marathon Petroleum beating market expectations last week.

According to HF Sinclair, which used to be known as HollyFrontier, its refinery gross margin tripled to $36.36 per barrel, while there was a marginal decline in its throughput to 292,570 barrels per day.

ADNOC

ADNOC DRILLING WINS CONTRACTS TO BOOST OFFSHORE PRODUCTION CAPACITY GROWTH

The Abu Dhabi National Oil Company (ADNOC) announced today that ADNOC Drilling has been granted two contracts totaling more than $3.4 billion to employ eight jack-up offshore rigs. The contracts, valued at $1.5 billion and $1.9 billion, respectively, were given out by ADNOC Offshore and will enable the UAE to become self-sufficient in gas as well as increase ADNOC's crude oil production capacity to five million barrels per day by 2030.

ADNOC and its strategic international partners will be able to further unlock Abu Dhabi's offshore oil and gas resources over the course of the 15-year contracts thanks to ADNOC Drilling's cutting-edge rig fleet, which will result in considerable wealth creation for ADNOC, its partners, and the UAE.

Egypt's Petroleum Exports Outlook in 2021

BY JOLLY MONSEF, MARIAM AHMED & YOUSTINA MOUNIR

1. Petroleum Exports in 2021

The Ministry of Petroleum and Mineral Resources (MoP) is trying to attract investments to develop unexplored areas, boost crude oil and natural gas production, and further promote petroleum exports. In this regard, in 2021, the Ministry succeeded to sign seven petroleum agreements with minimum investments of $1.223 billion, resulting in achieving 39 crude oil discoveries. This is in addition to promoting petroleum production through implementing six natural gas and crude oil fields development projects, with total investments exceeding $4 billion, according to the MoP.

PETROLEUM EXPORTS VALUE

$10.05 billion

Share from Total Exports → **24.66%**

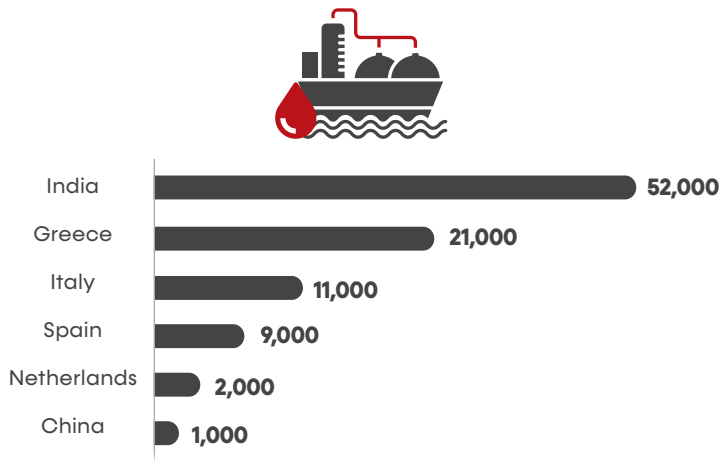
CRUDE OIL & CONDENSATES EXPORTS VOLUME

97,540 bbl/d

EXPORTS VALUE PER PRODUCT

	Value ($ billion)	Share in Petroleum Exports (%)
Crude Oil	3.06	30.4
Petroleum Products	6.995	69.6

EGYPT'S CRUDE OIL EXPORTS VOLUME PER COUNTRY (bbl/d)



FUEL EXPORTS VALUE

$11.46 billion

2. Natural Gas and LNG Exports

Egypt is on its way to becoming a regional hub and major exporter in the natural gas and liquified natural gas (LNG) market. In 2018, Egypt succeeded in achieving self-sufficiency from natural gas and LNG, thanks to the supergiant Zohr gas field in the Mediterranean Sea which was discovered in 2015 and started its production in December 2017. This discovery has contributed to a continuous increase in natural gas production, and thus an increase in natural gas exports. In 2019, Egypt turned from being an LNG importer to a net LNG exporter. This mainly came as a result of operating the Idku LNG plant at its full capacity as well as reoperation of the Damietta LNG plant in January 2021 after an eight-year halt, while LNG exports resumed in February 2021.

As a result, Egypt's natural gas exports hiked from 2018 to 2021 by 92%, according to the Organization of the Petroleum Exporting Countries (OPEC) data. Consequently, Egypt's natural gas exports revenues increased by 768% on an annual basis to reach $3.9 billion in 2021, according to the MoP. It is noteworthy that LNG exports via Damietta and Idku plants rose by 333% in 2021, according to the Organization of Arab Petroleum Exporting Countries (OAPEC) report.

NATURAL GAS AND LNG EXPORTS VALUE

$3.9 billion

Growth Rate (YoY)
550%

NATURAL GAS

EXPORTS VOLUME

5.5 bcm

Growth Rate (YoY)
89%

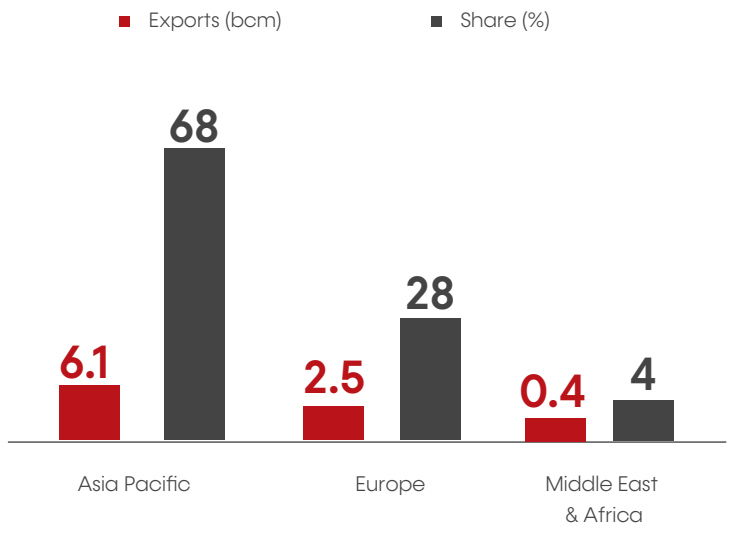
LNG

EXPORTS VOLUME

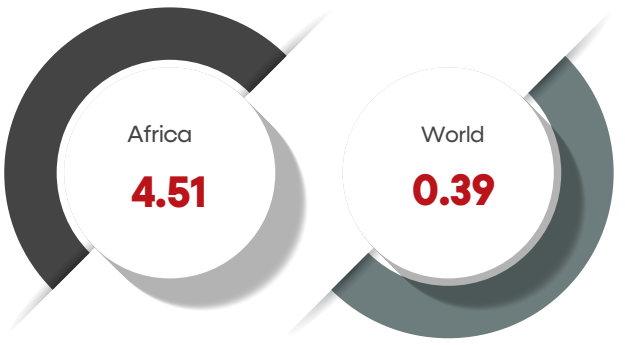
9 bcm

Growth Rate (YoY)
400.3%

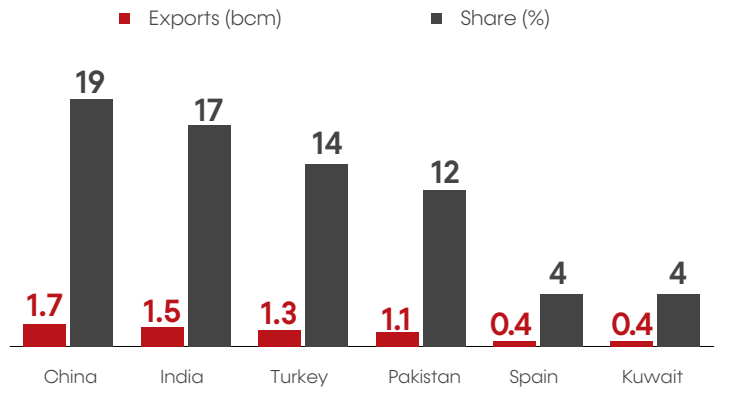
EGYPT'S EXPORTS TO MAIN DESTINATIONS



EGYPT'S EXPORTS SHARES (%)



