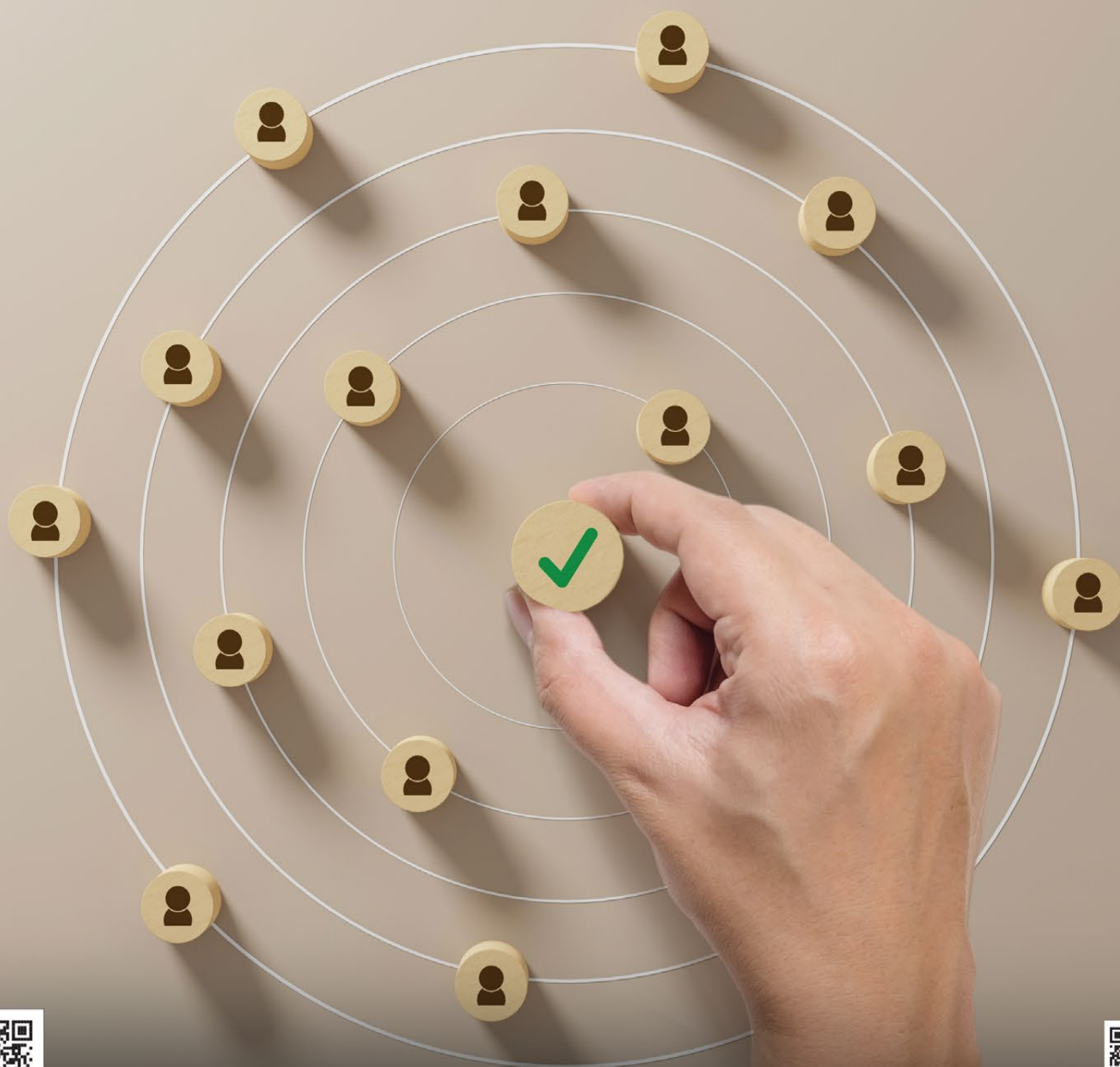


# HUMAN CAPITAL DEVELOPMENT **LEADS OIL, GAS SECTOR** TO ASTONISHING MILESTONES



# EDITOR'S LETTER

## Dear Reader,

May Day is an occasion that is usually marked by rallies and protests around the world. However, in the Egyptian oil and gas sector it's a joy-filled festivity where workers celebrate their achievements, gains, and acquisitions under a leadership that values their efforts and is keen to fully equip them with all the skills and abilities needed to advance the sector.

