

ENERGY SECURITY AND SUSTAINABILITY: EGYPT'S QUEST FOR DIVERSIFICATION



EDITOR'S LETTER

Dear Reader,

In today's fast-paced and energy-driven world, energy diversity has become an essential ingredient for the sustainability and growth of any economy. With the increasing demand for energy, countries are looking for a variety of sources to secure their energy supply and minimize the risks associated with relying on a single source. This is particularly important considering the environmental impacts of some traditional energy sources, such as fossil fuels.

In this context, Egypt has actively been promoting and investing in energy diversity. The country's strategic geographical location and natural resources provide a high potential for a diversified energy sector. Egypt has been working on developing renewable energy sources, such as solar and wind power, while also exploring traditional sources, such as natural gas and oil. The implementation of a diversified energy mix can offer many benefits, including energy security, environmental sustainability, and economic development.

In our November issue, our writers tackle the importance of energy diversity in today's world, the different energy sources that Egypt is currently exploring, and the potential benefits and challenges associated with energy diversification in the country.

In our Research & Analysis section, we shed light on the high potential for natural gas exploration in Egypt's Mediterranean and Nile Delta regions. We also had the chance to cover TAQA's splendid 20th anniversary celebration. In addition, we were fortunate to talk to Cheiron's CEO David Thomas, who elaborated on Cheiron's unique strategy to drive growth and sustainability.

Ihab Shaarawy

MANAGING EDITOR

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

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

(+20) 2 27498190

info@egyptoil-gas.com

www.egyptoil-gas.com

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EGYPT'S **LEADING** OIL & GAS MONTHLY PUBLICATION

General Manager

Ayman Rady

Research & Analysis Manager

Dr. Mahinaz El Baz

Managing Editor

Ihab Shaarawy

Senior Editors

Rana Al Kady

Nader Ramadan

Senior Writer

Sarah Samir

Staff Writer

Fatma Ahmed

Research & Analysis Supervisor

Reham Gamal

Research Analysts

Jolly Monsef

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Noha Zayed

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Administration

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Senior Accountant

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 - Increased hydrocarbon recovery
- Predictable drilling performance
 - Increased gross TOP
 - Fewer stuck pipe incidents
 - Reduced NPT and ILT

TOP 5

El Molla: Petroleum Sector Attracts Investments of \$61.3B Over 9 Years

Minister of Petroleum and Mineral Resources Tarek El Molla lauded the extraordinary accomplishments of Egypt's petroleum sector with investments amounting to \$61.3 billion from July 2014 until July 2023.

El Molla also touched on the most prominent projects that were achieved during that period, including the discovery of the Zohr, Atoll, Nooros,

North Alexandria, and the West Nile Delta fields.

The Minister of Petroleum added that there were investments in the projects that were implemented, amounting to about \$34 billion for production and development, and \$1.6 billion for networks transporting crude oil, products, and gas, in addition to \$1.1 billion for ports.

Egypt's Petroleum Imports Dropped by \$138.1M in 2022/23

Egypt's petroleum imports decreased by \$138.1 million, during fiscal year 2022/23, according to the Central Bank of Egypt's (CBE) Balance of Payment. This comes as a result of a decrease in crude oil imports by \$1.2 billion, which is higher than exceeding the increase in imports

of both natural gas by \$716.3 million and petroleum products by \$392.8 million.

Meanwhile, Egypt's petroleum exports fell by \$4.2 billion, as a result of the decrease in petroleum products exports by \$1.7 billion, crude oil exports by \$1.5 billion, and natural gas exports by \$988.1 million.

Egypt's Natural Gas Production Reaches 6.2 bcf/d in 2022/23

The average production of natural gas in Egypt during fiscal year (FY) 2022/23 reached about 6.2 billion cubic feet per day (bcf/d). Meanwhile, the average daily domestic consumption of natural gas was around 5.9 bcf/d, including 57% for the electricity sector, 25% for the industrial sector, 10% for the petroleum and gas derivatives sector, 6% for households, and 2% for supplying cars, the Egyptian Natural Gas Holding Company (EGAS) Executive Managing Director, Magdy Galal, stated.

Galal's statement came during the general assembly chaired by Minister of Petroleum and Mineral Resources Tarek El Molla to review the performance of EGAS in 2022/23.

During the meeting, Galal reviewed the most prominent achievements of natural gas activities during 2022/23. In the field of research and exploration, the global bid was launched for the year 2022 to search for natural gas in 12 sectors, including six sectors in the Mediterranean Sea and six sectors in the Nile Delta, and the evaluation of all offers was completed and the result of the bid was announced recently, Galal explained.

The procedures for issuing 11 agreements to search are ongoing, with nine agreements signed, and the laws for two agreements are being issued, with a total signing grant of about \$30 million and a total investment of \$925 million, Galal noted.

A three-dimensional seismic survey was carried out in the Mediterranean Sea over an area of about 4,000 square kilometers in the Nour and North Rafah marine areas and the Narges marine commitment area, and a regional three-dimensional seismic survey is being conducted in the western Mediterranean for an area of about 10,500 square kilometers.

In light of the trends of transitioning towards green energy and reducing carbon emissions, serious steps have been achieved in the first path of energy transition, which is rationalizing and improving the efficiency of energy use.

EGAS achieved savings in electrical energy consumption estimated at approximately 190,000 kilowatt-hours and a reduction in emissions by 84 tons of carbon dioxide during the year, with an increase in savings of 3.5% compared to the previous year.

SCA to Raise Transit Fees for Oil, Gas Carriers

The Suez Canal Authority (SCA) announced increasing transit fees by 15% for several types of vessels, including crude oil tankers, petroleum products tankers, liquefied petroleum gas (LPG) carriers, and liquefied natural gas (LNG) carriers.

Transit fees increase will also be applied for chemical tankers and other liquid bulk tankers containerships; vehicles carriers; cruise ships; and special floating units.

A five percent increase will be applied on dry bulk ships, general cargo ships, and roll-on/roll-off ships.

Containerships directly moving from North-West Europe ports to ports at the Far East are exempted from the above increase.

The announced increase is set to be effective as of January 15th, 2024.

El Molla Opens Revamped EMRA Information Center

Minister of Petroleum and Mineral Resources Tarek El Molla inaugurated the Egyptian Mineral Resources Authority's (EMRA) information center after its recent development and modernization.

El Molla inspected the center's sections and listened to an explanation from the work team about the various services it provides to investors, scholars, and researchers in the field of mining. This comprehensive database avails all information related to mining ores,

research, reports, and geological studies prepared by EMRA. It also offers data packages for investors.

The center's development work is also being completed and digital methods are being introduced by developing the methods of displaying and browsing information into digital methods instead of paper ones. The center also includes a group of the most prominent scientific and geological periodicals and references.

A BLAST FROM THE PAST

After 50 years, the 1973 oil crisis remains as a pivotal moment in history, characterized by a significant disruption in global oil supplies and immense economic consequences for countries heavily reliant on petroleum.

The 1973 oil crisis emerged against the backdrop of the Arab-Israeli conflict. In October 1973, Egypt and Syria launched attacks on Israel in what came to be known as the Yom Kippur War. Arab oil producers, led by the Organization of Arab Petroleum Exporting Countries (OAPEC), responded by announcing a decrease in oil production and imposing an embargo on countries deemed supportive of Israel, including the United States and its allies in Europe.

The OAPEC embargo quickly shook the foundations of the global economy. Oil prices skyrocketed, and shortages challenged the stability of Western nations highly dependent on oil imports. With prices quadrupling in a matter of months, industries faced soaring production costs, inflation surged, and economies teetered on the brink of recession.

Recognizing the severity of the crisis, the United States, under President Richard Nixon, sought to initiate negotiations with Arab oil producers. In November 1973, Henry Kissinger, the US Secretary of State, began shuttle diplomacy between Arab oil-producing countries and European nations, primarily the United Kingdom and France.

The negotiations sought to ensure the availability of oil supplies to the Western world while addressing the concerns of Arab states regarding the Israeli-Palestinian conflict. It became apparent that a comprehensive settlement would require a careful balance between international diplomacy, Middle East peace efforts, and the energy needs of the West.

+8 million**Connected Residential Units to Natural Gas from 2014 to 2023**

Natural Gas delivery rates in Egypt witnessed a wide expansion between 2014 and 2023. More than 60% of the residential units benefiting from natural gas across Egypt were connected to the service during this period with a cost amounting to EGP 40 billion.

This comes within the framework of the Egyptian state's keenness to facilitate natural gas delivery to the governorates and reduce the burden of using butane cylinders. In this regard, the expansion of natural gas delivery to residential units led to the rationalization of the consumption of butane gas cylinders, and saving about 256 million butane cylinders annually, according to the Ministry of Petroleum and Mineral Resources (MoPMR).

NUMBER OF THE MONTH



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Alexandria Head Office

Marhaba Tower, Fouad Street, Off Horeiya Road, Alexandria 21131, Egypt

+2033913820 (10 Lines) +2033913829 Offshore@pan-marine.net

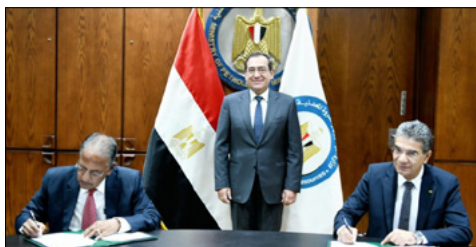
AGREEMENTS

UGDC, TCI Sanmar Sign Cooperation MoU

Minister of Petroleum and Mineral Resources Tarek El Molla witnessed the signing of a memorandum of understanding (MoU) between the United Gas Derivatives Company (UGDC) and the Indian chemical company TCI Sanmar.

The signed MoU aims for cooperation between the two sides, as UGDC will use its world-class facilities and facilities in Damietta Port to facilitate the safe import of raw materials necessary for the development projects and expansion plans of TCI Sanmar.

The MoU was signed by Refaat Farag, UGDC's Chairman, and PS Jayaraman, Chairman of the Board of Directors of TCI Sanmar.



Following the signing, El Molla highlighted the importance of this cooperation with the Indian company, as Egypt places the petrochemical industry among the priorities of its strategy.

Egypt, C2X Sign Framework Agreement for Green Fuel Production

Prime Minister Mostafa Madbouly witnessed the signing ceremony of the framework agreement between the General Authority for the Suez Canal Economic Zone (SCZONE), the Sovereign Fund of Egypt, The New and Renewable Energy Authority (NREA), Egyptian Electricity Transmission Company (EETC), and C2X.

The agreement, which was signed at the Cabinet's headquarters in the New Administrative Capital, aims to establish a project to produce green fuel with investments amounting to \$3 billion for the first phase, for ship bunkering supplies and achieving zero carbon emissions.

C2X was recently established as one of the arms of A.P. Moller Maersk; with the aim of establishing projects to produce green methanol and its derivatives.

Following the signing, the Prime Minister confirmed that the Egyptian state, under



the leadership of President Abdel Fattah El Sisi, continues to strive at a rapid pace to expand the field of clean energy to produce green hydrogen and its derivatives. The state is working on implementing projects to produce and use green methanol and green ammonia, in order to serve the ship bunkering sector in particular, thanks to Egypt's distinguished location and unique capabilities that make it a leader in this sector.

Enppi, OAPEC Sign Training MoU

Minister of Petroleum and Mineral Resources Tarek El Molla witnessed the signing of a memorandum of understanding (MoU) for cooperation in the field of training between Enppi and the Organization of Arab Petroleum Exporting Countries (OAPEC).

The MoU was signed by Mohamed Abdelaziz, Chairman of Enppi, and Jamal Essa Al Loughani, OAPEC's Secretary-General.

Following the signing, El Molla confirmed that the MoU comes within the framework of the Ministry's strategy and its keenness to open new horizons for fruitful and continuous cooperation between Egyptian petroleum companies and international organizations to exchange technical expertise in all fields of petroleum industries to achieve the desired integration.

Meanwhile, Al Loughani explained in his speech that continuous training is the main building block that contributes to the development of the petroleum industry. Since last year, OAPEC has coordinated with several parties to hold many training courses, including a distinguished training course in coordination with Enppi Company, in November 2022.

Abdelaziz noted that the MoU aims to establish mechanisms to strengthen and consolidate cooperation relations between



the two parties in a way that contributes to developing the capabilities of specialized scientific cadres in the member states of the organization. This involves exchanging technical expertise in all fields of petroleum industries, and developing technical and administrative capabilities.

Following the signing, El Molla honored Mohamed Ali Sadiq, the Egyptian researcher in energy and environmental affairs and the winner of the 2020 OAPEC prize, for his research related to the integration between renewable energy and the oil and gas industry.

INVESTMENTS

Methanex Invests \$2M to Support Youth Employment in Damietta Through Partnership with International Labour Organization

Methanex Egypt signed a new five-year partnership with the International Labor Organization (ILO) Cairo Office to support the Decent Jobs for Egypt's Young People (DJEP) program. The signing ceremony was attended by H.E. Tarek El-Molla Minister of Petroleum and Mineral Resources, Brad Boyd, Methanex Corporation Senior Vice President, Eric Oechslin, ILO Cairo Director and Mohamed Shindy, Managing Director, Methanex Egypt.