EGYPT'S EXPORTS TO TOP COUNTRIES



NATURAL GAS
LOCOMOTIVE OF EGYPT'S ENERGY TRANSITION

BY SARAH SAMIR

Global Warming has become an issue threatening the existence of all living beings. Hence, many leaders across the globe have been directing their states to commit to climate action in order to face climate change. In this regard, Egyptian President Abdel Fattah El-Sisi has issued directives to decrease emissions from the electricity sector by 33%, oil and gas by 65%, and transportation by 7%, inspiring the country to work hand in hand to achieve these goals. Accordingly, the Ministry of Petroleum and Mineral Resources (MOP) has set natural gas as the first option in the energy transition to enable a safe transition with low-carbon emissions.

Natural Gas: The Main Fuel in Egypt's Energy Mix

In order to ensure an environmental-friendly petroleum sector, MOP is consistently coordinating with the Ministry of Environment to reduce carbon emissions.

Moreover, Egypt is working, through the national strategy to confront climate change and reduce emissions by 2050, on many distinguished initiatives that support the process of reducing emissions in the field of energy through the expansion of the uses of natural gas as a fuel and the continuation of its essential role as a low-emissions energy source during the energy transition period, as well as projects to improve energy efficiency, Minister of Petroleum and Mineral Resources, Tarek El Molla previously stated. This comes as Natural gas accounted for 65% of all hydrocarbons consumption in Egypt as mentioned by El Molla in March.

The East Mediterranean Gas Forum (EMGF) is also playing a role in facing climate change as it launched two initiatives to encourage the use of natural gas and liquified natural gas (LNG) as a fuel for ships, which comes as a part of the emissions-reduction plans. Additionally, the EMGF member countries agreed, as individuals and members of the forum, that facing climate change and providing clean energy sources has become a necessity.

MOP is further coordinating with the Ministry of Environment to have a special event during the COP27 conference, which will be held in Egypt in November 2022, represented in Decarbonization Day. This event/session will aim to shed light on the policies and initiatives adopted by the companies working in Egypt's petroleum industry to reduce emissions and capture and store carbon in a way to achieve sustainable development and support global efforts confronting climate change.

LNG Supports Egypt's Energy Transition

Egypt has been focusing efforts on producing natural gas to have a surplus to export. The country does not only work on its renewable energy, but it is also boosting its offshore natural gas output, making a synergy in green energy transition and natural gas development, which challenges the belief that renewable energy and natural gas "are in zero-sum competition." The energy policy adopted by Egypt is playing a role in changing "the terms of the global debate on climate change by demonstrating that there is a basic compatibility between developing domestic natural gas resources and developing renewable energy sources," according to a Middle East Institute (MEI) publication.

By increasing LNG exports, Egypt will secure foreign currency that supports energy transition. El Molla declared in ADIPEC 2021 that Egypt's successes in the field of exporting natural gas and generating revenues strongly support investment in clean energy, achieving the targeted transformation and transition in the field of energy and reducing emissions.

Egypt has further started to change the collective consciousness to have its individuals use natural gas as the main fuel for their vehicles. The ministries of petroleum and transportation are cooperating to enable fuel conversion.

Green Hydrogen

In December 2021, Minister of Electricity and Renewable Energy, Mohamed Shaker, announced 2022 as "The Year of Green Hydrogen".

There are several ways of producing hydrogen, one of which is natural gas reforming/gasification. "Synthesis gas—a mixture of hydrogen, carbon monoxide, and a small amount of carbon dioxide—is created by reacting natural gas with high-temperature steam. The carbon monoxide is reacted with water to produce additional hydrogen," according to the Alternative Fuels Data Center (AFDC).

Using natural gas is the most efficient, cheapest, and most common way to produce hydrogen. Egypt does not only use natural gas to produce hydrogen, but the ministries of petroleum and electricity work together to produce different types of green hydrogen from different sources. Moreover, the north African country aspires to be a green hydrogen export hub for Europe to ease the path toward emissions reduction.

Therefore, natural gas has great importance in Egypt's green strategy as it contributes to several pillars of the energy transition plan. Using natural gas empowers Egypt's energy transition and makes it feasible as the country is rich with natural gas and has a huge natural gas surplus that could be used in the transition.

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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.

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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.

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- Wells using decision-making remote operations or leveraging integrated operations personnel models

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  - Swab/surge NPT protection
  - Reduced personnel risks
- Superior drilling and reservoir navigation efficiency
  - Improved hole cleaning
  - Optimized tripping speeds
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  - Increased gross ROP
  - Fewer stuck pipe incidents
  - Reduced NPT and ILT

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TIPPING THE SCALES:

NATURAL GAS ENERGY TRANSITION

BY RANA AL KADY

One of the most difficult issues of this century is to provide more energy with minimum environmental effect. Substituting coal and diesel with natural gas may assist in addressing this challenge by lowering emissions and improving air quality. Gas is also a good asset for renewable energy sources, enabling to balance supply and demand for wind, solar, and hydroelectricity. Natural gas is also critical in sectors of the economy that are complex to electrify, such as industrial operations and cargo handling.

GENERAL OVERVIEW

Natural gas's adaptability is one of the keys to its predicted major position in the energy transition since it can be used as a fuel source in all industries, including heating, cooking, and industrial uses. Natural gas enjoys a major advantage over coal in terms of greenhouse gas emissions, emitting around half of the CO2 amount. This makes it a compelling alternative for short-term carbon reduction while stabilizing the road to renewables. As suggested by an industry expert in natural gas operations, "People [from outside the oil and gas industry] will usually think that anything that is not renewable like solar or wind is harmful or not clean energy. The main point of using natural gas is not to replace other oil and gas sources or renewable energy technologies, the main point is to make a bridge between both sources on our journey to a more green or clean environment without any change in efficiency."

Additionally, natural gas is also commonly touted as an energy transition catalyst due to its crucial position in the scaling up in terms of the production and transportation of hydrogen, which the European Union and others have projected would play a vital part in a prospective climate-neutral market. According to the EU's hydrogen strategy, while the cost of manufacturing 'clean hydrogen', produced solely from renewable power is decreasing, it remains rather expensive. The EU policy involves the progressive production of what is now referred to as clean hydrogen, first including hydrogen from natural gas.

Nevertheless, after three years of stagnation, global energy-related CO2 emissions increased in 2017 and 2018, indicating a serious misalignment with global climate targets. It is evident that switching from unchecked usage of fossil fuels does not provide a long-term solution to climate change, but there can be large CO2 and air quality gains from utilizing less emissions-intensive fuels in certain nations, industries, and timeframes.

BENEFITS AND CHALLENGES

As the globe begins to migrate away from fossil fuels, many see natural gas as a transition source to a sustainable energy future. Thus, what are the benefits and drawbacks of natural gas? Natural gas, as a high-capacity energy supply, is quickly becoming the preferred power source for countries with expanding economies and rising electricity demands.