The Ministry of Oil and Mineral Resources has adopted a comprehensive approach to developing the capabilities of its human resources. Whether through its Middle Management Program or the Young Professionals Program, the Ministry has trained human cadres to lead a promising oil and gas future.

In our issue, we are going to share this joy with the industry's workers, celebrating with them and casting light on their efforts and roles in advancing this essential industry.

Our Overview section highlights the ministry's strategies to develop human cadres of the sector in cooperation with international oil companies and other institutes/universities.

We also cast light on the economic rewards that can be achieved by equipping human cadres and their role in achieving sustainability and development goals.

Our Politics section offers an in-depth analysis of the situation in Iraq, on the occasion of the 20th anniversary of the US invasion and the subsequent fall of Saddam Hussein.

Our Research and Analysis team offers a review of the expansion of natural gas facilities and grids in Egypt over the last four years.

Enjoy reading our issue and have a great May Day!

## IHAB SHAARAWY

Managing Editor

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Speaks for Itself



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## TOP 5

## EL SISI DISCUSSES ENERGY COOPERATION WITH CYPRIOT PRESIDENT

Egyptian President Abdel Fattah El Sisi met with his new Cypriot counterpart Nikos Christodoulides at the Al-Ittihadiya Palace, according to the Egyptian Presidency's spokesman.

The two leaders commended the ongoing development of Egyptian-Cypriot relations and the steady progress that has been made in cooperation at all levels, particularly in natural gas and electrical connectivity.

During the meeting, Christodoulides underlined the significance of choosing Cairo for his first foreign visit to the region since his election last February, reflecting the keenness to maintain the strategic nature of relations between the two countries at the official and grass-roots levels. In this regard, both leaders agreed on launching a joint business council between both sides.

## PM, EL MOLLA, FINANCE MINISTER DISCUSS RESOLVING MONETARY ENTANGLEMENTS

Prime Minister Mostafa Madbouly held a meeting to discuss resolving financial entanglements between the Ministries of Petroleum and Mineral Resources, Electricity and Renewable Energy, and Finance.

The meeting was held in the presence of Mohamed Shaker, Minister of Electricity and Renewable Energy; Tarek El Molla, Minister of Petroleum and Mineral Resources; Mohamed Maait, Minister of Finance; Ahmed Kajouk, Deputy Minister of Finance for Financial Policies; and several officials from the three ministries.

The Prime Minister started the meeting by stressing that the steps taken to resolve

financial entanglements come as part of an effort to remove old irregularities that have hindered the Egyptian economy for decades.

Madbouly asserted that this is a complex issue that needs to be resolved effectively in accordance with the requests of President Abdel Fattah El-Sisi.

The meeting reviewed steps being taken to end financial entanglements between the ministries within the framework of laying the foundations acceptable for debt settlement between the concerned parties.

## OIL PRICES SURGE AS OPEC+ SURPRISES MARKETS WITH PRODUCTION CUTS

After the Organization of the Petroleum Exporting Countries and their allies including Russia (OPEC+) shocked the markets by announcing further production cuts of about 1.16 million barrels per day, oil prices increased, making the highest daily rise in nearly a year.

Brent crude was trading at \$84.22 a barrel by 0900 GMT, up \$4.33, or 5.4%,

after touching the highest in a month at \$86.44 earlier in the session.

U.S. West Texas Intermediate crude was at \$79.84 a barrel, up \$4.17, or 5.5%, after earlier hitting the highest level since late January.

OPEC+, had been expected to maintain its earlier decision to cut output by 2 million barrels per day until December at its monthly meeting.