Through a \$2 million donation by Methanex Egypt, the program will create 1,000 jobs, promote entrepreneurship, facilitate job matching and build the capacity of local service providers to help youth in Damietta. This unique partnership is a testament to Methanex's commitment to making a positive impact on people's lives through its business.

Since 2019, Methanex has partnered with the ILO Cairo Office to support young women and men in their quest for decent work. The previous four-year DJEP partnership program resulted in over 2,300 training opportunities and the creation of 725 jobs. The new DJEP partnership, spanning from 2023 to 2028, will have an increased focus on women in the labor market, the promotion of green jobs and the inclusion of people with disabilities.

ACHIEVEMENTS

AMOC Produces 1.5M Tons of Petroleum Products in 2022/23

Alexandria Mineral Oils Company (AMOC) production during fiscal year (FY) 2022/23 amounted to about 1.5 million tons of various petroleum products for the local market, especially diesel, butane, and naphtha for the production of gasoline and essential oils, AMOC's Chairman, Amr Lotfy noted.

This came during the general assembly of AMOC chaired by Minister of Petroleum and Mineral Resources Tarek El Molla, to approve the business results for the fiscal year 2022/23. The meeting followed up on the company's plan to implement a number of projects to raise operational efficiency to increase production rates.

A special department has been established to improve energy efficiency in the Egyptian General Petroleum Corporation (EGPC), the holding companies, and companies affiliated with the sector, El Molla explained. He added that implementing projects to improve energy efficiency will achieve added value, optimize the use of resources, and maintain efficient performance.

In line with the policy of the Ministry of Petroleum and Mineral Resources to reduce carbon emissions and maximize the use of flare gases, Lotfy explained that AMOC was able to achieve financial savings worth about EGP 21 million. This is following the completion of the first phase of Zero Sweet Flare and reduce carbon emissions by 5,330 tons of carbon dioxide equivalent annually.

At the end of the meeting, the company's ordinary general assembly approved the results of the fiscal year 2022/23 and the agenda items, and approved the distribution of dividends of EGP 0.65 per share.

ADPIEC

El Molla Outlines Egypt's Strategy to Secure Energy, Reduce Emissions at ADIPEC 2023

Minister of Petroleum and Mineral Resources Tarek El Molla has highlighted Egypt's key role in energy security and decarbonization, further emphasizing its plans to accelerate the development and production of natural gas from new discoveries.

This came during his participation in a closed dialogue discussion under the title "Accelerating the Formation of Innovative Policies to Achieve Secured and Low Carbon Energy Future" as part of the activities of ADIPEC 2023 in the presence of several petroleum ministers and energy leaders.

El Molla showcased the plans and mechanisms followed by Egypt to overcome the current challenges in securing energy, which balances between the energy transition, emissions reduction and energy security.

In reference to international initiatives, such as the Global Methane Pledge, he added that Egypt looks forward to working and cooperating with all partners to accelerate



the implementation of methane emissions reduction projects.

The minister mentioned that Egypt has launched several national initiatives and pledges, most importantly the ministry's commitment to Nationally Determined Contributions (NDCs) aiming at reducing greenhouse gases by 65% until 2030, according to the ministry's strategy to support carbon reduction and energy transition.

El Molla also reviewed the procedures and initiatives adopted by Egypt towards achieving sustainability.

El Molla Participates in ADIPEC 2023 Awards

Minister of Petroleum and Mineral Resources Tarek El Molla has participated in judging and delivering the ADIPEC 2023 awards.

At the ceremony, El Molla affirmed that the energy industry's continued focus on science and innovation supports its goals of progress and sustainability.

He noted the importance of focusing on energy transition and decarbonization projects, which enable the industry to meet growing global energy needs and achieve the required balance in implementing the initiative to overcome climate change through sustainability solutions.

El Molla said that the judgmental committee has discussed and made an accurate evaluation for all participants.



The minister has announced and delivered the first prize, under the category "Decarbonization at Scale", to LANZTech for its project "Carbon Capture Create Value".

MINING

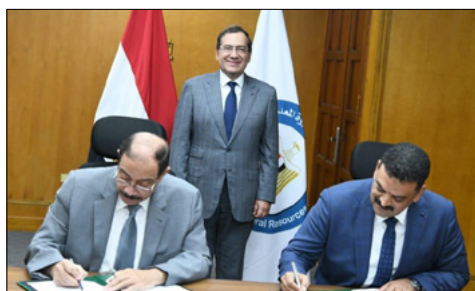
EMRA, Golden Triangle Economic Authority Ink Cooperation Protocol

Minister of Petroleum and Mineral Resources Tarek El Molla has witnessed the signing of a cooperation protocol between the Egyptian Mineral Resources Authority (EMRA) and the Golden Triangle Economic Authority.

The protocol aims to benefit from the competencies and qualifications of the EMRA to exploit the resources in the Golden Triangle Economic Zone by following new scientific tools in the exploration and assessment field to achieve the optimum utilization of these activities and attract new investments.

The agreement was signed by the Chairman of EMRA Yasser Ramadan and the Chairman of Golden Triangle Economic Authority Adel Saeed in attendance of officials from the Ministry of Petroleum and Mineral Resources.

According to the protocol, the two parties will work together to exchange the needed expertise in the field of mining within



the Golden Triangle area; in addition to conferring on the preparation of general conditions and rules necessary for getting licenses for mining activities in the region as well as to cooperate on promoting new investment opportunities there.

LNG EXPORTS

Egypt to Resume LNG Exports in October: El Molla

Egypt is set to continue exporting liquefied natural gas (LNG) this month as planned, Minister of Petroleum and Mineral Resource, Tarek El Molla, said on the sidelines of the ADIPEC energy conference in Abu Dhabi.

Egypt's LNG Mediterranean terminals have a capacity to export 12 million metric tons per year, which is a target the country aspires to achieve in 2025 to be a major LNG exporter. However, the high local demand prevented the country from exporting LNG in June.

Egypt seeks to be a regional energy hub by exporting its own gas and re-exporting Israeli gas as LNG to Europe.

However, Egypt has been facing power cuts in the summer, and its natural gas output has dropped to a three-year low.

El Molla said he expected the power cuts to ease, but did not give a firm date.

AL AHRAM ENERGY CONFERENCE

Oil, Gas Sector Officials Discuss Carbon Reduction Strategy at Al Ahram Energy Conference

Participants in the third session of the Seventh Al-Ahram Energy Conference reviewed the Ministry of Petroleum and Mineral Resources' vision and the petroleum sector's work plan and activities towards enhancing carbon reduction efforts and energy transformation as priority areas to support Egyptian and global efforts towards confronting the phenomenon of climate change.

The participants in the session moderated by Ahmed Osama, Strategy and Technical Affairs Unit Head at the Ministry of Petroleum and Mineral Resources (MoPMR), discussed the Ministry's strategies and axes for carbon reduction and energy transformation, and the successes achieved in implementation and continuing to build on the outcomes of the Ministry's participation in the COP27.

The session further discussed the petroleum sector's ongoing and planned carbon reduction projects, in addition to the Petrochemical Holding Company's projects in the field of hydrogen and its derivatives and green petrochemical projects.

NATURAL GAS DELIVERY

Egypt Delivers Natural Gas to Over 8M Households in the Past 9 Years

Over the past nine years, the oil and gas sector has succeeded in expanding the national project to deliver natural gas to homes in the cities and villages of Egypt, doubling the delivery rates to residential units, the Ministry of Petroleum and Mineral Resources (MOPR) said.

Accordingly, the number of units benefiting from natural gas services across Egypt increased from 6 million households in 2014 to about 14.2 million housing units in 2023, which will provide this urban service to more than 62 million citizens.

It is noteworthy that more than 60% of the housing units benefiting from gas nationwide were connected to the service between 2014 and 2023. Natural gas was delivered to more than 8 million housing units at a cost of EGP 40 billion during this period.

ARAMCO



ARAMCO, SIEMENS TO BUILD CCS PILOT PROJECT

Aramco and Siemens AG have decided to collaborate to build a pilot project for carbon capture and storage (CCS) as Saudi Arabia seeks new ways to tackle emissions.

The project aims to explore the potential of direct-air capture, a method that involves extracting

carbon dioxide from the atmosphere rather than directly from sources of emissions. The direct-air method is the costliest application of carbon capture, according to the International Energy Agency.

Aramco is the state-owned petroleum and natural gas company of Saudi Arabia. As of 2022, it is the second-largest company in the world by revenue and is headquartered in Dhahran.

QATARENERGY



QATARENERGY, CPChem SECURE \$4.4B FOR RAS LAFFAN PETCHEMICALS PROJECT

QatarEnergy and Chevron Phillips Chemical Company LLC (CPChem) has announced the securing of \$4.4 billion in financing for the Ras Laffan Petrochemicals project, a world scale integrated polymers complex in Ras Laffan Industrial City, Qatar.

The senior debt financing package is comprised of commercial and Islamic facilities as well as Export Credit Agency (ECA) financing. With QatarEnergy holding a 70% stake and CPChem holding a

30% stake, this joint venture is considered the largest petrochemical project in Qatar, with the Final Investment Decision being announced in January 2023.

The complex, expected to begin production in late 2026, consists of an ethane cracker with a capacity of about 2.1 million tons per annum (mtpa) of ethylene.

Additionally, the complex includes two polyethylene trains that will produce a combined

output of 1.7 mtpa of High-Density Polyethylene (HDPE) polymer products. These products are used in a wide range of applications, including packaging, construction, and consumer goods.

With this project, Qatar's overall petrochemical production capacity will increase to nearly 14 mtpa in addition to generating significant economic benefits for the country, including increased tax revenue and foreign investment.

ENI



ENI MAKES NEW DISCOVERY IN INDONESIA

Eni has announced a new significant gas discovery from the Geng North-1 exploration well drilled in North Ganai PSC, in Indonesia.

The initial estimates of the well indicates total volume of 5 trillion cubic feet (tcf) of gas in place in addition to condensates estimated up to 400 million barrels (mmbbl).

These acquired data will enable studying the ability for a fast-track development, Eni said in a statement.

The well subjected to the production test (DST) and it has allowed to estimate a well capacity of up to 80-100 million standard cubic feet per day (mmscf/d) and about 5000-6000 barrels per day of condensate.

The ongoing exploration campaign, came as part of Eni's energy transition strategy to progressively shift its portfolio mix towards gas and LNG, targeting 60% in 2030, and to increase its LNG equity portfolio.

The discovery's location and significant size, allow potential creation of a new production hub, in the Northern part of the Kutei Basin, to be connected to the Bontang LNG facilities on the coast of East Kalimantan.

SAIPEM



SAIPEM SIGNS \$4.1B CONTRACT WITH ADNOC FOR HAIL, GHASHA DEVELOPMENT PROJECT

Italy's Saipem, in consortium with National Petroleum Construction Company (NPCC), has signed a letter of award with ADNOC for a new contract related to the Hail and Ghasha Development Project - Package 1 in the United Arab Emirates. Saipem's share of the contract amounts to around \$4.1 billion.

The project aims to unlock the vast natural gas resources of the Hail and Ghasha fields, located offshore Abu Dhabi, UAE.

Saipem will be responsible for the Engineering, Procurement, and Construction (EPC) of four

drilling centers and one processing plant to be built on artificial islands.

Additionally, the project scope includes the construction of various offshore structures and the installation of over 300 kilometers of subsea pipelines.

KOSMOS ENERGY



KOSMOS ENERGY MAKES OIL DISCOVERY IN US GULF OF MEXICO

US Kosmos Energy, a full-cycle independent oil and gas exploration and production company, has announced the discovery of oil in the U.S. Gulf of Mexico at the Tiberius exploration well.

The Tiberius exploration well tested a four-way structural trap in the outboard Wilcox trend, located in Keathley Canyon Block 964. The well encountered approximately 250 feet (-75

meters) of net oil pay in the primary Wilcox target. Wireline logging has been completed, and casing is currently being run to the target depth to enable the well to be used as a future oil producer.

The Tiberius exploration well is located in the outboard Wilcox trend, specifically in Keathley Canyon Block 964. Kosmos Energy operates

the well and holds a 33.34% working interest. The other partners involved in this venture are Occidental and Equinor ASA, both holding a 33.33% working interest.

With the oil discovery and completion of wireline logging and casing, Kosmos Energy will now undertake rock and fluid analysis to confirm the

production potential of the reservoir and will work with partners on subsea development options.

Edison

Edison Completes Sale of its 11.25% Stake in Algeria's Reggane Nord Gas Field

Edison has announced the completion of its 11.25% stake sale in the Reggane Nord gas field

license in Algeria to Repsol and Wintershall Dea, holding 6.75% and 4.50% respectively.

The gas produced from the field will entirely be sold to Sonatrach on a long-term basis.

The sale values at \$10 million following the approval by the Algerian authorities with a decree published in the official gazette on October 12,

2023. The agreements were signed on May 4 and June 29, 2022.

With this transaction, Edison confirms its strategic commitment to focus its investments on energy transition and security of supply of the Italian energy markets with over 10 billion euros of CAPEX to be invested between 2023 and 2030.