One of the reasons for the increased demand for natural gas is that it is a plentiful natural resource. According to the International Energy Agency (IEA), there are enough recoverable natural gas resources to last approximately 2 centuries. Natural gas resources have been discovered all over the world, enabling extraction and supply simpler, possibly keeping costs low as long as the appropriate infrastructure is there.

Furthermore, although burning natural gas emits greenhouse gases, it emits the least amount of carbon emissions of any fossil fuel, hence it causes less contamination. This, along with its high energy production, makes it a perfect bridge fuel. As a result, it is the natural successor to coal and petroleum. Because of its minimal carbon footprint, it is an appealing power source for both established and emerging societies.

On the other hand, natural gas emits less carbon than other fossil fuels. It is, nevertheless, still a fossil fuel. Except under extremely rare conditions, natural gas is not renewable. In any case, it emits more CO2 than green energy. This is why it is used as a bridge fuel. It bridges the gap between the retirement of bigger fossil fuel facilities and the widespread use of renewable energy.

In addition, natural gas may be extracted in a variety of techniques, the most prevalent of which is fracking. Injecting water into a subsurface gas deposit to bring it closer to the surface is known as fracking. It has been connected to a variety of serious health problems, environmental degradation, and huge methane releases. While new initiatives promote a transition towards a more sustainable extraction procedure, fracking remains a cheap and popular sourcing choice.

To conclude, the environmental justification for developing new gas infrastructure is difficult, as authorities must be cautious about sealing in gas-related emissions while reducing coal-related emissions. If new gas infrastructure prohibits the burning of more harmful fuels, absolute emissions may increase but relative emissions may decrease. In other cases, a new gas network may also offer services that low-carbon options cannot, such as peak winter heating, seasonal preservation, or high-temperature heat for industrial. The accessibility and implementation of carbon capture, utilization, and energy storage is a crucial component for both gas and coal.

NATURAL GAS EMPOWERS ENERGY TRANSITION ECONOMY

BY NADER RAMADAN

As the energy transition is in full swing and research in renewable energy technologies has brought about the possibility of new ways of living sustainably, the fate of natural gas has come into question. Natural gas has had its fair share of criticism, but perhaps a more objective look at alternative views would reveal that the picture is more complex. Gas can play a number of different roles as an energy source in various regions and markets, depending on the needs of those particular areas, and can even be the ideal fuel to set the foundations for a low carbon energy transition while stimulating economic growth. Given the number of contradicting views on the matter, forming a reasonably accurate projection of what economic role gas may play in the future on a global scale is challenging, but trends indicate that gas is here for the foreseeable future.

From both environmental and economic perspectives, natural gas has been an incredible energy source for the electricity sector, being widely considered the largest gas consumer. According to a report from the Center for Strategic & International Studies, oil provided the world with close to a quarter of its electricity in 1973, but dropped to a mere 3% in 2018. However, gas has successfully taken oil's place, being a better alternative fuel for electricity and providing up to 23% of the world's electricity. Gas has also been instrumental in decarbonization since it managed to successfully displace coal and cut coal-related emissions by 43% in 2018 compared to when emissions reached its highest point in 2005.

Trends have shown also that natural gas continues to play a vital role in sustaining industry, with industrial operations accounting for 14% of global gas demand in 2017. Gas is a particularly popular option in the petrochemical field making up close to 10% of global gas demand, according to the Center for Strategic & International Studies. The International Energy Agency (IEA) stated in its 2018 report that minimal efforts have been made to develop a low-carbon pathway for chemicals and none of them involved moving away from using natural gas. Though some may think that the efforts to decarbonize the industrial sector may endanger the future of natural gas in this particular field, it remains to pose more of a long-term threat since gas is more cost-effective, readily available, and cleaner than other types of energy sources, such as coal.

For heating buildings and power generation, natural gas has also been highlighted as the ideal energy source as well. A study from the Center for Strategic & International Studies indicates that almost 75% of gas used in buildings originates from 10 international markets. The US, Russia, Iran, and China make up more than half of that amount. No country has been able to completely replace natural gas in buildings, though natural gas producers do consider district heating to be a long-term threat that needs to be addressed if they expect to remain competitive in this particular market.

Pricing by itself is arguably a factor that can sustain the existence of natural gas within the future energy transition market. Since regions vary in technological advancement and economic performance, natural gas is not only convenient but needed in areas where the development of other low-carbon renewable technologies is slow due to either the lack of sufficient funding or know-how.

In further exploring the concept of pricing as a key survival factor, it is also worthy of noting that most economists would agree natural gas will still be a fundamental part of the energy mix in regions where its price is low, such as the former Soviet Union, the Middle East, Asia, and Africa. These markets also generally match the profile of those nations with struggling economies, slow development, and less technological advancement, and hence, the existence of natural gas as an energy source is perhaps their only answer to achieving both sustainable economic growth and decarbonization.

On the other hand, since it is expensive in Europe (even more so, given the recent shortages), there are arguments that it is possible that the Europeans will push further to be less dependent on natural gas than other markets, but the move towards a gas-free economy might prove to be more challenging than they expect. Europe's most recent moves to build infrastructure to import and store even more natural gas as an alternative to Russia's energy supplies is a clear indication that they are not planning to ditch gas any time soon, especially with billions being invested in implementing the necessary infrastructural development.

Current conditions and trends have forced most experts to agree that natural gas definitely has a place in the future global energy economy and will play a significant role in propelling both Egypt and the world through the energy transition. The majority of assessments would indicate that even as the energy transition progresses and renewable energy technologies begin to take prominence, natural gas would still make a fundamental component of the energy mix. Yet, what's most important is not just what makes up the energy mix itself, but rather how it is used to ensure a prosperous relationship with the environment. That is what will ultimately determine humanity's continued survival.

FINDING AN END TO NATURAL GAS FLARING

BY FATMA AHMED

Gas flaring is generated by the combustion of gas coming from many industries including oil and gas recovery and petrochemical products. Advanced technology presented several solutions to overcome gas flaring and even use it for productive purposes, especially during the time in which natural gas plays a key role in the transition into clean energy. The World Bank (WB) stated that the amount of gas flared each year is currently estimated at 144 billion cubic meters (bcm) which can provide electricity to the whole of Sub-Saharan Africa.

IDENTIFYING GAS FLARING PROCESS

According to the WB, gas flaring in the oil and gas industry involves the burning of natural gas associated with oil extraction. This flare is composed of a boom or stack which collects the unwanted gases to be flared, an article published by GERERON indicated. This boom or stack has an air-assist mechanism at its edge to merge the free air with the generated burned gases to advance the burning efficiency.

According to the article "these gases require oxidation due to low heating value and are combusted using a thermal oxidizer". By implementing the highest levels of combustion efficiency, each cubic meter of gas flaring results in about 2.8 kilograms of carbon dioxide equivalent emissions per year. Thanks to new technologies, many solutions have emerged to control and reduce gas flaring.

TECHNOLOGICAL SOLUTIONS FOR AVOIDING FLARE GAS EMISSIONS

Recently, there are many technology trends followed by oil and gas operators either to avoid flaring natural gas and reduce its dangerous emissions or to detect and control gas flaring. The most popular methods are described in more detail below.

Flare Gas Reuse and Recovering Method

Flare gas recovery (FGR) is a well-known method for eliminating flare gas emissions. Through this method, the waste gases are reused for other purposes especially within the facilities' fuel gas system as a refinery feedstock or in re-injection. It can be done by capturing the gas from the flare knock-out vessel and compressing it using liquid ring compressors.