## CHEIRON BRINGS GNN EARLY PRODUCTION FACILITY ON STREAM

Cheiron Energy, the largest independent Egyptian oil and gas exploration and production (E&P) company, announced that the early production facility (EPF) for the GNN oil field in the Gulf of Suez has been brought onstream.

The GNN field is located in the Geisum and Tawila West Concession in which Cheiron, through its PICO GOS affiliate, holds a 60% working interest and operatorship with Kufpec holding the remaining 40% interest.

The EPF has been installed in the central area of the field and includes a conductor

support platform, a mobile offshore production unit, and a 10-inch oil export pipeline, tied back to the existing Geisum Star production complex.

The first well to come on stream across the EPF was GNN-6, which is currently producing circa 4,200 barrels per day (bbl/d) of oil. This well will be followed by the completion of two additional predrilled wells, GNN-3 and GNN-8, over the next few weeks and subsequently, up to four additional wells will be drilled from the facilities.

## EGYPT, UK HOLD TALKS ON OIL, GAS ACTIVITIES, INVESTMENTS

Minister of Petroleum and Mineral Resources Tarek El Molla met with the UK's Ambassador in Egypt Gareth Bayley to discuss British business activities in the Egyptian oil and gas sector as well as the East Mediterranean Gas Forum's (EMGF) efforts to enhance regional cooperation.

The meeting reviewed opportunities for British companies to invest in Egypt's oil and gas industry.

El Molla highlighted the importance of continuing cooperation and integration between all parties in the industry, including countries or companies

operating in the region under the umbrella of the Eastern Mediterranean Gas Forum. This is with the aim of achieving more gas discoveries.

The minister stated that major companies operating in the region have opportunities to achieve great success in light of this cooperation and the exploitation of the capabilities available to all parties. This will support the realization and development of discoveries.

## A BLAST FROM THE PAST

In May 1994 and under the logo of "Energy and Arab Cooperation", Egypt was the president of the fifth Arab Energy Conference (AEC).

At the 5<sup>th</sup> AEC, which was convened in Cairo, the Arab Organization for Mineral Resources merged with the Arab Industrial Development Organization to form the Arab Industrial Development and Mining Organization (AIDMO) which became a sponsor of the AEC jointly with the Organization of Arab Petroleum Exporting Countries (OAPEC), the Arab Fund for Economic and Social Development (AFESD), and the League of Arab States.

In May 1977, the idea of the Arab Energy Conference was initiated by the Ministerial Council of OAPEC. Consultations between OAPEC and the AFESD led to an agreement that the two organizations jointly sponsor the conference, thereby ensuring the representation of all Arab countries and underscoring the interrelationship between energy and development.

It is worth mentioning that the first AEC was held in March 1979 in Abu-Dhabi, UAE, under the theme, "The Arab and Energy Issues". Between 1-4 October 2018, the last conference (the 11<sup>th</sup> AEC) was hosted by Morocco under the high patronage of King Mohammed VI under the theme "Energy and Arab Cooperation" in Marrakech.

In May 2022, OAPEC held a ministerial meeting to discuss preparations for the 12<sup>th</sup> edition of the Arab Energy Conference, which will be held in Qatar during Q4 2023.

\$574.6 million



## Petroleum Products Trade Balance Surplus in Q1 2022/23

In light of Egypt's efforts to maintain its position in the global market, it is always keen to increase its exports especially from the oil and gas market. Trade balance of petroleum products, which includes natural gas, bunker and jet fuel, achieved a surplus in the first quarter (Q1) of fiscal year (FY) 2022/23.

This surplus resulted from increasing in exports to reach \$3,137 million while imports were recorded at \$2,563 million. It is worth mentioning that the petroleum products exports jumped by 67% compared to the same period in FY 2021/22, according to Central Bank of Egypt (CBE).

NUMBER OF THE MONTH



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## COOPERATION

**EGYPT, GERMANY DISCUSS HORIZONS FOR COOPERATION IN ENERGY ROUNDTABLE**

A roundtable was held with the participation of Egyptian and German ministers and companies, during which opportunities and priorities for bilateral cooperation in energy and hydrogen were discussed, the Ministry of Petroleum and Mineral Resources announced in a statement.