SLB



SLB ACHIEVES \$1.12B IN NET PROFITS IN Q3 2023

SLB has reported its third quarter results of 2023 (3Q23), achieving a net profit of \$1.12 billion in the third quarter of 2023, or \$0.78 per share, compared to a net gain of \$907 million, or \$0.67 per share, in the same period a year ago.

Moreover, the company achieved adjusted earnings before interest, taxes, depreciation, and amortization (EBITDA) of \$2.08 billion, a 6%

increase from the previous quarter and an 18% year-on-year uptick.

SLB's results snapped a string of nine straight quarters of revenue expansion in North America, while sales in the Middle East and Asia climbed to the highest level in almost nine years.

In Egypt, Petrojet awarded SLB a contract for detailed engineering, procurement, commissioning, and startup of the Meleiha gas

treatment plant, with further opportunities for operations and maintenance in the future.

The project is located in the Western Desert and is owned by Agiba Petroleum Company, an Eni/EGPC joint venture. Petrojet is the main engineering, procurement, construction, and commissioning contractor. The project will adopt a zero-flaring approach, in line with the SLB decarbonization strategy.

US MARATHON OIL



US MARATHON OIL SIGNS FIVE-YEAR LNG SALES AGREEMENT WITH UK GLENCORE ENERGY

Marathon Oil announced on Monday that it entered into a five-year liquefied natural gas (LNG) sales agreement with Glencore Energy UK Ltd, a subsidiary of Glencore PLC for a portion

of its equity natural gas produced from the Alba Field Equatorial Guinea.

The Houston-based firm, which has a 64% working interest in the Alba Unit, said in its press release that the sales deal is effective Jan. 1, 2024.

The pricing structure for the agreement will be linked to the Dutch Title Transfer Facility (TTF) index, replacing the previous contract that was linked to the Henry Hub.

HALLIBURTON

HALLIBURTON

HALLIBURTON ACHIEVES \$716MLN NET INCOME IN 3Q23

US Halliburton announced its third quarter results for 2023 (3Q23), in which it achieved an increase in net income of \$716 million, or \$0.79 per diluted share, compared to \$610 million, or \$0.68 per diluted share, and adjusted net income in the second quarter of 2023, excluding the loss on transactions in Argentina, of \$691 million, or \$0.77 per diluted share.

Halliburton's total revenue for the third quarter of 2023 was \$5.8 billion, flat when compared to the second quarter of 2023. Operating income

was \$1.0 billion in the third quarter of 2023, a 3% increase when compared to the second quarter of 2023.

"Halliburton delivered an impressive third quarter, and our margin strength demonstrated the power of our strategy. I am pleased with the stability of our North American business and the profitability of our international growth," commented Jeff Miller the Chairman, President, and CEO of Halliburton.

Halliburton's margins expanded sequentially, driven by international operations, while North American margins remained approximately flat in the last quarter. These results were primarily due to increased stimulation activity internationally, higher cementing activity in the Eastern Hemisphere, and improved completion tool sales globally. These increases were partially offset by lower-pressure pumping services in North America.

CHEVRON



CHEVRON TO ACQUIRE HESS IN \$53B STOCK DEAL

Chevron has announced that it entered into a definitive agreement with global independent energy Hess Corp. to acquire its shares for \$53 billion, or \$171 per share based on Chevron's closing price on October 20, 2023.

This deal sets as the second proposed mega-merger among the biggest U.S. oil players after Exxon Mobil bid \$60 billion for Pioneer Natural Resources earlier this month.

The proposed deal raises the competition between Chevron, the No. 2 U.S. oil and gas

producer behind Exxon, and it will make it an unusual partner with its bigger rival in Guyana, as Hess, along with China's CNOOC, were working together to develop drilling in the nascent Latin American producer.

Additionally, Hess' Bakken assets will further strengthen Chevron's position in the U.S. shale market, complementing its existing operations in the DJ and Permian basins.

"This combination positions Chevron to strengthen our long-term performance and further enhance

our advantaged portfolio by adding world-class assets," said Chevron Chairman and CEO Mike Wirth. "Importantly, our two companies have similar values and cultures, with a focus on operating safely and with integrity, attracting and developing the best people, making positive contributions to our communities and delivering higher returns and lower carbon," he added.

Under the terms of the agreement, Hess shareholders will receive 1.0250 shares of Chevron for each Hess share. The total enterprise value, including debt, of the transaction is \$60 billion.

DRIVING GROWTH AND SUSTAINABILITY

AN INTERVIEW WITH
DAVID THOMAS, CHEIRON CHIEF
EXECUTIVE OFFICER



CHEIRON

Can you share any recent notable discoveries or developments in Cheiron's exploration activities?

Probably the most notable discovery we have made this year was in the GNN-11 well, drilled by the PetroGulf Misr Joint Operating Company (JOC) near the Geisum GNN field in the Gulf of Suez (GoS). This well found approximately 165 feet of good quality pay in the Nubia, which was the first time this interval has been found to be oil bearing in the GNN area of the concession.

Another recent exploration success in the GoS was with Amapetco in the Amal-25 exploration well, which was drilled outside the main field area into a downthrown fault block and encountered around 110 feet of virgin pay in the Kareem formation. We have also drilled important discovery wells in the Western Desert with Bapetco, into downthrown fault blocks north of the BED 15/16 field areas, and had other finds with Norpetco in the North Bahariya areas.

All the abovementioned wells have already been tied back onto production, using existing infrastructure, and follow on appraisal drilling is either already underway or being planned.

What are some of the key initiatives or projects that Cheiron is currently working on to enhance production or increase reserves?

We have a number of projects running at the moment which have helped us maintain our position as the fourth largest producer in the country.

In the GoS, earlier this year we installed early production facilities on the GNN field comprising a conductor support structure and a mobile production and offtake unit, tied back to one of the existing Geisum field platforms. With this in place, we are currently drilling the tenth of our exploration and development wells on the field which have increased the Geisum area production from around 4,000 bopd to 23,000 bopd.

Elsewhere in the GoS, we also plan to continue to drill infill wells on the Zaafarana and Amal fields, where recent drilling results and new reservoir studies have identified further potential.

In the Western Desert, we are maintaining a very active drilling program in the Bapetco and North Bahriya fields, where we have a total of 6 drilling rigs and 8 workover rigs running. Our main focus

“ WE WOULD LIKE TO SEE CHEIRON PLAYING A SIGNIFICANT LONG-TERM ROLE IN PROVIDING ENERGY FOR EGYPT AS PART OF THE COUNTRY'S OVERALL ENERGY TRANSITION PLAN. ”

in the Western Desert remains the optimization of our waterflood programs.

How does Cheiron plan to balance its portfolio in response to changing market dynamics and emerging energy transition trends?

We are fortunate to have a well-balanced and diversified portfolio as it stands and does not see a driving need to make any material changes. Our reserves base is approximately 50% gas and 50% oil and we are comfortable that this will allow us to deliver our sustainability and energy transition plans whilst still benefitting in the short to medium term from strong oil prices. We would like to see Cheiron playing a significant long-term role in providing energy for Egypt as part of the country's overall energy transition plan.

Can you discuss any new partnerships or collaborations that Cheiron has recently established to support its growth plans or decarbonization efforts?

Cheiron is always looking for new ways to collaborate on upstream opportunities and we have strong established relationships with the Ministry of Petroleum, EGPC, EGAS, and Ganope, and our industry partners including Kufpec, Capricorn, Apache, Wintershall Dea, NPIC, Neptune, INA, GPC. and NPC.

More recently we have been expanding or forming new relationships to push forward our various decarbonization initiatives with companies such as Schlumberger and HiiROC. Schlumberger has recently completed a Carbon Capture and Storage study on behalf of Bapetco, Cheiron and our partner, Capricorn, to identify ways to dispose of vented CO₂ volumes from the BED and Obaiyed facilities and we are now looking at the practical application of the study findings. HiiROC has some interesting plasma electrolysis technology that can convert flare gas to two products, hydrogen and black carbon, and we are planning some “proof of concept” field tests with them in the near future.

How does Cheiron incorporate sustainability practices into its operations, and what steps are being taken to minimize environmental footprints throughout the value chain?

Similar to our peers, Cheiron has an established Sustainability Policy and Plan which covers many areas including community welfare, socio-economic development, biodiversity management, water and waste management and respect for cultural heritage.



Also, as a fundamental part of this framework, we have set clear targets to address climate change that are consistent with the Ministry's and Egyptian Government's objectives and industry norms. These include reducing our GHG emissions intensity by 25% by 2025, eliminating all routine flaring by 2030 and moving to net zero by 2050.

These objectives are being pursued through a variety of short, medium and long-term initiatives ranging from replacing diesel fuel with gas across our JOCs, power centralization and electrification projects, flare reduction/elimination projects, and waste heat recovery, renewables energy and carbon capture and storage studies.

Can you provide insights into any upcoming exploration or development plans for Cheiron?

In the near term, we plan to continue our drilling campaign in and around the GNN field where we have identified a number of infill well locations and further near field exploration opportunities. This is likely to involve the addition of some new well slots to the early production facilities.

We also expect to continue our drilling programs in the Western Desert in Bapetco and Norpetco. These are strategically important field areas and produce, on a combined basis, around 50,000 bpd of oil and condensate for the country.

For the future, our next major production uplift should come from the 150 mmcfpd West El Burullus (WEB) gas field development in the Mediterranean which was sanctioned for development early this year. The development comprises 2 platform and 7 wells tied back to the Burullus WDDM plant, and will come on stream in the second half of 2024. We are excited by this project since we recently acquired new exploration acreage close to the WEB development lease and will be drilling one or more prospects near the existing fields early next year.

What are Cheiron's main focus areas for enhancing mature fields' performance and adding reserves?

The area where we see good potential for short term production and reserves uplifts is through the optimization of our Western Desert waterflood programs. Historically, we have had significant success implementing an inverted 5 spot water flood pattern in Norpetco's Abrar field and increasing the water injection rates, and we are looking to see whether this success can be replicated in other fields. In particular, some of the Bapetco fields appear to have some remaining potential for optimization and these are under active study.

Also, we know that there is a significant tight gas and unconventional oil and gas resource base in the Western Desert which may be unlocked with extended reach horizontal drilling and multfrac technologies, and both of these technologies continue to advance at pace.

Other than these major themes, effective mature field management in our assets involves making many continual improvements in many areas including completion design, drilling efficiencies, downhole

pump efficiencies, scale and chemical treatments and system debottlenecking, to name but a few.

How does Cheiron prioritize safety and risk management in its operations, and what measures are in place to protect the health and well-being of employees, contractors, and local communities?

Cheiron and all our Joint Operating Companies maintain a very strong focus on safety.

As you would expect, at a corporate level our Board takes a serious interest in all safety matters and ensures that we have appropriate HSES Management policies and systems in place.

Most importantly, Cheiron endeavors to work collaboratively with our JOCs to help develop and implement their Annual HSE Plans and provide support through the secondment of qualified safety professionals and directly from our central team when required.

We also regularly use 3rd Party auditors since we feel they can bring fresh eyes and fresh solutions to address safety issues and sometimes identify areas for improvement overlooked due to familiarity. We also work with our JOCs to bring in external trainers to conduct key initiatives such as our Behaviour Based Safety training schemes when we do not have the capability in-house.

EGPC provides invaluable support to underpin our work and has introduced some excellent international safety standards and processes into Egypt over the past several years. We are pleased to help promulgate these through the JOCs.



“SIMILAR TO OUR PEERS, CHEIRON HAS AN ESTABLISHED SUSTAINABILITY POLICY AND PLAN WHICH COVERS MANY AREAS INCLUDING COMMUNITY WELFARE, SOCIO-ECONOMIC DEVELOPMENT, BIODIVERSITY MANAGEMENT, WATER AND WASTE MANAGEMENT AND RESPECT FOR CULTURAL HERITAGE.”

TAQA CELEBRATES TWO DECADES OF EXCELLENCE IN CAIRO AND AROUND THE WORLD

Once a place that hosted the kings, queens, monarchs, and all types of notables from society, Cairo's historic Abdeen Palace was once again a venue for a jubilant atmosphere of celebration as TAQA marked its 20th anniversary with a night of entertainment, enlightenment, and inspiration.

TAQA invited industry professionals, energy leaders, government officials, and other key stakeholders to come together and rejoice in the company's success throughout two decades of demonstrating excellence not only in its performance but in its commitment to its core values.

Though being an energy firm from Saudi Arabia, the company has an impressive global outreach with an open-minded approach to innovation and an ambitious agenda for future expansion. For this reason, celebrations were not only held in Egypt but in other areas around the world via livestream; something which was highlighted by Ahmed Al Zahrani, TAQA Chairman of the Board, stating "It is with a great sense of pride to welcome you to TAQA's 20th anniversary, which we are hosting today from seven cities across the globe." Celebrations also took place in Dhahran, KSA; Abu Dhabi, UAE; Aberdeen, UK (Scotland); Stavanger, Norway; Houston, USA; and Edmonton, Canada.

The event was opened by an inspirational speech delivered by the Vice President of TAQA Hossam Abu Seif, saying "I am deeply honored to stand before you today on this momentous occasion to celebrate the 20th anniversary of TAQA, which is not just a milestone for our company, but a significant regional achievement."