Small- Scale Gas- to- Liquid (GTL) Technology

This technology facilitates the production of clean-burning diesel fuel, liquid petroleum gas (LPG), and naphtha from natural gas with capacities ranging from a few hundred to a few thousand barrels. This can be done by installing GTL plants at the oil production site. According to an article released by offshore technology, these plants are suitable for remote locations and shale oil production facilities.

Mini Liquefied Natural Gas (LNG) Technology

According to a report released by WB, this technology refers to installing liquefied natural gas (LNG) with a capacity of about 130 million standard cubic feet per day (mmscf/d) of natural gas. This small-scale LNG plant can use a virtual pipeline to transport gas to provide power for end-users or fuel for cars and trucks. These plants are suitable for oilfields that have a large volume of natural gas being burned and they are in the neighboring areas of LNG bunkering hubs.

Mini Compressed Natural Gas (CNG) Technology

An article published by GENERON explained that CNG refers to methane stored at high pressure. It stated that methane that emerged from oil wells can be compressed at a certain pressure and stored in cylinders so that can be used as fuel for vehicles that run on natural gas engines. The WB's report said that CNG can also be used to supply small-scale power plants, industrial consumers as well as households.

Flare Gas Detection and Control Technologies

Besides investing the natural gas other than being flared, some oil and gas operators resorted to using other technological solutions to detect if there is any flaring and to monitor and control its emissions. For example, offshore technology reported that many countries are using satellites and drones to track flaring as well as methane emissions from oil sites. These satellites have sensors that operate in shortwave and mid-infrared frequency ranges to detect heat signatures. These signatures are analyzed to detect flaring.

Moreover, a study entitled "Technology and Policy Solutions to Reduce Harmful Natural Gas Flaring" mentioned other technological solutions to monitor and reduce gas flaring. These solutions include accurate and direct volume measurement by using flow meters to measure the volume of gas being flared. Also, improved combustion efficiency of flares is another solution that allows for the increasing amount of gas to be successfully burned in order to reduce methane emissions.

EFFECTIVE ECONOMIC STRATEGIES FOR EGYPT'S ENERGY SECTOR

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

Egypt is waiting for creative solutions and legislation in the energy field to overcome the current economic crisis.

Developing countries, including Egypt, consider their traditional energy resources, such as oil and natural gas, to be among the most important sources of development. They help support emerging economies, whether through the direct use of energy sources in production processes and achieving economic value that contribute to the national economy within the state or exporting. Manufacturing oil and gas to obtain final products from crude oil and natural gas and exporting these products is one of the important ways to enhance the economic value of oil and gas and increase the targeted economic return.

There is no doubt that the harsh economic conditions that most countries of the world are going through at the present time will push these countries to review their policies related to conventional energy (oil and gas) in terms of increasing the volume of daily production and enhancing the volume of stockpiles. This will be done by supporting new exploration operations, controlling local consumption of various energy sources and shifting towards the use of alternative energy sources, such as solar energy, water energy, wind energy and green energy of hydrogen.

In Egypt, I see that the energy sector has made several remarkable achievements over the past few years thanks to the state's policy and the strategy of the Ministry of Petroleum and Mineral Resources, which aimed to increase the daily production of crude oil and natural gas and to support exploration operations and studies of underground reservoirs. This will help maintain or increase the volume of proven reserves of oil and gas. The Egyptian state also pushed for the rationalization of energy consumption in order to support energy exports and thus increase Egypt's national income.

In these difficult times and this dangerous economic turning point, many economists believe that the expansion of energy production and the support of energy reserves may be one of the direct solutions to the current economic predicament. I agree with them in their estimation of the importance of the situation since energy plays a pivotal role in the economic development of any country. However, there must be an integrated strategy to link the energy file to the file of industry, agriculture and the required economic legislation, as well as the popular culture required to deal with energy sources in an optimal manner.

If we wanted to develop a plan for economic reform in Egypt, energy would be at the heart of it. I imagine that the vital role that energy plays in achieving economic growth will not be available unless the relationship between energy and economic development is clearly established so that the energy field does not become just a source of national income from foreign currencies as a result of the direct export of crude oil and natural gas.

A deeper exploration of the energy field is needed, as the energy industry in Egypt has reached new heights in the production of oil and gas derivatives that are included in most modern industries such as the automobile industry, the electronics industry and others. We need to establish large-scale projects to manufacture natural gas instead of exporting it directly to Europe. We also need to direct energy towards modernizing agricultural mechanisms to achieve the highest agricultural productivity that constitutes an added economic value and strategic food security.

Achieving economic development plans through the optimal exploitation of energy sources from oil and gas will only happen through legislative and strategic development that allows the emergence of new legislation for oil and gas energy that supports the increase of research and exploration according to the latest scientific and technological methods and the use of the latest methods of drilling wells to reach the hydrocarbon-bearing layers as well as the application of the best oil and gas production methods and techniques to ensure the highest possible recovery coefficient for oil and gas from underground reservoirs, with regard to the upstream phase of the oil & gas industry.

Regarding the downstream phase of the oil and gas industry, the process of modernization and development still requires more building of strategic partnerships with large economic entities, as well as working to pump new investments, whether local or foreign, to establish the infrastructure for oil and gas manufacturing projects for non-fuel production purposes in a way that supports the national economy in the present time. This provides new and distinguished job opportunities, as well as supports various other economic activities such as agriculture, petrochemical industry, electronics industry and the manufacture of new synthetic materials that enter into the composition of most products.

In summary, it is necessary to set clear energy policies that result in a specific action plan that is implemented according to effective development strategies under a legislative cover that contains a package of new smart legislation. The Egyptian energy sector will be one of the most important pillars of the national economy that will help the country face these difficult economic conditions by controlling the inflation rate, providing liquidity from hard currency and creating new job opportunities in energy sector development projects.

We must also pay close attention to the fact that the Ukrainian-Russian crisis has brought about radical changes and transformations in international energy policies, as well as in energy technologies and applications around the world. For example, some countries, such as Sweden and Germany, tend to expand the use of green hydrogen energy to overcome the problem of the lack of Russian gas supplies and the high global oil prices.

NEW GAS DYNAMICS RESHAPES GEOPOLITICS OF OLD CONTINENT

BY IHAB SHAARAWY

Most of the dramatic energy developments in recent years have been in the realm of natural gas. It has been framed as a "bridge fuel" necessary for a smooth global energy transition and at the same time large newly discovered reserves can guarantee the world's energy security for centuries to come. Huge quantities of unconventional US shale gas have become commercially viable opening the door for other countries in Europe and Asia to explore their own shale gas potential. One of these latest developments was the Russia-Ukraine conflict in Europe which turned natural gas into a political tool that can be weaponized by producers or importers.

These developments have been reverberating around the globe, causing shifts in patterns of trade, putting pressure on longstanding arrangements, and may lead to strategic shifts. Many of these shifts can be recognized in the current European energy crisis.

THE EUROPEAN DILEMMA

As the European Union is walking a tightrope between its huge energy needs and its environmental pledges, Natural gas stands as the fuel of choice for the old continent.

The EU is the biggest importer of natural gas in the world. According to European Commission, natural gas represents around a quarter of the EU's overall energy consumption. About 26% of that gas used in Europe is directed to the power generation sector and around 23% in industry. Most of the rest is used in the residential and services sectors, mainly for heat in buildings.