"Let us collaborate to fuel not just the energy sector, but also to power communities, foster innovation, and create a sustainable future for all. Together, let's build a legacy that generations will look back upon with respect and gratitude," Abu Seif added.

TAQA's celebration also showed a video that outlined the company's success and core values, during which the company's CEO Khalid Nouh stated, "Our purpose is to bring wealth to the Kingdom of Saudi Arabia. We want to bring value to our shareholders, [especially] our biggest shareholder which is the Public Investment Fund (PIF) of Saudi Arabia. We want to make sure that everything we do is going to impact the lives of Saudis in line with Vision 2030."

The video echoed the message that TAQA, as a company, remains to being human, boundless, and progressive. These are the values and principles that have built the company's identity, prestigious reputation, and unique business approach. Prioritizing people, customers, and shareholders, TAQA constantly seeks to pursue new opportunities, drive innovation, and explore additional areas of cooperation. With its progressive and flexible mindset, TAQA can quickly and effectively react to changes within industry shifts, masterminding

cutting-edge solutions that will bring the energy sector to the next level.

On the occasion of the anniversary, Nouh also said "Since its inception in 2003, TAQA has aimed to be the go-to company for customers, investors, and partners in the energy and petroleum services markets across the Middle East, Europe, and Africa. With these acquisitions, we can provide an array of cutting-edge solutions and products, enhancing engineering capabilities to create numerous growth opportunities and broad career prospects for our employees worldwide."

"The company's recent steps to maximize its operations in the region and strengthen its position as an 'enabler of energy' mark a significant moment in the company's journey. As 'TAQA' celebrates its 20th anniversary, it signifies a pivotal milestone in our company's journey, culminating in these substantial efforts. We don't only reflect on what we've achieved so far but also aspire to even greater and better opportunities for our customers, shareholders, and employees," he added.



“SINCE ITS INCEPTION IN 2003, TAQA HAS AIMED TO BE THE GO-TO COMPANY FOR CUSTOMERS, INVESTORS, AND PARTNERS IN THE ENERGY AND PETROLEUM SERVICES MARKETS ACROSS THE MIDDLE EAST, EUROPE, AND AFRICA.”

KHALID NOUH

TAQA's CEO





This joyous occasion was also used as an opportunity to announce the integration of Tendeka, Cougar, TARGET, and AIMansoori Petroleum Services (AMPS), as a regional provider in the energy sector under one website, TQ.com.

Funded by a capital increase led by the main shareholders, particularly the Saudi Public Investment Fund (PIF) which owns 54% of TAQA, the company's recent acquisition is a milestone in the expansion of its presence within the Egyptian market. It's a pragmatic maneuver that will be effective in combining the capabilities of 27 Egyptian companies to provide a wide range well services offered by TAQA. This will include drilling, production, exploration, and other services that will help serve the Egyptian petroleum sector.

In a separate statement, Nouh expressed delight with the company's achievement saying, "TAQA's acquisition of companies like AIMansoori Petroleum Services, Norwegian Tendeka, American Cougar and Target Oilfield Services, will undoubtedly propel the company to a global scale, fostering continued growth in the services we offer worldwide alongside our clients spanning the Middle East, and Africa. This move aligns perfectly with our strategic objectives of expanding our footprint and increasing our investments."

"We remain committed to pursuing profitable and sustainable growth to meet our customers' needs while also delivering maximum shareholder value. Our strategy is built upon three key pillars: driving business growth, achieving excellence through digitization and innovation, and transitioning towards a sustainable future with a focus on environmental and social responsibility. This capital increase will position TAQA as an international company operating across multiple geographical regions," Nouh added.

In addition, Hossam Abu Seif, Vice President of TAQA, said: "TAQA's acquisition of the foremost companies providing petroleum services in Egypt marks a significant turning point in the entire sector. This transformation is driven by TAQA's expertise and capabilities, which will bring a positive impact on production through the utilization of cutting-edge technologies and modern equipment, which the company intends to launch in Egyptian well Production & Drilling operations. We are also interested in exploring new opportunities in the fields of renewable energy."

"TAQA's commitment extends to maximizing its efforts both in the field and on the administrative front. As we initiate our operations in Egypt, we are committed to providing job opportunities for Egyptian youth to work within our projects here in Egypt. TAQA's workforce will expand to over 5,000 employees regionally, dedicated to serving a broad and diverse customer base across 20 countries. This expansion will facilitate the formation of a specialized and integrated well services company with a regional and international presence," he added.

The acquisition stands as a demonstration of TAQA's commitment to making a positive contribution to the global energy sector as well as its vision to make Egypt its central hub and a gateway for well solutions that will serve Iraq and Africa. As a company that has been present in Egypt for 17 years, TAQA prides itself on its well-established reputation as one of the market's finest names in the energy sector.

The live-streamed celebration also witnessed an informative and enlightening presentation by world-renowned author and entrepreneur Tony Seba related to disruption and the evolution of energy and transportation. Seba dived deep into the details of how the invention of cars was the catalyst of a series of historic changes over a century as well as the future outlook for energy and transportation within the coming years.

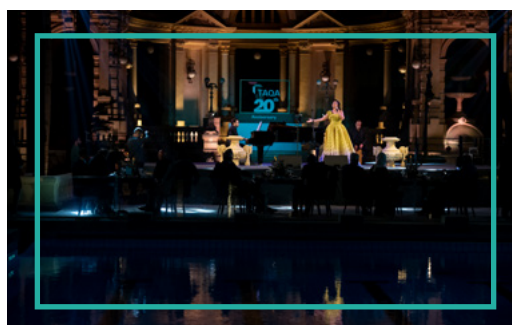
Audiences were entertained and inspired by a live drones show as well as a performance by soprano opera singer Amira Selim, well-known in both Paris and Egypt.



“LET US COLLABORATE TO FUEL NOT JUST THE ENERGY SECTOR, BUT ALSO TO POWER COMMUNITIES, FOSTER INNOVATION, AND CREATE A SUSTAINABLE FUTURE FOR ALL. TOGETHER, LET'S BUILD A LEGACY THAT GENERATIONS WILL LOOK BACK UPON WITH RESPECT AND GRATITUDE.”

HOSSAM ABU SEIF

Vice President of TAQA



THE MEDITERRANEAN SEA AND NILE DELTA

EGYPT'S NATURAL GAS TREASURES

BY JOLLY MONSEF, MARIAM AHMED & ABDULLAH MOSTAFA

The Mediterranean Sea and Nile Delta regions of Egypt have vast potential for the exploration and production of natural gas, making them attractive regions for gas investments, with a notable presence of over 20 companies comprising international oil companies (IOCs), national oil companies (NOCs), joint ventures (JVs), and service companies; the regions have emerged as significant drivers of Egypt's natural gas industry, according to the Egyptian General Petroleum Corporation (EGPC).

This report provides a comprehensive analysis of the considerable natural gas potential in the Mediterranean Sea and Nile Delta, focusing on recent developments, achievements, and ongoing initiatives to harness this valuable resource.

By examining exploration activities, discoveries, and operational fields, the report sheds light on Egypt's progress in utilizing its natural gas potential and establishing itself as a prominent player in the global energy market during the fiscal year (FY) 2022/23.

REGIONS' HIGHLIGHTS IN FY 2022/23

1. Production

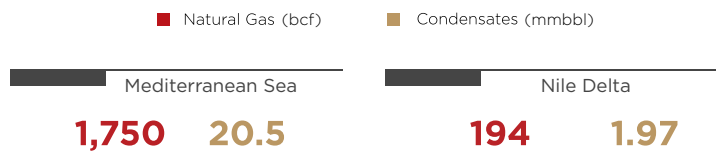
The Mediterranean Sea has ample natural gas and condensate resources; enough to make it the largest natural gas and condensate producing area in Egypt, followed by the Western Desert, and the Nile Delta. The Mediterranean Sea and Nile Delta constitute, together, around 83% of total natural gas production and around 72% of condensate production in Egypt.

In FY 2022/23, the regions' natural gas production accounted for about 1.94 trillion cubic feet (tcf). In the meantime, their condensates production recorded 22.47 million barrels (mmbbl), according to EGPC.

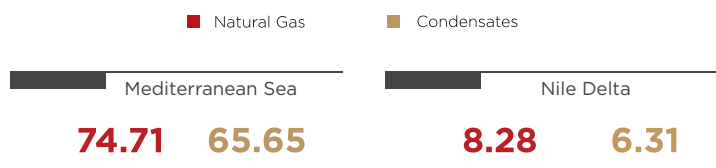
Flashbacks

The late 1960s marked the start of natural gas discoveries in Egypt. The first gas field was discovered in Abu Madi in the Nile Delta in 1967 by Belayiem Petroleum Company (Petrobel). The discovery of Abu Qir's offshore gas field discovery in the Mediterranean Sea then took place in 1969 to be the first offshore gas field discovered in Egypt. In 1975, the utilization of Natural Gas started in Egypt, in the meantime, the Abu Madi field was put into production in 1978, according to the Egyptian Natural Gas Holding Company (EGAS) website.

PRODUCTION VOLUME



SHARE FROM EGYPT'S TOTAL PRODUCTION (%)



2. Drilling Rigs

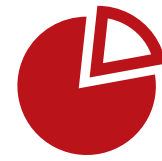
Offshore drilling rigs are the foundation of oil gas exploitation. In FY 2022/23, Egypt's Mediterranean Sea and Nile Delta regions saw significant growth in well drilling. By June 2023, the total number of drilling rigs in these regions reached six, with a 100% increase from only three rigs in July 2022. This highlights the importance of drilling activities in the regions, emphasizing Egypt's commitment to gas potential and sustainable energy development.

MEDITERRANEAN SEA & NILE DELTA



6

Average Drilling Rigs



5.08%

Share in Total Rig Count

3. Discoveries

FY 2022/23 witnessed significant achievements in Egypt's natural gas activities. These included drilling eight exploratory wells, resulting in five new gas field discoveries in the Mediterranean Sea and Nile Delta. The discoveries added 2.65 tcf of gas reserves. Six projects were implemented to develop and produce gas from these fields, enhancing Egypt's position in the global energy market, according to the Ministry of Petroleum and Mineral Resources (MoPMR).

2.65 tcf

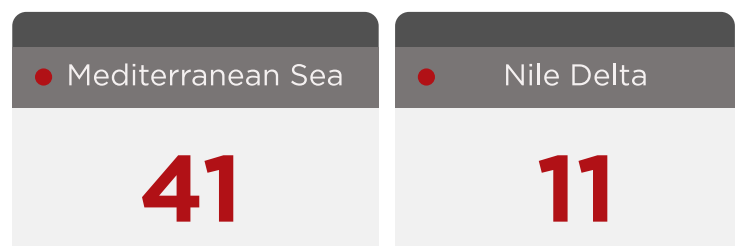
Discoveries
Added
Reserves

4. Active Agreements until October 2023

As of October 2023, the Mediterranean Sea region had 41 active agreements, accounting for 25.15% of Egypt's total. It ranked second, with the Western Desert leading. The Nile Delta had 11 agreements, representing about 6.74%, placing it fourth alongside the Eastern Desert, according to EGPC.

These figures highlight the Mediterranean Sea's significance and the Nile Delta's presence in the oil and gas sector in terms of growth and potential, contributing to Egypt's gas activities and development. This also confirms the regions' capabilities to attract more investments

ACTIVE AGREEMENTS UNTIL OCTOBER 2023



EGAS BID ROUND IN 2022

In late 2022, a new international bid round was launched to search for natural gas and crude oil in 12 regions in the Mediterranean Sea and Nile Delta, including six offshore and six onshore regions, through the Egyptian Upstream Gateway (EUG).

Results	
Awarded Blocks	4

Block	Area	Awarded Company
South Nour	Mediterranean Sea	Eni
North Port Fouad		Eni
East Port Said		Eni, bp & Qatar Energy
North El Khatatba	Nile Delta	Zarubgazneft

BID ROUND DETAILS

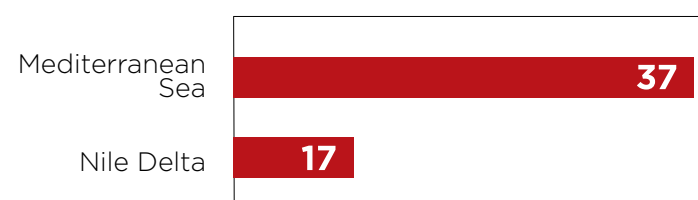
Announced Date	December 2022
Closing Date	Mid-July 2023
Offered Blocks	12



MAIN OPERATING FIELDS

The extensive exploration activities in the Mediterranean Sea and the Nile Delta regions resulted in the discovery of several gas fields with substantial potential leading to the increase of Egypt's natural gas production and reserves. The most significant fields in the two regions include Zohr, Atoll, the West Nile Delta (WND) Project, Nooros, and Nargis.