The EU's gas demand is around 400 billion cubic meters (bcm) and, based on current policies, is projected to remain relatively stable in the coming years. Domestic gas production is expected to decline, which is likely to have an impact on gas imports, while policies designed to contribute to achieving the 2030 energy and climate targets, such as energy efficiency improvements in heating and industry, may result in a drop in overall gas usage across the EU, according to the EU Commission.

According to 2021 data, around 10% of the EU's gas needs are currently met by domestic production. The rest is imported, mainly from Russia (41%), Norway (24%), and Algeria (11%), beyond LNG sources.

However, the Russian military operation that was launched against Ukraine in February has shattered the energy security in the continent, which was under threat of cutting the Russian Supplies at any time.

In response to EU sanctions, Russia has taken several measures, including asking for paying for its gas in rubles. It also cut gas supplies on more than one occasion, sometimes for alleged contract violations or for pipe maintenance, which increased the European worries about the desire of Russia to weaponize its gas supplies.

Although the war in Ukraine is not about energy, it is altering European energy politics. Since the beginning of the war, security jumped to the top of the EU's agenda. Since the beginning of the conflict, the European Union and its allies have pondered an answer to one of the toughest questions they have ever faced; how to reduce dependence on Russian oil and gas.

The plan for dealing with it involves a gradual but radical reduction of the Russian oil and gas trade and an acceleration of the green transition. The Union's members were urged to increase gas storage, find alternative sources, and accelerate the transition to renewable energy, and energy efficiency. However, none of these measures were enough to quench the European thirst for Russian gas.

FINDING NEW ROUTES

Diversification of supply sources has become paramount both for energy security as well as for competitiveness. At this point, liquefied natural gas (LNG) stood as the answer to the European quest for enhancing the diversity of gas supply and improving energy security in the EU.

Ensuring that all EU countries have access to liquid gas markets has become a key objective of the EU's energy union strategy. Today, countries in Europe that have access to LNG import terminals and liquid gas markets are far more resilient to possible supply interruptions than those that are dependent on a single gas supplier. So, the continent has witnessed a boom in LNG infrastructure.

Cargoes of LNG are available from a wide variety of different supplier countries worldwide, and the global LNG market is undergoing a dynamic development with the entrance of new suppliers.

To ensure this diversity, EU leaders have engaged in talks and agreements with several new suppliers including the East Mediterranean Gas Forum, Algeria, Qatar, and Nigeria.

Following the Russia-Ukraine conflict and the energy crisis in Europe, US President Joe Biden stated that natural gas has become a valuable geopolitical asset, noting that it could be used to "take the burden off of European countries that are now totally dependent on Russia."

MAKING CLIMATE OBJECTIVES FEASIBLE

Despite the complications surrounding natural gas supplies to Europe, natural gas remains an important enabler to achieve its climate targets. Hence, European Union lawmakers didn't hesitate to vote in favor of a decision calling natural gas and nuclear power "green" or "sustainable" sources of energy, backing a proposal from the European Commission despite criticism from some scientists and environmental advocates who still frame natural gas as a polluting fossil fuel.

The new rules could unlock billions of dollars of private investment and state subsidies for natural gas and nuclear projects.

The European Commission has argued that natural gas plays a key role in transitioning to renewable energy. It also cites the fact that Natural gas typically emits less carbon dioxide than coal and oil.

The EU argument is supported by Fatih Birol, International Energy Agency (IEA) Executive Director, who indicates that natural gas is one of the mainstays of global energy. Where it replaces more polluting fuels, it improves air quality and limits emissions of carbon dioxide.

Given the time it takes to build up new renewables and to implement energy efficiency improvements, switching to natural gas represents a potential quick win for emissions reductions. According to the IEA, there is potential in today's power sector to reduce up to 1.2 gigatonnes of CO2 emissions by switching from coal to existing gas-fired plants if relative prices and regulation support this potential.

Unlike oil, natural gas trade is more difficult to transport and store, and for this reason, expensive infrastructure and long-term contracts often tie customers and suppliers together, thus natural gas market and geopolitics were seen as regional rather than global. However, a new boom in global LNG supply is beginning to globalize the natural gas trade, which may alter many of the current market dynamics.

تحت رعاية فخامة الرئيس عبد الفتاح السيسي رئيس جمهورية مصر العربية

HELD UNDER THE PATRONAGE OF HIS EXCELLENCY ABDEL FATTAH EL SISI, PRESIDENT OF THE ARAB REPUBLIC OF EGYPT

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PGIE: THE ULTIMATE PLATFORM FOR EGYPT'S EXPANDING PETROCHEMICAL, GAS SECTORS

In an era when climate change has pushed the energy sector to move towards the use of renewables, petrochemicals and natural gas are industries that have witnessed rapid expansion, a trend which was constantly reiterated during the latest Petrochemicals & Gas Industry in Egypt Conference and Exhibition (PGIE), an event that gathered the industry's movers and shakers all in one platform.

This special occasion was attended by Tarek El Nabarawy himself, being the General Head of the Engineers Syndicate, offering warm welcoming remarks as well as praising the conference as an initiative to effectively promote the petrochemical and gas sectors, in addition to offering his support for this effort due to its importance. He promised to make this conference part of the syndicate's interest.

Also taking part in the opening was some of the industry's important figures including Sabry El Sharkawy, Chairman of the PGIE conference, Syndicate's General Secretary Yousry El-Deeb, Vice Chairman of the conference Rehab Motasiem El Maghraby Syndicate Board member Hossam Abdelrazek, Assistant General Secretary of the Syndicate Ahmed Sabry, and the Syndicate's head in Suez Hafez Awad.

El Sharkawy marked the occasion with a brief summary of the Egyptian petroleum sector's remarkable accomplishments over the past eight years. Emphasizing the country's incredible transformation, he shed light on the inspiring success story behind Egypt's prosperous energy sector as well as outlining the rapid growth of the nation's natural gas resources, its effective exploitation, in addition to the tireless efforts to invest in the value-added products industry and the development of refineries.

"Egyptian petroleum exports increased to $13 billion in 2021 compared to $7 billion in 2020, especially after the reoperation of Damietta liquefied natural gas (LNG) plant," Sharkawy said.

He added, "Petrochemical industry has been given great interest [from the government] during the past eight years." With a generous amount of investments of up to EGP 72 billion, he also emphasized Misr Fertilizers Production Company (MOPCO) and Ethydco as some of the country's most important projects.

Right after the opening speeches, the event proceeded to award its esteemed sponsors in recognition of their contribution to this industry and initiative. PGIE's sponsors include its Platinum Sponsors BGS Energy Services and Arias Egypt, in addition to its Gold Sponsors Atef H. Rizk & Co Industrial Supplies and ABCO Advanced Biochemicals Company. Egypt Oil & Gas Group was also the proud Media Sponsor for this occasion.

Taking place at the Egyptian Engineers Syndicate, PGIE was an event that charged with youthful vibrance, organized by combined efforts of the American Institute of Chemical Engineers-Suez University Student Chapter (AIChE SUSC), Egyptian Engineers Syndicate, Division of Mining, Petroleum and Metallurgical Engineering, and Egypt Knowledge Bank. It also witnessed an inspiring series of enlightening and engaging lectures revolving around several themes. However, many of them focused mainly on how petrochemicals can contribute to the value-added industry and to the chemical composition of materials that average citizens use in their everyday lives. They also discussed other interesting trends in the market, including decarbonization, digitalization, and how the energy transition will lead to a better future for both the economy and the environment.

Petrochemicals Industry: Past, Present & Future

Senior Vice Chairman of Business Development, Marketing, and Technology at the Egyptian Petrochemicals Holding Company, Gawdat Ahmed Sadek enlightened the audience at PGIE with an inspirational talk titled "Petrochemicals Industry in Egypt: Past, Present & Future".

"The production of petrochemicals may sound simple, but it is really a model for generating a value-add [product]." He continued to highlight how many items that one might find in any household are made from petrochemicals, further outlining the importance of this industry in the citizen's everyday life.

During the talk, Sadek also shed light on future plans for the development and enhancement of the petrochemical industry, such that with more facilities and better efficiency more high-quality products can be offered to the average citizen.

Sour Gas Treatment

With natural gas becoming a rapidly expanding industry, the event would not have been complete without an insightful discussion about sour gas treatment. Abdelaziz Khlaifat, a petroleum engineering professor from the American University in Cairo (AUC) and the university's Associate Dean for Undergraduate Studies, delivered a talk about the technical side of the process. Sour gas is a gas that contains significant amounts of hydrogen sulfide and the process of removing hydrogen sulfide in addition to other impurities is called "sweetening".

Crude to Petrochemical: Red Sea Petro-Refinery Complex

With the Red Sea turning into a major area of interest for oil and gas exploration, two of Enppi's spectacular process engineers Mohamed Atia Enppi and Karim ElMaghloub added a lot of flavor to the conference with their discussion of Enppi and the potential of the Red Sea as a major asset.

Atia started by discussing the meaning of EPC contractors, the history of Enppi, and the essential ingredients of a successful project.

Enppi company was established in 1978 as the first EPC contractor in Egypt. Attia noted that the number of employees in his company jumped from 50 in 1978 to 3000 in 2020 because of the company's expansion in more than 15 countries in Africa, the Middle East, Europe, and the US.

Atia explained the engineering capabilities of Enppi and its activities. He said that "Enppi is providing different services to the petroleum sector including feasibility study/techno-economic studies, Front End Engineering Design (FEED), detailed engineering, procurement services, construction supervision, project management, E&I installation, pre-commissioning, commissioning and start-up, asset integrity management, laser scanning, and 3D modeling."

In addition, ElMaghloub talked about the Red Sea project and its potential in more detail. He gave an overview of the project, elaborating that the "Red Sea project aims at developing crude to chemicals complex in the Suez Canal corridor to produce high-quality petroleum and petrochemicals products." He added that this project will increase Egypt's domestic product (GDP), which will boost foreign currency savings by growing exports and transferring new technologies to Egypt.

Green Hydrogen: Challenges and Opportunities

Salah Mahdy, Howden Group's Global Director for Hydrogen Business (Glasgow, UK), delivered a presentation about the importance of decarbonization, the importance of hydrogen as an energy source, as well as the challenges and opportunities of its application in Egypt. Mahdy gave some background information about climate change and global warming. He stated "Earth had a stable temperature for thousands of years until 1900. Then scientists noticed that this temperature started to rise gradually, especially with the emergence of the Industrial Revolution."

This pushed the world to take measures to limit the increase of global temperature by decarbonizing industries and reducing greenhouse gas emissions by cutting the use of fossil fuels and replacing them with low-carbon energy solutions, mainly hydrogen. Furthermore, Mahdy discussed the global efforts and strategies to produce hydrogen to achieve net-zero carbon emissions in various industries by 2050.

Process Modeling and Simulation for Gas and Petrochemical Industries

Merna Nissan, Onspec's Process Engineer, provided an inspiring discussion about process modeling and its importance in the petrochemical and gas sectors. She talked about the products of AspenTech and digitalization initiatives. "These products and technologies can facilitate the operation process, designing and studying the projects. It also can predict if there is any problem before it happens," Nissan said. She added that every product provides solutions for a specific area in the process.

Nissan provided a detailed explanation of the different solutions that her company provides and explained the benefits of Aspen HYSYS in acid gas removal optimization, sulfur recovery unit optimization, gas plant optimization, as well as how it can provide process safety analysis.

Petrochemicals in Just About Everything

The last PGIE session witnessed an entertaining presentation by Cairo Refinery Company's Operations Development Department Head, Mohammad Helmy Abu Zahra, titled "Petrochemicals in Just About Everything". He talked about how petrochemicals are used in almost everything in everyday life from babies' diapers and clothes to other types of synthetic materials.

Abu Zahra said, "this is why chemical engineer is different from any other engineer". The role of chemical engineers in the oil and gas industry is to convert raw materials into added-value products, he discussed. Abu Zahra elaborated that these produced products can become raw materials for the industry. As a case study, he talked about how naphtha can be used as raw material in different industries.

"According to the statistics, 54% of global oil production is used in petrochemical industries," Abu Zahra stated. He also emphasized the role of ethylene and propylene as raw materials in the petrochemical industry. He mentioned that Egypt's total production of ethylene is 750,000 tons per year.

Closing

The event could never have been complete without closing with yet another award ceremony. This time it was for the top three petrochemical and gas sector posters in the conference's poster competition.

Most importantly, the event successfully highlighted that there is more than just a glimmer of hope for the future of the petroleum industry. Petroleum is not only a valuable asset as a source of energy but also as raw material to chemically synthesize materials that the average citizen can use for everyday life.

EXTERNSHIPS AS A SOLUTION FOR THE PETROLEUM INDUSTRY, ACADEMIA

These days every year, academia starts to prepare to accept the new generation that will start their specialization after passing the General High School Certificate. In the last two decades, the Faculty of Petroleum and Mining Engineering at Suez University has had the highest demand amongst the youth who seek a brighter future. This may be due to the success of the oil and gas sector to lead the Egyptian economy nowadays. However, the number of petroleum engineers who graduate every year has doubled by 400% in the last decade.

The presence of petroleum engineering departments in private universities, such as the American University in Cairo (AUC), the British University in Egypt (BUE), and Future University in Egypt (FUE), increased competition for petroleum engineering departments at public universities, including Suez University, Cairo University, and Alazhar University. This has led to high unemployment for fresh graduate petroleum engineers, especially from the governmental departments. Many of them are forced to pursue alternative career paths such as computer science, data analysis, and machine learning.

The Faculty of Petroleum and Mining Engineering at Suez University suffers from the lack of internships that the faculty can provide for their students. They hardly allow their students to get internships in the international oil companies, the national oil companies, or the services companies. This may be due to limitations on the insurance capabilities of the company to keep the students safe during their internships. Several students graduate every year without enough industry training, which makes finding rewarding employment opportunities for them harder. Petroleum engineering departments at Suez University, Cairo University, and Alazhar University suffer from the lack of funds for their labs, research, and training programs.

National oil companies should start funding the governmental petroleum engineering departments to prepare better petroleum engineers. One of the ideas that can solve the problem of internships is to provide externships for the undergraduates and consortium agreements for graduate students and as research for the faculty staff. That should make the students more competent in the industry and make the faculty staff more aware of the industry's problems. The oil companies (IOC, NOC, and services companies) can provide their data for the students led by faculty members and data confidentiality can be protected with disclosure agreements between the companies and the faculty.

Companies will find creative solutions to their problems when young people work with their data. Disciplines like exploration activities and reservoir engineering can be done through online virtual online meetings between the company's employees, students, and faculty members. It will cost nothing and will have great benefits. They can even be used to start planning geothermal energy projects in Egypt as a start for energy transition. Khalda Petroleum Company started a pilot program to support the Faculty of Petroleum and Mining Engineering at Suez University which proves their intention to provide the necessary support. Finding a way for companies to strengthen these individual initiatives will provide great strategic support for the Egyptian oil and gas industry overall.