CURRENT OPERATING NATURAL GAS FIELDS



SIGNIFICANT FIELDS/ DISCOVERIES

Field	Discovery Date	Location	Operator	Reserves
Zohr	August 2015	Shorouk Block	Petrobel	30 tcf
Atoll	March 2015	North Damietta	PhPC	1.5 tcf of gas 31 mmbbl of condensate
WND Project	2015	North Alexandria & West Mediterranean Sea	bp	3.5 tcf*
Nooros	July 2015	North Alexandria & West Nile Delta	Petrobel	2.75 tcf*
Nargis	January 2023	Nargis Offshore in the Eastern Mediterranean	Chevron	2-2.5 tcf

*Estimated 2P Reserves

1. Zohr

Zohr field is the largest gas discovery with conservative estimated reserves of 30 tcf, as explained on Eni's website. Eni, in December 2017, produced its first natural gas from the field in a record time for this type of field of less than two and a half years. The first production unit added 800 million cubic feet per day (mmcf/d).

In FY 2022/23, Zohr field production of natural gas reached 2.4 billion cubic feet (bcf) in addition to 3,700 barrels per day (bbl/d) of Condensate, according to Petrobel press release.

The development plans of the Zohr gas field include drilling and completing the twentieth wells in October 2023. This is in addition to five more wells, starting in 2024, to support production rates from the field, according to MoPMR.

2. Atoll

The operation of the Atoll started in 2017. The initial production of the field reached 350 million standard cubic feet per day (mmscf/d) of natural gas and 10,000 bbl/d of condensate, as explained in bp's press release in 2018.

In FY 2019/20, the field's natural gas production jumped by 28% from 250 mmcf/d to 320 mmcf/d, as explained during the general assembly meeting for reviewing PhPC results in FY 2019/20. In 2022, the expansion of processing facilities in the Atoll field was executed through PhPC with an investment cost of \$43 million aiming at recovering 5 million tons per year (mmt/y) of burnt gases.

3. WND Project

WND Project includes five gas fields across the North Alexandria and West Mediterranean Sea Deepwater offshore concession blocks. Originally, it was planned as two separate projects; however, bp and its partners spotted the opportunity to deliver it in three stages instead. In this regard, the delivery of natural gas production commitments to Egypt will be accelerated.

In 2017, the project's peak annual average production from Taurus and Libra Fields reached 459 bcf/d net to bp. The production from the second stage of WND, within the Giza and Fayoum fields, which embraces eight wells, was about 400 mmcf/d in 2019, according to bp's website. Raven production, the third stage of the project, was approximately 600 mmscf/d in 2021, as explained in bp's the company's press release.

The WND development includes 25 wells producing gas to the onshore processing plant via three long-distance subsea tie-backs. The combined production from the three stages has a total gas processing capacity of around 1.4 billion standard cubic feet of gas per day (bscf/d), which will be fed into the natural gas grid, according to bp's website.

4. Nooros

The Nooros offshore field was brought into production in record time in August 2015, the same year it was discovered. The natural gas produced from the field's seven operational wells is transported to the Abu Madi

treatment facility to be treated and then linked to the national grid. In 2016, the first record production of the field was 128,000 barrels of oil equivalent per day (boe/d) with Eni's share of 67,000, according to Eni's Website.

In July 2020, Bashrush, the first exploration well, was drilled in the conventional Egyptian waters of the Nile Delta. In September 2020, Eni made a new natural gas discovery at Nooros with Nidoco NW-1 well, bringing the field's estimated reservoir to more than 4 tcf, as stated by Eni statements.

5. Nargis

Eni announced a significant new gas discovery at the Nargis-1 exploration well which has encountered approximately 200 net feet of Miocene and Oligocene gas-bearing sandstones and was drilled in 1,014 feet of water by the Stena Forth drillship, according to the Eni website. Nargis discovery held reserves of about 2.5 tcf of gas, according to MoPMR

Egypt's Mediterranean Sea and Nile Delta regions are the most promising for natural gas and condensate production. Egypt is taking steps to maximize the potential of these regions by increasing exploration and exploitation activities, launching bidding rounds, and attracting NOCs and IOCs to develop ambitious plans and programs to increase production. With this regard, the MoPMR is exerting more efforts towards the development of the fields in the region.

In this regard, Egypt plans to drill 45 natural gas wells in the Mediterranean Sea and Nile Delta with investments of about \$1.9 billion from FY 2022/23 to FY 2024/25, according to MoPMR. Ten wells were drilled in FY 2022/23, resulting in significant discoveries, including the Nargis discovery. The new discoveries and development plans in the two regions have played a crucial role in accelerating Egypt's natural gas production and exports. This is in addition to more countries, such as the European countries, becoming reliant on Egypt's natural gas exports.



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- Can perform a variety of surveys
- Survey operations can be mobilised quickly and easily, reducing project timescales
- Low fuel consumption makes it cost-efficient, with a small carbon footprint
- Remote operations reduce HSE risks and increase project efficiency and flow
- Compatible with a wide range of geotechnical systems

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ENERGY SECURITY AND SUSTAINABILITY: EGYPT'S QUEST FOR DIVERSIFICATION

BY SARAH SAMIR

The Egyptian energy sector has been dominated by fossil fuels, with goals to increase the share of new and renewable energy over the coming decades. Egypt has initiated a strategy to increase the use of renewable energy while decarbonizing its hydrocarbon sources as it is an indispensable energy source. This comes as oil and gas are expected to be among the main players in the Egyptian energy mix for decades. Achieving energy security also depends on diversifying the energy mix, especially since Egypt has great potential from different energy sources, as mentioned by Minister of Petroleum and Mineral Resources, Tarek El Molla, in October.

Targets of the Energy Mix

Egypt plans to diversify its energy mix to include different types of resources. In November 2022, El Molla stated that Egypt has a strategy to accelerate access to new and renewable energy to contribute 42% to the energy mix in Egypt by 2030, as it was planned to reach this goal in 2035. This comes as Egypt is committed to climate action, especially after hosting COP 27 climate summit in 2022.

The economic reforms that Egypt implemented enabled it to review the energy mix and increase the proportion of new and renewable energies in it, especially since Egypt has a diverse infrastructure and a distinct geographical location, which qualifies it to become one of the largest countries producing green energies in the region, El Molla stated in July.

As Egypt walks the path of energy transition, natural gas remains an important energy source in the transition as the world is shifting from fossil fuels to renewables at one step. Therefore, natural gas plays an important role in the future of the energy mix in Egypt as it is considered the most economically feasible and environmental-friendly energy source for the years to come.

Achieving energy security also depends on diversifying the energy mix, especially since Egypt has great potential from different energy sources

Current Energy Mix

Egypt has quite a diverse energy mix, which includes solar energy at 2%, wind energy at 3%, hydroelectric power at about 7%, and fossil fuels at 88%, according to the latest data released by the International Renewable Energy Agency (IRENA) in 2021.

Moreover, the private sector in Egypt is currently developing several projects with a total capacity of 700 MW of solar energy and 2800 MW of wind-generated energy, which is set to support the country's vision to become a regional energy hub.

In July 2023, El Molla stated that natural gas is the most important and most consumed in the energy mix in Egypt as it is a clean transitional fuel, adding that petroleum and natural gas resources constitute about 93% of Egypt's primary energy sources. This comes as Egypt achieved self-sufficiency in natural gas in 2018 after the discovery of the Zohr natural gas field.

Efforts Exerted to Reach Targets

Egypt is working on diversifying its energy mix while ensuring sustainability of energy source. The country is encouraging investors to tap into renewables and green hydrogen. At the



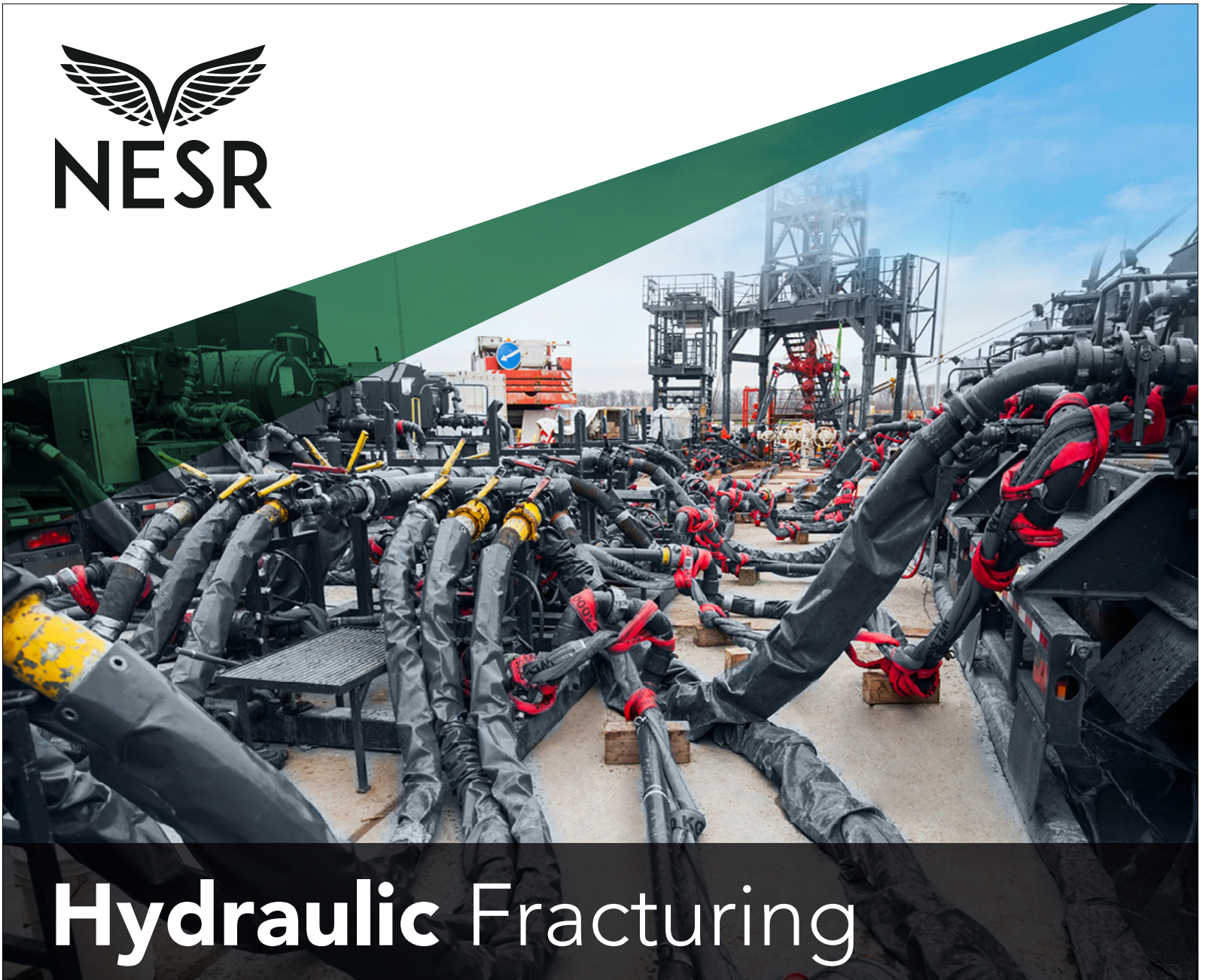
same time, the Ministry of Petroleum and Mineral Resources is promoting the usage of natural gas as a cleaner and more cost-efficient source of energy for the time being and for decades to come.

Accordingly, the Ministry is encouraging vehicle owners to add an option to their cars to be compressed natural gas (CNG) fueled, as a transitional must-have step between oil-fueled cars and electric cars. Thus, Egypt has 125 new operating stations to fuel cars with natural gas, as revealed by the Ministry in its 2022 achievements report.

Moreover, the Ministry has connected 14.2 million households to the natural gas grid as stated in October in order to encourage citizens to use natural gas instead of butane, which helps the country save money spent on importing butane, while preserves the environment as natural gas has less emissions.

With the efforts exerted by the Egyptian government and its encouragement investors, the country aims to diversify its energy mix to have 42% of energy generated from renewables by 2030. To have a diversified energy portfolio, the country intensifies the use of natural gas as a cleaner cost-efficient source of fuel that is essential for the energy transition.

Natural gas plays an important role in the future of the energy mix in Egypt as it is considered the most economically feasible and environmental-friendly energy source for the years to come.

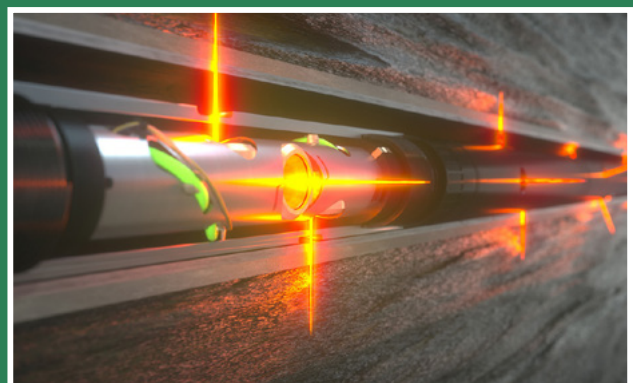


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DIVERSIFY TO ENSURE SUPPLY

BY RANA AL KADY

To begin with, a diversified energy mix is often viewed as a crucial component of energy security since having several sources enables a nation to keep running normally even if one of its sources of energy is unsuccessful.

This situation does not always apply. Energy supply security becomes less of a concern for countries that generate all of their own energy needs. A nation that imports a lot of energy must consider all the variables that can affect the supplying nation's ability to deliver energy.