MOHAMED ADEL GABRY

Graduate Research Assistant, University of Houston
Senior Petroleum Engineer /Khalda Petroleum Company

EGYPT'S RENEWABLE ENERGY PLANS MOVING FORWARD

Egypt has made great progress in expanding its renewable energy capacity in recent years, with total installed capacity increasing from just 900MW on July–17 to 3.11GW on November–21, according to the latest numbers from Egypt's national utility company, the Egyptian Electricity Holding Company (EEHC).

Although wind generation capacity has increased consistently since the 512MW Zafarana wind park on the Red Sea began operations in 2000, solar generation capacity saw the biggest jump in 2017 with the start of construction of the 1.48GW Benban Solar park in southern Egypt. And with 2.1GW of planned capacity at various stages of development, wind capacity is predicted to overtake solar in the coming years, with only 700MW of solar capacity planned. In Ras Gharib on the Red Sea, where all of Egypt's wind power capacity is now located, there are also plans for two 500MW wind farms.

However, Egypt is actively building its first nuclear power station, with Russia's Rosatom serving as the facility's primary developer in Dabaa, 170 kilometers west of Alexandria.

Green hydrogen plays a crucial role in facilitating the world's shift to sustainable energy and is essential for addressing critical energy challenges. Governments have united to recognize hydrogen as an essential element of achieving a net-zero economy. Both wind and solar play an important key role in Egypt's target to be major green hydrogen and green ammonia producer.

As Egypt gets ready for COP27, the Egyptian government has focused on establishing the SCZone as a regional green energy hub. The Suez Canal Economic Zone alone will require several GW of installed capacity to power facilities, therefore even a small portion of these projects might revolutionize Egypt's renewable energy landscape. Egypt recently signed an agreement with India's ReNew Power Private Limited to build a green hydrogen factory in the SCZone with an investment of $8 billion.

The capacity of Egypt's wind and solar systems is expected to increase over the next few years, while their current share of the nation's total generation is somewhat low. According to EEHC statistics, combined wind and solar generation were 10.21 TWh in 2020–21 (5.26 TWh wind, 4.95 TWh solar), or just over 5% of the nation's total electricity generated, up from 4.4% in 2019–20. An estimated 94% of Egypt's 179.7TWh of power was produced by EEHC thermal plants, the majority of which burn natural gas. According to EEHC, a staggering 98% of the fuel used in thermal plants in 2020–21 was natural gas. This prompted Egypt in the past few days to rely on rationalizing gas consumption in the production of electricity for export.

GEO. MOHAMED GAMAL SALAH

Geologist, GUPCO

Host

أديبك ADIPEC | أدنوك ADNOC

31 October - 3 November 2022

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Strategically taking place before COP27, ADIPEC is the global platform for leaders to reinforce commitments that will drive the industry towards reducing emissions, meeting decarbonisation goals, and providing a realistic view on short- and long-term energy outlooks.

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- The long-term impacts of geopolitics on the global economy and energy industry
- The road to COP27 and COP28
- An industry transitioning: adapting to the new fundamentals of supply, low carbon and new energy solutions
- Innovation and the energy transition: pioneering a new era of technology development
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COUNTING DOWN TO

COP27 SHARM EL-SHEIKH EGYPT 2022

GLOBAL HYDROGEN MARKET OUTLOOK

Global Hydrogen Production Market Value in 2020 & 2021

$130 billion

Estimated YoY Growth Rate Until 2030

9.2%

Global Total Pipeline Capacity for Green Hydrogen in Q2 2022

45 mmt/y

Almost **90%**

of The Total
Low Carbon Hydrogen Upcoming Capacity

Green Hydrogen's Possible Application

Energy Application
- Transportation, Electric Vehicles and Power Generation
- Industries like Steel, Cement, Paper, Food, and Aluminum, and Buildings

Feedstock Application
- Chemicals industries: Producing Green Ammonia for Fertilizers, Fuel Refining, and Plastics

Hydrogen Exploitation by Region and Their Adopted Policies

The uptake of hydrogen is heavily determined by adopted policies

■ Hydrogen's Share from the Energy Mix by 2050 (%)

Europe 11
Adopted kickstart policies for scaling hydrogen production and stimulate end-use

OECD Pacific 8
North America 7
Have strategies, targets, and funding boosting the supply-side, but have lower carbon prices and less concrete targets and policies.

China 7
Providing clear hydrogen funding policies towards 2035, with an expanding national emissions trading scheme.

HYDROGEN INDUSTRY IN EGYPT

Egypt's National Green Hydrogen Plans

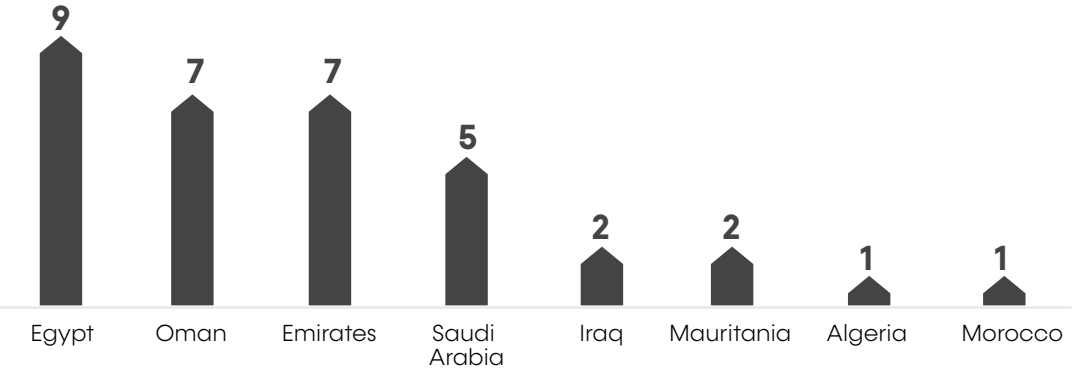
Injecting a **$40** billion investment by 2035 to become a regional hub For the production of green hydrogen and ammonia

Egypt's Current Pipeline Capacity for Green Hydrogen

11.62 gigawatts (GW)

Over **1.57** mmt

Egypt's Rank Among Arab Countries According to Number of Hydrogen Projects



Egypt's Green Hydrogen Signed MOUs

■ Production (mmt) ■ Production (mmt/y)

16 MOUs

>$20 billion Investment Cost

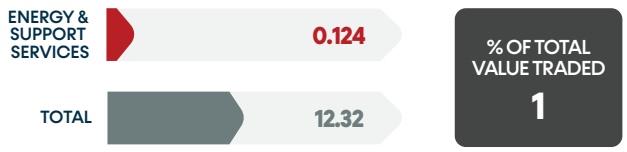
SCZONE, TSFE, EETC, NREA Partnering with:

- TSFE, Egyptian Orascom Construction PLC, Norwegian Scatec, & Emirati Fertiglobe — Up to **0.09** Green Ammonia
- French EDF Renewables & Egyptian Zero Waste — **0.35** Green Fuel
- Danish Maersk — -
- Scatec — Up to **1-3** Green Ammonia
- Egyptian Hassan Allam Utilities & Emirati Masdar — **0.48** Green Hydrogen
- Emirati AMEA Power — **0.39** Green Ammonia
- Egyptian Electricity Holding Co. & German Multinational Siemens Energy — -
- Egyptian Enara Capital & French TotalEnergies — **0.3** Green Ammonia
- Indian ReNew Power Private Limited — **0.22** Green Hydrogen
- British Globeleq — **2** Green Hydrogen
- Saudian alfanar — **0.5** Green Hydrogen & Green Ammonia
- Emirati Alcazar Energy — **0.23** Green Hydrogen
- Emirati K&K Power International — **0.23** Green Hydrogen
- American-Egyptian MEP Energy — **0.12** Green Ammonia
- Indian ACME Group — **2.2** Green Hydrogen
- British actis — **0.2** Green Hydrogen & Green Ammonia

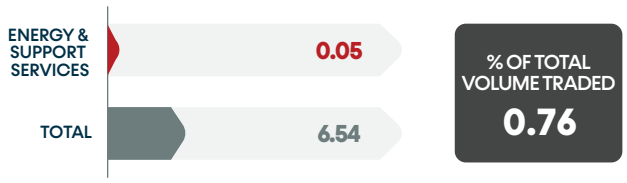
EGYPT OIL&GAS
RESEARCH & ANALYSIS

Value and Volume of Shares Traded for Energy & Support Services Sector in July 2022

VALUE TRADED (EGP BILLION)



VOLUME TRADED (BILLION SHARES)



Performance of Petroleum Companies in the Egyptian Exchange in July 2022

NATIONAL DRILLING

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

ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	3.9	▲ 6.56

EGYPT GAS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	29.97	▼ 16.96

SIDI KERIR PETROCHEMICALS

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

MAIN ECONOMIC INDICATORS

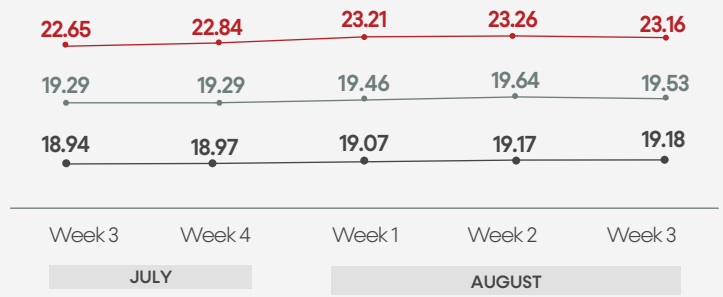
■ June 2022 ■ July 2022

ANNUAL INFLATION HEADLINE CPI (%)
13.2 ↑ 13.6

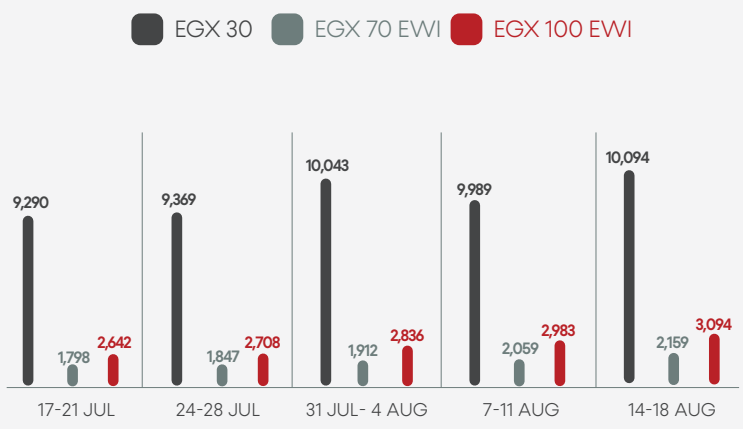
NET INTERNATIONAL RESERVES ($ BILLION)
33.38 ↓ 33.14

NON-OIL PRIVATE SECTOR PMI (POINTS)
45.2 ↑ 46.4

EXCHANGE RATES



CAPITAL MARKET INDICATORS

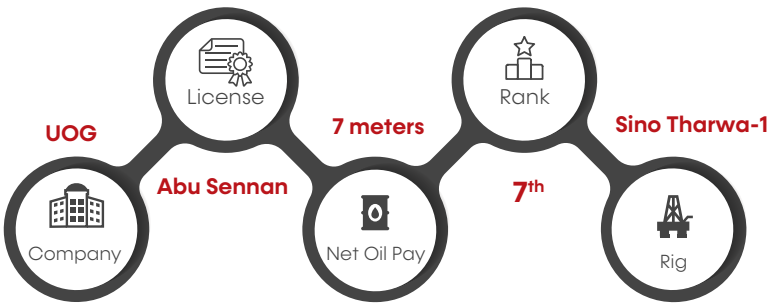


Source of Raw Data: CBE, CAPMAS, Egyptian Exchange, PMI by S&P Global

SPUDDING NEW WELL AT WEST GHARIB CONCESSION*

*Announced in August 2022

AL JAHRAA-14 DEVELOPMENT WELL UPDATE*



*Announced in August 2022

THE PETROLEUM SECTOR ACQUIRED TOYOTA'S EDC SHARES

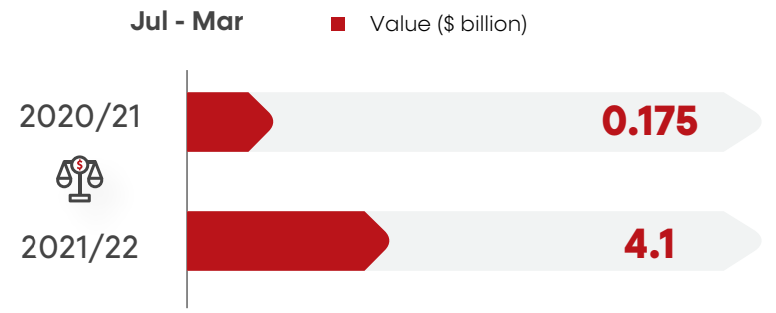
Stake **50% of the Company's Shares**

By the Acquisition

Egypt has fully owned the two offshore rigs
Al-Qaher 1 & Al-Qaher 2

Egyptian Natural Gas Holding Company (EGAS)	85%
Ganoub El Wadi Petroleum Holding Company (GANOPE)	15%

INCREASE IN THE EGYPTIAN OIL TRADE BALANCE SURPLUS



EXPANDING AL-HAMRA PETROLEUM PORT

Implementing 2 Expansion Plans

1. Storage Capacity Expansion

Expansion Area **120 acres**

Adding **4 Storage Tanks**

Capacity (Per Tank) **630,000 bbl**

Target Capacity **5.3 mmbbl**

2. Adding New Land Plot

Area **420 Acres**

Aim
Serve the Expansions of Al-Alamein Area

The 2 Plans Target
Increase the port's area by **240%**

INTERNATIONAL OIL PRICES

	BRENT PRICES ($/BBL)	OPEC BASKET PRICES ($/BBL)	NATURAL GAS PRICES ($/MMBTU)
09 June	123.07	123.21	8.96
30 June	114.81	115.60	5.42
11 July	107.10	108.80	6.43
29 July	110.01	110.84	8.23
04 August	94.12	101.19	8.12
18 August	96.59	98.22	9.19

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

8TH EGYPT OIL & GAS CONVENTION

27-29 November, 2022

EVENT STRUCTURE:

- STRATEGIC ROUNDTABLE
- PANEL DISCUSSIONS
- TECHNICAL WORKSHOP
- SUSTAINABLE DEVELOPMENT FEATURE
- CAPACITY BUILDING FEATURE
- OPERATIONAL EXCELLENCE AWARDS

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