General Overview

First of all, a nation's energy mix refers to the variety of its sources of power. Energy security requires diversification since the majority of utilized energy sources, including crude oil, coal, and natural gas, are each considered consumables and thus vulnerable to economic forces that might cause supply disruptions or astronomical price increases. Additionally, commodities like oil are particularly vulnerable to unexpected fluctuations brought on by geopolitical developments. Through diversification, a community can increase the use of alternative energy sources like solar energy, for example, to offset an adverse effect to one energy input, such as coal.

Since the risks associated with the energy sectors of oil and gas and electricity may be offset against one another, oil and gas players that penetrate new energy markets often have an edge over their rivals. Decreased use of fossil fuels results in higher use of electricity or hydrogen when energy demand is relatively steady, and the opposite is true. Yet, those that have diverse portfolios not only have a smaller degree of general risk exposure, additionally they frequently have larger leverage available to them, which helps to increase project returns. As suggested by a Field Manager in the oil and gas sector, "[We] are starting to see a change in Egypt's oil and gas sector in terms of the production mix. There is a huge focus now on types such as green hydrogen and other renewable sources, but this does not mean oil and gas products won't be used in the future. In

my opinion, it will still be mostly oil and gas conventional products that will be supplied only with a small mix of other sources to meet some carbon footprint goals; but this process will take some time."

Other Options

Businesses can find methods for broadening their portfolios by making investments beyond those technologies that reduce the carbon footprint of the extraction of oil and gas or decarbonize it. This involves investments from venture capitalists, which are now being made by firms like Saudi Aramco and Chevron Technology Ventures. These firms can take part in cutting-edge digital start-ups with an emphasis on micro-grid, electric cars, rechargeable batteries, and a variety of emerging technologies outside the oil and gas industry.

Large IOC investments in renewable energy have served as a main topic of discussion lately regarding how the oil and gas sector might adjust and add to the environmentally conscious transition. However, as renewable technologies develop, it might grow less important for IOCs to make investments in specific renewable technologies and more important to consider their investment strategy.

Furthermore, according to the IEA, the oil and gas sector is not making sufficient progress to reach Transition objectives. 1% of funds are allocated to extraneous operations. In the next decade, it must increase to 15%. As a matter of fact, the IEA has taken it upon themselves to highlight how the sector is well-positioned to make investments in early-stage, heavily capital-intensive renewable energy sources (i.e. hydrogen, biomethane, etc.) because of its current skills. Another field that they ought to concentrate on is carbon capture, which is in need of funding and development. Limiting leakage of methane and flaring, as



well as employing renewable energy for powering recently constructed upstream and LNG facilities, are emissions examples of easy gains and/or achievements.

While certain oil and gas businesses have made attempts to aid in the fight against climate change, the sector as an entirety has the technical ability, financial backing, and managerial know-how to serve a far more substantial role.

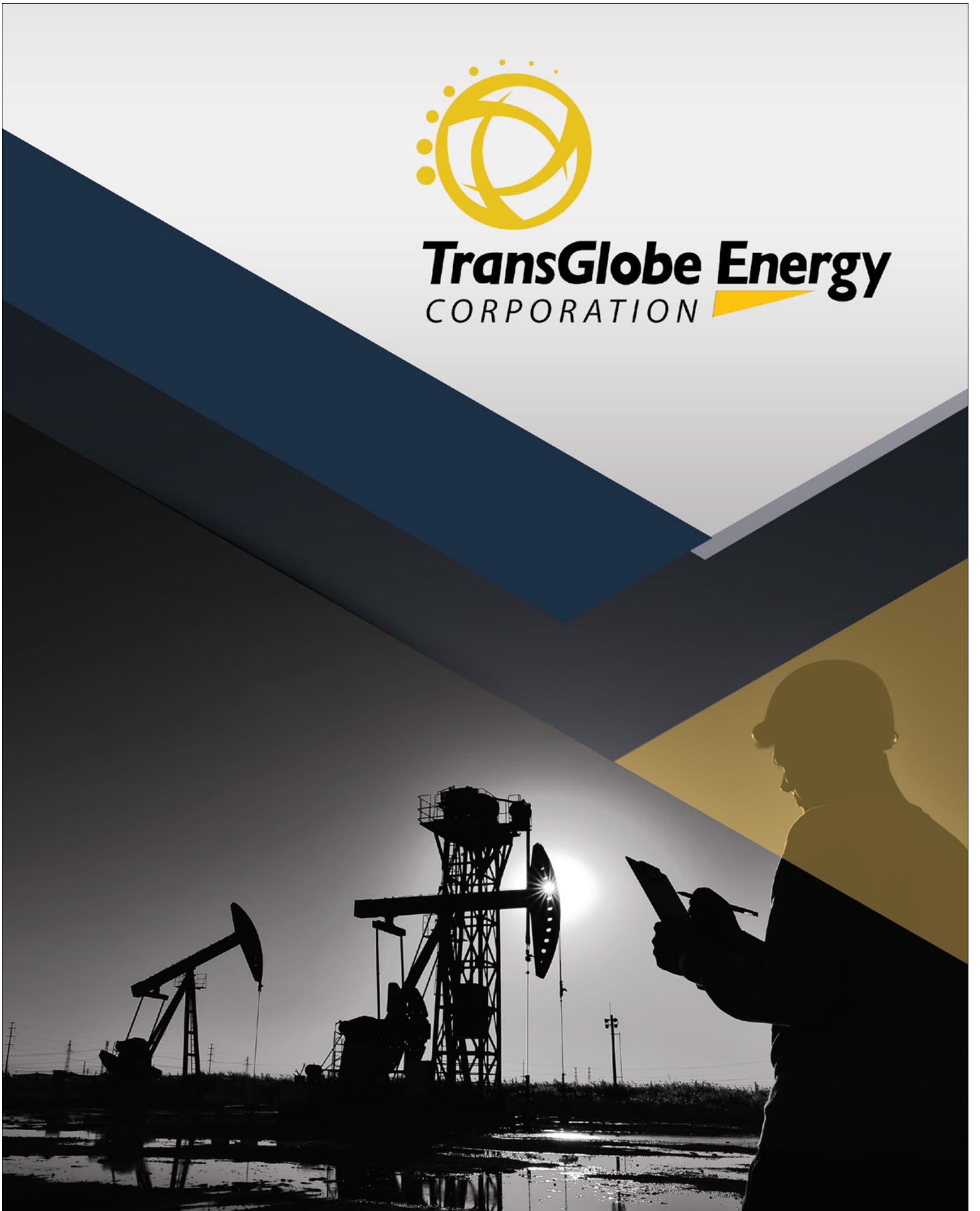
Of course, keeping this in mind, in the foreseeable future's energy mix, low-carbon sources of energy will surely take central stage. However, even in the case of fast shifts to renewable energy, expenditure on oil and gas projects will continue to be required. The production would fall by around 8% annually if investment in already operating oil and gas fields were to fully cease. This outweighs any conceivable decline in global demand, thus spending on current sectors as well as emerging ones is still likely to occur.

Since the risks associated with the energy sectors of oil and gas and electricity may be offset against one another, oil and gas players that penetrate new energy markets often have an edge over their rivals.



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BLOCKCHAIN TECHNOLOGY: AN ENABLER FOR SUSTAINABLE AND EFFICIENT OIL & GAS INDUSTRY

BY FATMA AHMED

Sustainability and efficiency are current goals of oil and gas operators, driven by energy transition initiatives to overcome climate change issues. As a result, technologies are continuously updated to help reach these goals. One promising new technology is blockchain, which plays a crucial role in digitizing oil and gas deals, making them easier, more efficient, and less costly and time-consuming.

Narrow Scope

Blockchain technology is a secure database shared between the users through a network, it always has up-to-date information that is available to all the users at the same time, according to an article published by McKinsey & Company. Blockchain is a type of distributed database or ledger as it can record data and transactions in a permanent, immutable, and transparent way.

Blockchain technology has three main features: First, its database should be cryptographically secure by having two cryptographic keys; a public key which is the address in the database, and a private key which is the key approved by the network. Second, blockchain is a digital log or database of transactions. Third, it can be shared across public or private networks.

Consequently, blockchain provides significant benefits to the users as well as industries. It enhances security, especially for sensitive and important data as information is stored in a network of computers rather than one server, which prevents hackers from accessing the data. It also allows participants from different places who have permitted access to get the same data at the same time; providing full transparency.

Additionally, it enables instant follow-up by creating an audit record that documents the source of an asset at each step, IBM indicated. Moreover, blockchain can increase efficiency and accelerate the transaction in addition to facilitating automation as it is done by using smart contracts.

Blockchain Shapes Efficient and Sustainable Oil & Gas Industry

Blockchain technology has the ability to positively affect the oil and gas industry. According to an article published by Globuc, it can reduce operational time and costs as well as provide

transparency to the industry. Moreover, blockchain can benefit the oil and gas industry in many different aspects. A survey conducted by Accenture demonstrated that 90% of oil and gas executives believe that blockchain will be critical to the sector's success in the next three years. It also reported that 77% of respondents believe that blockchain will reduce transaction costs and increase efficiency in the industry.

An article released by LinkedIn about the global blockchain in the oil and gas market stated that the oil and gas industry relies on paper-based transaction processing, which can be exposed to failures and may lead to operational losses. Thus, blockchain enables the operators to organize their workflow requirements leading to improved efficiency and lower costs as well as time as this technology would digitize these transactions.

Furthermore, this technology can provide transparency and improve trust between the companies and contractors or employees as it safely stores the track record of employee and contractor certifications, Globus reported. In addition, it enables regulatory authorities (i.e. environmental authorities) to audit the commitment with rules.

An article posted on Birlasoft said that blockchain facilitates the efficient collection and recording data of from oilfields and wells; this data is easily accessible to all involved shareholders.

As blockchain records real-time data, it is a very good option for following up with the wells, equipment maintenance and reducing hazards so that it decreases the expected costs resulting from any damage as a preventative technique. Also, blockchain enables waste management by using Performance-based Contracts (PBC), which allows oil companies to code waste management and resource optimization into daily operations.

The most important mission of the blockchain is that it limits the carbon footprint. An article published by



Blockchain can revolutionize the oil and gas industry as it offers efficiency, transparency, and security to the sector's businesses.

LinkedIn discussed how blockchain can improve oil and gas sustainability, while also mentioning that this newly emerged technology can be used in tracking carbon emissions and ensures its coincidence with the carbon price mechanisms. This is done by creating a transparent and secure record of carbon emissions to encourage the companies to decrease carbon emissions during their operations.

Hence, blockchain can revolutionize the oil and gas industry as it offers efficiency, transparency, and security to the sector's businesses. It will help them to provide products and services with high quality and in a sustainable way.

This technology can provide transparency and improve trust between the companies and contractors or employees as it safely stores the track record of employee and contractor certifications.



HELD UNDER THE PATRONAGE OF HIS EXCELLENCY ABDEL FATTAH EL SISI
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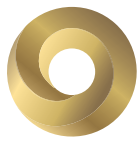


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ENERGY DIVERSIFICATION: ECONOMIC CATALYST OR CONUNDRUM?

BY NADER RAMADAN

Fossil fuels are currently the fundamental backbone that the global economy needs to get its energy and supply high-demand markets, especially with the winter season drawing close. Yet, in the competitive environment that countries have to face, limiting a market's source of energy to one type has become nothing more than economic suicide. As it has become a key rule to accept diversity and inclusion to succeed, the energy sector must follow the same rule in not just its people, but the types of energy it uses. The relationship between energy diversification and economic growth is indeed complex, something which needs to be carefully fine-tuned as policies according to the conditions of each individual country. It has been found, as many experts would agree, that energy diversity is undoubtedly a catalyst for economic growth.

Yet, long-term economic prosperity would come at a cost, especially in less developed economies. The study titled “Does energy diversification cause an economic slowdown? Evidence from a newly constructed energy diversification index” by Giray Gozgor and Sudharshan Reddy Paramati has found that diversifying the energy mix could limit short-term economic growth, but the long-term economic benefits are essential for the continued survival of increasingly competitive global economy, especially given future price fluctuations and other sources of turmoil that might pose a significant threat when depending on only one source of energy. It says that “energy diversification works against economic development only in the short term. Still, once the countries cross a threshold point in their energy transition period, they begin to realize the positive impact of energy diversification on their economic output. However, the transition is tricky in developing, or low-income countries as these countries are trapped with mostly conventional energy sources, which roughly contribute 90% of their total energy.”

Economic growth can also be stimulated through energy diversification by creating a healthier and more conducive environment that will welcome technological advancement and innovation.

Economic growth can also be stimulated through energy diversification by creating a healthier and more conducive environment that will welcome technological advancement and innovation. Studies have shown that energy diversification has created momentum for even more technological development, leading to even more economic growth in the future.

“Energy diversification can be important in several aspects. Firstly, it promotes productivity by increasing the technology level. Energy still plays a significant role in economic activity (Kanzig, 2021). However, technological change has been the dominant factor in driving economic growth since the 1990s (McMillan and Rodrik, 2011). Thanks to technological progress in energy production, various low-income and developing economies have attempted to diversify their energy sources from fossil fuels to renewables, especially since the 1990s (Gallagher, 2006).”

Energy diversification will be a hard pill to swallow for many developing economies, especially those that are mainly dependent on traditional sources of energy including oil, gas, and coal.

The drive to diversify energy sources within the economy can also encourage stakeholders and investors to look into enhancing energy efficiency in all types of production. According to the same study, this will be essential for stimulating economic growth since “... green technologies have played an important role in increasing energy efficiency and reducing carbon emissions. This issue is also in line with the historical developments. Many countries have enjoyed transforming from one energy source to another, e.g., from firewood to coal and coal to fossil fuels (Allen, 2012; Fouquet, 2016; Fouquet and Pearson, 2012; Rubio and Folchi, 2012). Therefore, the historical developments suggest that the transformation from fossil fuels to renewable energy can increase economic performance due to technological improvements.”

Most importantly, having a diverse energy mix gives nations the luxury of shifting gears when it comes to the types. Whenever global oil and gas prices are hopelessly stuck in an irreversible upward trend, a country can easily increase production in renewables to counterbalance. It therefore builds a nation's immunity to inflation and global energy price fluctuations by offering more alternatives based on its specific conditions. This is especially true in the developing world, as highlighted in Gozgor and Paramati's study which stated, “Most developing and developed countries have negligible oil and natural gas reserves and production. These countries have to import energy-based products from the rest of the world to use them in the production process. However, energy prices have been highly volatile, especially since the 2000s (Ross, 2012). Therefore, the costs of energy imports can be changed year by year. This issue makes energy-importer countries fragile to uncertainty shocks related to energy prices, energy supplies, and geopolitical issues. Particularly, the concept of energy mix concentration instead of energy diversification is considered an early warning indicator of vulnerability (Rubio-Varas and Muñoz-Delgado, 2019).”

Energy diversification will be a hard pill to swallow for many developing economies, especially those that are mainly dependent on traditional sources of energy including oil, gas, and coal. Most certainly, economic slowdowns may take place in the future of these economies, but their long-term outlook will be much better. The energy market will be more immune to all types of tumultuous economic conditions and they can build resilience to the increasing competitiveness in the market. A market that is more agile and more capable of adequately responding to potential threats in the future will eventually have more potential significant long-term economic growth in the future.



FROM THE MIDDLE EAST TO WORLD MARKETS: **HOW THE ISRAEL-PALESTINIAN CONFLICT THREATENS ENERGY FLOWS**

BY IHAB SHAARAWY

The Israeli-Palestinian conflict is a complex and tragic conflict with significant humanitarian consequences. Ongoing violence and political turmoil have resulted in staggering loss of life, displacement of people, and widespread suffering. However, while some Western politicians may attempt to downplay the economic impact of this conflict, experts caution that it has the potential to send shocking ripples through the global economy, specifically in the energy markets. The conflict's far-reaching economic implications should not be ignored, as they can exacerbate existing global challenges and further strain the already fragile world economy.

Researchers agree that geopolitical tensions pose a major risk to the global economy. Increased tensions can also have a negative impact on people's perception of economic activities and can lead to increased social unrest and political instability. This can make it difficult for businesses to operate and discourage foreign investments.

At the same time, Hamas was launching its attack on neighboring Israeli settlements, and the International Monetary Fund announced cutting its growth forecasts for China and the Eurozone and said overall global growth remained low and uneven.

In its latest World Economic Outlook, the IMF left its forecast for global real GDP growth in 2023 unchanged at 3.0% but cut its 2024 forecast to 2.9% from its July forecast of 3.0%. The global output grew by 3.5% in 2022. Financial institutions cited the rise of global geopolitical tensions as a direct reason for deteriorating economic growth rates.

The Israel-Palestinian conflict has been a long-standing issue with far-reaching economic consequences. The ongoing struggle between the two parties not only poses a significant humanitarian cost, but also threatens to create a new economic shock to a world already suffering from various challenges.

Officials from the World Bank and IMF, who were gathering at the Moroccan Capital for the annual meeting, said that the conflict

in Gaza may reflect global economic performance in the near future.

Despite attempts by US Treasury Secretary Janet Yellen to downplay the effects of war between Israel and Hamas on the global economy, financial experts predict that the development of the conflict into a full-scale war would result in "a crisis of unimaginable proportion."

President of the World Bank, Ajay Banga, warned that the conflict was "an economic shock we don't need" as it adds to turbulence on financial markets already convulsed by worries about 'higher for longer' interest rates.

One sector that is particularly vulnerable to the consequences of the conflict is the energy sector. Experts have highlighted the potential disruption of the distribution of important oil and gas supplies as a major concern. The Middle East is a significant hub for global energy production, and any escalation of conflict could have severe repercussions on energy markets worldwide.

For several decades, this region has been a major supplier of oil and gas in the global market. Countries such as Iraq, Iran, Saudi Arabia, Qatar, and the United Arab Emirates are key players in energy production and exports. However, the Israel-Palestinian conflict threatens the stability of these countries and their energy supply chains.

The rise of tension in the region brings to mind the memory of the 1973 war with Israel that

triggered what came to be known as the oil crisis when Arab nations retaliated against the perceived support of their enemy, Israel, by embargoing the supply of oil to several countries around the globe. This unprecedented move sent shockwaves through the global economy, and forever altered the dynamics of global energy politics.

Following the recent escalation in Gaza, oil prices rose by 4%, reflecting concerns that the production or transport of oil could be interrupted. This tension also forced Israel to suspend production at the Tamar gas field off its southern coast and seek alternative fuel sources to meet its needs, which could also affect the amount of gas available for export to Europe during winter.

However, in the worst-case scenario, a full-scale war in the Middle East could lead to the destruction of vital energy infrastructure, including pipelines, refineries, and export terminals. Such damage would severely affect global energy supply and lead to a sharp increase in prices worldwide. In turn, this would put an additional burden on economies already grappling with the fallout of the COVID-19 pandemic.

Research by the IMF showed that a 10% increase in oil prices would dampen global output by approximately 0.2% in the following year and boost global inflation by approximately 0.4%.

Even without direct destruction, geopolitical tensions and the threat of conflict can prompt investors and energy companies to reassess their involvement in a region. This uncertainty may lead to decreased investment in exploration and production projects, thereby reducing the future supply. Moreover, countries dependent on Middle Eastern oil and gas imports seek to diversify their sources to mitigate the potential risks associated with the conflict. This diversification could further strain the energy markets and create additional economic challenges.

Moreover, the economic consequences of this conflict extend beyond the energy sector. Ongoing violence and instability in the region hinder economic development and negatively impacts trade, investment, and tourism. The constant threat of conflict discourages businesses from establishing operations or expanding their presence in the area, leading to a decline in job opportunities and economic growth.

This conflict hampers the establishment of stable economic institutions and undermines governance structures. Resources that can be allocated to economic development and social welfare are often redirected towards military expenditure, perpetuating a cycle of economic stagnation and poverty.

This conflict also impedes economic development, discourages investment, and diverts resources away from much-needed economic growth, exacerbating poverty and instability in the region. Finding a peaceful resolution to the conflict is not only crucial for humanitarian reasons, but also paramount in averting further economic shocks to the world.

The Israel-Palestinian conflict has been a long-standing issue with far-reaching economic consequences. The ongoing struggle between the two parties not only poses a significant humanitarian cost, but also threatens to create a new economic shock to a world already suffering from various challenges.





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PETROLEUM LAW: A LEGAL FRAMEWORK FOR JUSTICE IN THE ENERGY SECTOR

Energy resources are of great importance, the most vital of which is oil. Oil plays an essential role in areas such as economic growth, industrial production, and transportation. However, due to the nature of petroleum and its environmental, economic and social impacts, the use and management of this resource requires different legal regulations.

International petroleum law deals with legal issues related to the exploration, discovery, extraction, transportation, distribution and sale of oil and natural gas. This branch of law is shaped by numerous laws, regulations, contracts and agreements at both national and international levels, especially energy law, environmental law, maritime law and commercial law.

International petroleum law often deals with issues such as:

- Issuing licenses and permits for oil and gas exploration and extraction
- Monitoring and managing oil and gas resources
- Financing oil and gas projects
- Oil and gas trading and their prices
- Oil and gas transportation and distribution
- Environmental and health safety standards
- Legal issues related to offshore oil and gas extraction
- Implementation of oil and gas contracts
- Resolving international energy disputes.

Petroleum law, which is formulated through various laws, regulations and agreements at the national and international levels, focuses on important objectives, such as ensuring energy security, protecting environmental sustainability and promoting equitable participation.

The main objectives of petroleum law include:

- Economic efficiency and attracting investments: Petroleum law aims to provide an appropriate legal framework to encourage investment in the oil industry and support economic growth. This framework includes elements, such as conducting oil exploration and oil extraction activities for companies, protecting investors' rights and promoting competition.
- Environmental protection and sustainability: The oil industry is an important sector that can cause environmental impacts. Petroleum law aims to set environmental protection standards and provide the necessary regulations to reduce the environmental impacts of petroleum activities. This can include various measures such as oil spill containment measures, marine pollution prevention measures, and incentives for renewable energy sources.
- Fair and equitable sharing: Petroleum law aims to ensure that oil resources are shared in a fair and equitable manner. This covers issues including the management of publicly owned oil reserves, tax policies, income distribution, and the benefit of local communities. It is also important to ensure fair and transparent competition between parties involved in the oil industry.

International petroleum law was developed to manage complex relationships between countries, oil companies, financial institutions and other parties. The purpose of international petroleum law is to ensure the fair, efficient and sustainable use of oil and gas resources. This contributes to achieving broad goals, such as ensuring energy security, protecting

the environment and promoting economic development.

Many countries have established national petroleum laws or petroleum law legislation to regulate the petroleum industry. These laws regulate the ownership of oil reserves, licenses and permits, environmental protection, taxation, competition policy, employee safety and compensation.

At the international level, there are some important agreements and organizations that have an impact on the oil industry. The most important of these is OPEC (Organization of Petroleum Exporting Countries). OPEC is an organization that provides cooperation between member countries in order to regulate oil prices and production amounts. Other international agreements include "Petroleum Sharing Contracts (PSC)" and "Production Sharing Agreements (PSA)" that regulate oil exploration and extraction activities.

Petroleum is a resource that covers a number of important issues in relation to international law, and the following cover some of these topics:

***Cross-Border Oil Transportation:**

Oil is usually transported across borders between different countries. Therefore, there are many international agreements and regulations related to the transportation of oil. These may include agreements such as the International Maritime Convention (MARPOL) established by the International Maritime Organization (IMO) for maritime transport.

***Oil Pollution and Environmental Impacts:**

Events such as oil spills and marine accidents can have serious environmental impacts on marine and terrestrial ecosystems. There are several international legal regulations relating to such events. For example, the 1992 International Convention against the Hazards of Oil Pollution (OPRC) and the 1990 International Convention for the Prevention and Control of Marine Pollution (MARPOL) play an important role in combating oil pollution.

***Oil Resources and Border Disputes**

Areas where oil is discovered often cause conflicts between countries. These disputes are usually related to the definition of maritime boundaries and are often attempted to be resolved through mechanisms such as international arbitration or the International Court of Justice.

***Oil Trading and Contracts**

Oil is an important component of international trade. International standards and agreements used in oil trade, such as the International Commercial Terms (INCOTERMS) and the International Petroleum Agreements (IPAs) issued by the International Chamber of Commerce (ICC), aim to facilitate contracting and trade between parties.

***Energy and Oil Security**

Oil is the main source of energy needs for many countries and forms an important part



of their energy security strategies. Security risks in oil supplies and other national security issues may require cooperation and agreements between countries.

The above issues are some of the basic elements of oil that are dealt with under international law. This list is not exhaustive and more legal issues relating to other oil fields can also be found.

Since oil is part of the energy sector, many countries have laws regulating the energy sector. These laws aim to oversee energy policies, energy production and distribution, energy markets and prices, and the activities of energy companies.

The petroleum industry is closely linked to environmental legislation due to its environmental impact. Environmental regulations establish environmental standards in order to prevent and control pollution that may arise during oil extraction operations and refineries. The potential impacts of oil and gas production on the environment are controlled by various environmental regulations.

Many countries have introduced specific licensing and authorization requirements for activities such as oil extraction and sale. This legislation ensures that companies obtain permission and comply with appropriate regulations to extract or sell oil in a particular area.

ENG. MOHAMED ABDELRAOUF

Production Gen Mgr In Khalda Petroleum Company

International petroleum law deals with legal issues related to the exploration, discovery, extraction, transportation, distribution and sale of oil and natural gas.

FLARED GAS RECOVERY: A VITAL OPPORTUNITY FOR EGYPT

Global Gas Flaring Tracker, a leading global and independent indicator of gas flaring, states that absolute flare volumes have seriously increased during the last decade, regardless of global warnings of the flaring risks and global warming.

During 2021, 144 billion cubic meters of gas were needlessly burnt in flares at upstream oil and gas facilities across the world, producing approximately 400 million tons of carbon dioxide (CO₂) equivalent emissions.

Flammable waste gases, whether generated by process up-sets or normal operation, go to a flare system. Recovering these gases, which can be used for fuel or other purposes, can significantly reduce emissions and fuel gas costs.

Egypt is in the 11th place of the top gas-flaring countries.

Therefore, capturing the 2 billion cubic meters of flared gas could cover 5% of Egypt's energy needs and add \$300 million to Egypt's economy.

Moreover, Egypt and the European Bank for Reconstruction and Development are part of the World Bank initiative 'Zero Routine Flaring 2030'.

During flaring, not all of the associated gas is burnt, but also some amounts of methane are released into the environment, which is considered a loss of energy as well.

Accordingly, efforts to reduce gasflaring would result in a reduction in methane emissions and help recover a valuable energy resource.

Without an effective strategy to manage and utilize the gas, these recovered emissions will unfortunately be directed to flare and this important energy source will be wasted.

It is crucial to take serious actions to end routine flaring at oil production sites, both to reduce greenhouse gas emissions and to conserve the gas for productive purposes — A simple example of that could be generating electricity in poor communities that rely on fuels that are less environmentally responsible for their energy needs. For Egypt, it would cover 5% of the country's energy needs.

However, reducing gas flaring requires significant investments; a lack of funds is not the only obstacle for Egyptian environmentalists and energy actors.

Unfortunately, it is far more complex. Barriers that hamper flare gas reduction efforts in the country are strongly tied to geographical, technological, structural, economic, and regulatory factors.

In conclusion, as 60% of electric power is produced from natural gas, capturing flared gas could cover 5% of Egypt's energy needs and add \$300 million to the national economy. Finding an optimum practical solution that would be applicable and beneficial for the country in terms of environmental concerns, economic prospects, and social development should be one of the country's priorities as a vital opportunity.

Mohamed Kamal Gaber

Process Section Head Petrojet

LNG: THE DYNAMIC ENERGY SOURCE

Liquefied natural gas (LNG) is becoming increasingly important globally, as it is a less polluting natural gas and an energy source that can fuel economic growth in many parts of the world today, and for decades into the future.

As the need for additional imported supplies increases to all countries of the world, the market flexibility of liquefied natural gas helps, making it one of the fastest growing energy markets in the world, with demand expected to more than double over the next twenty years.

The list of the world's largest liquefied gas exporters is preparing to rearrange the top three positions between Qatar, Australia and the United States, with the latter's exports increasing significantly since the beginning of 2023.

The recent reports showed that the United States topped the list of the largest exporters of liquefied gas globally during the first half of this year (2023). Average US exports of liquefied natural gas reached approximately 11.6 billion cubic feet per day during the half period ending at the end of June 2023, an increase of 4%, or the equivalent of 0.5 billion cubic feet per day, over the same period in 2022.

With this growth, the United States occupied first place among the largest exporters of liquefied gas in the world, followed by Australia in second place, with average exports of 10.6 billion cubic feet per day. Qatar came in third place, with average liquefied gas exports reaching 10.4 billion cubic feet per day, according to the report issued by the US Energy Information Administration on Tuesday, September 12, 2023.

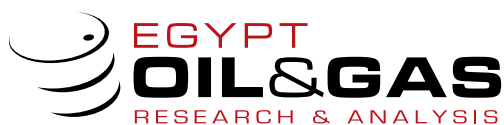
Qatar topped the list of the world's largest liquefied gas exporters in 2022, after exporting 10.5 billion cubic feet per day; while Australia's exports - in second place - averaged 10.4 billion cubic feet per day, followed by the United States with an average of 10.2 billion cubic feet per day, according to a previous report issued by the US Energy Information Administration.

Europe succeeded in getting through the last winter season (2022-2023) by boosting its stocks to the highest level ever, while continuing imports to quickly refill reservoirs in the spring and summer factions. Europe and the United Kingdom's LNG imports exceeded the volume of pipeline imports for the first time in their history.

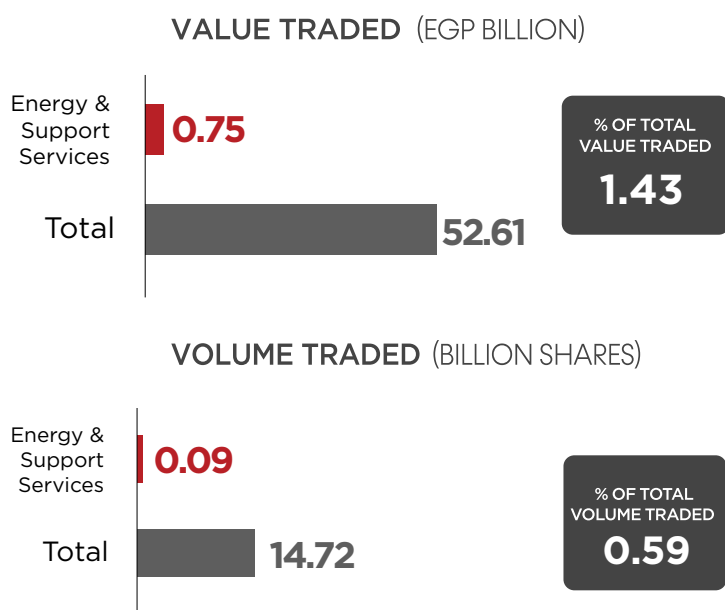
Egypt did not turn a blind eye to the liquefied natural gas trading market and had an impressive vision for the future in this regard. The Egyptian state set in mind an ambitious plan to transform into a regional center for natural gas trade and to contribute to securing the energy needs of global markets, especially with the growing demand in European markets for liquefied natural gas, with its strong infrastructure represented by networks, liquefaction plants and ports that qualify it to play this important role; in addition to launching a national strategy based on attracting foreign investments in the field of research, exploration and prospecting.

Mohamed Atia

Process Engineer at Egyptian Refining Company (ERC)



01 VALUE AND VOLUME OF SHARES TRADED FOR ENERGY & SUPPORT SERVICES SECTOR IN SEPTEMBER 2023



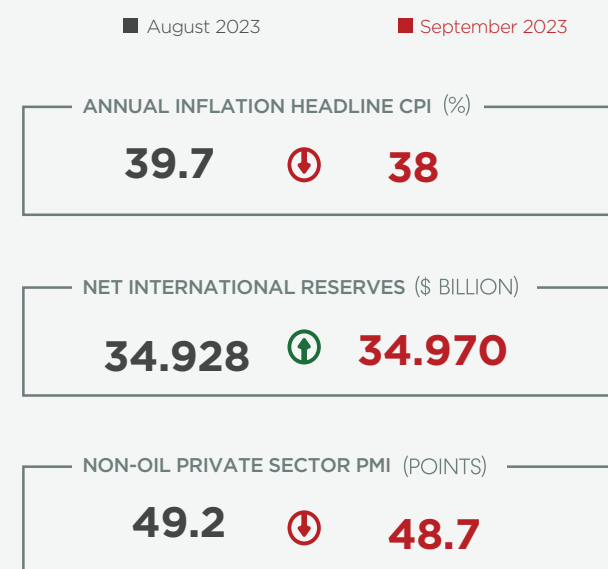
02 PERFORMANCE OF PETROLEUM COMPANIES IN THE EGYPTIAN EXCHANGE IN SEPTEMBER 2023*

Taqa Arabia	
EGP 10.59 Close Price	2,018% YTD Price Change
National Drilling	
USD 4.69 Close Price	0% YTD Price Change
Alexandria Mineral Oils Company	
EGP 9.31 Close Price	47.31% YTD Price Change
Egypt Gas	
EGP 30.75 Close Price	17.34% YTD Price Change
Sidi Kerir Petrochemicals	
EGP 28.01 Close Price	113.49% YTD Price Change

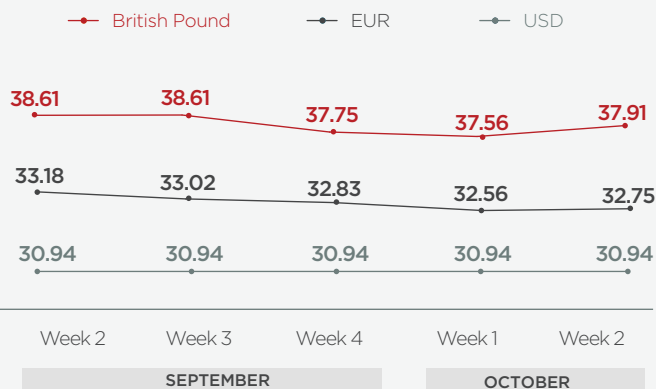
*Until September 26

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

03 MAIN ECONOMIC INDICATORS



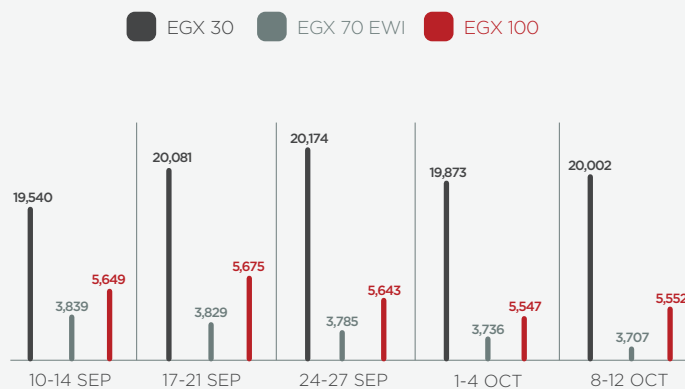
04 EXCHANGE RATES*



*Sell Prices

September 28 & October 5 were public holidays

05 CAPITAL MARKET INDICATORS

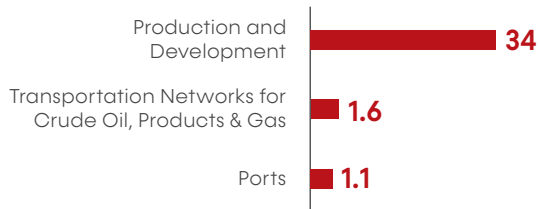


September 28 & October 5 were public holidays

01 INVESTMENTS PUMPED INTO THE PETROLEUM SECTOR OVER 9 YEARS*

Investments **\$61.3 billion**

THE IMPLEMENTED INVESTMENTS PER ACTIVITY (\$ BILLION)



* From July 2014 to July 2023

02 EXPECTED EGYPT'S LNG EXPORTS OVER 2023



03 SIGNING A MOU TO ENRICH EGYPT'S PETROCHEMICALS INDUSTRY

Partners

UGDC & TCI Sanmar

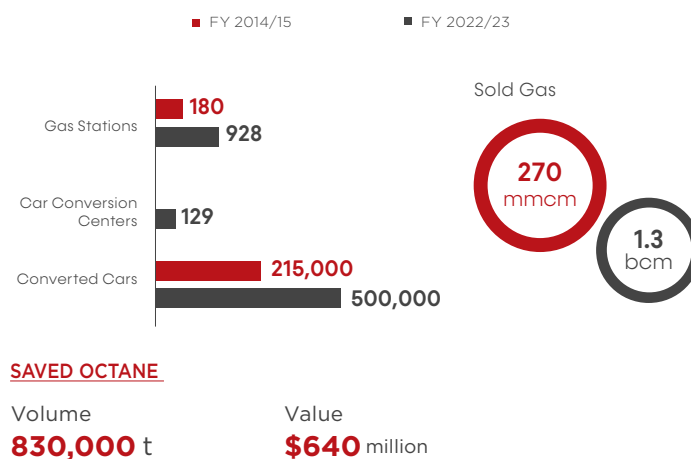
Investment

\$150 million

Objective

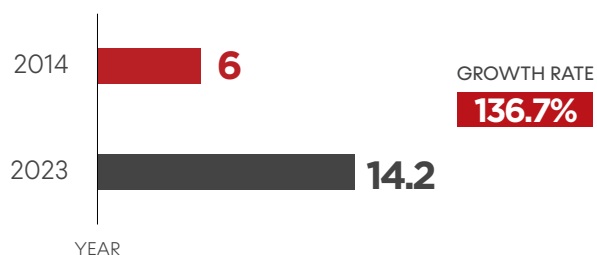
Using the UGDC's world-class facilities in the port of Damietta to facilitate the safe import of raw materials needed for TCI Sanmar Chemicals

04 NUMBER OF GAS STATIONS INCREASED FIVEFOLD OVER 9 YEARS



05 BOOM IN NATURAL GAS CONNECTION NATIONAL PROJECT SINCE 2014

INCREASE IN NUMBER OF CONNECTED RESIDENTIAL UNITS (MILLION)



PROJECT'S ACHIEVEMENTS UNTIL OCTOBER 2023

Beneficiary Citizens	62 million
Saved Butane Cylinders	256 million/y
Haya Katima Initiative	
Connected Areas	500
Villages	814

06 INTERNATIONAL OIL PRICES



BRENT PRICES (\$/BBL)



OPEC BASKET PRICES (\$/BBL)



NATURAL GAS PRICES (\$/MMBTU)

16 August	83.45	86.96	2.592
30 August	85.86	87.76	2.796
8 September	90.65	92.84	2.605
29 September	95.31	96.35	2.929
2 October	90.71	95.02	2.84
11 October	85.82	89.89	3.377



SINOPEC



**Cleaner Energy
Better Life**