Representatives from German companies expressed their desire to cooperate, invest, and take advantage of the unique opportunities in Egypt, especially since the country is experiencing remarkable development in energy projects.

The roundtable further reviewed the German side's desire to cooperate with Egypt in the field of liquefied natural gas (LNG),



which is the most important option for the energy transition phase to provide energy in an environmentally responsible manner, through the Egyptian role as a regional gas trading, circulation and transportation hub to Europe.

**EGYPT, VNG GROUP MULL COOPERATION IN ENERGY SECTOR**

Minister of Petroleum and Mineral Resources Tarek El Molla met with Hans-Joachim Polk, a member of the Board of Directors of the German VNG Group operating in the natural gas sector, infrastructure and green energies such as hydrogen, the ministry said in a statement.

The meeting discussed the possibility of cooperation between the petroleum sector and the German group, which expressed its aspiration to cooperate with Egypt in the fields of natural and liquefied gas and the infrastructure of the gas sector through the Egyptian Natural Gas Holding Company (EGAS).

Moreover, the two sides reviewed cooperation in the fields of hydrogen production, highlighting that Egypt's great experiences and capabilities in the gas sector motivate the company to cooperate with it, and that Egypt is one of the most important suppliers of liquefied natural gas in the region, and the company wants to open horizons for cooperation in this regard.

The meeting further tackled the possibility of exchanging experiences and opportunities to implement programs for training cadres and building human capacities with the German group in the field of green hydrogen and ammonia.

**EGYPT, GERMANY DISCUSS WAYS TO ENHANCE ENERGY COOPERATION**

Minister of Petroleum and Mineral Resources Tarek El Molla held an extensive discussion with Stefan Wenzel, German Deputy Minister of Economic Affairs and Climate Action for Parliamentary Affairs, the Egyptian ministry said in a statement.

Wenzel is currently visiting Cairo at the head of a large delegation of German companies for green energies, technology and infrastructure to discuss steps to activate cooperation with Egypt in the fields of liquefied natural gas (LNG), hydrogen and green energies in light of the memorandum of understanding (MoU) signed between the two sides last November.

The meeting was held in the presence of the German Ambassador to Egypt Frank Hartmann as well as a number of oil sector leaders and representatives of German



companies in the delegation accompanying the German deputy minister.

At the beginning of the meeting, El Molla highlighted the importance of this visit, which reflects the strength of relations between the two countries and the extent of the German side's interest in developing partnership and economic relations with Egypt to include natural gas, green and sustainable energies.

**METHANEX EGYPT, SMD SIGN METHANOL PIPELINE CONSTRUCTION, MAINTENANCE AGREEMENT**

Methanex Egypt and the Suez Methanol Derivatives (SMD) Company signed an infrastructure development agreement for the supply of methanol from Methanex Egypt's plant to the neighboring SMD project in Damietta.

The agreement was signed by Methanex Egypt's Managing Director Mohamed Shindy and SMD CEO & Chairman Hesham Selim in the presence of EChem Chairman Ibrahim Mekky.

This agreement comes in light of the memorandum of understanding (MoU)

signed by both parties in 2018 to investigate potential support for providing utilities and methanol to the SMD plant. A \$120 million methanol and formaldehyde derivatives plant in Damietta, SMD is designed to produce 140 KTA of main products including Urea Formaldehyde Concentrate 85% (UFC-85), Urea Formaldehyde Resins, Sulphonated Naphthalene Formaldehyde (SNF), in addition to the capability of producing up to 42 KTA of special UF resins for various end-use applications.

## ACHIEVEMENTS

**EL MOLLA PRAISES ENPPI'S PERFORMANCE IN 2022**

Minister of Petroleum and Mineral Resources Tarek El Molla lauded the importance of the steps taken by Enppi to diversify its activities and increase the volume of its business outside Egypt, which amounted to 38%.

This came during the General Assembly of Enppi for the fiscal year 2022 to approve the business results, at the company's headquarters.

El Molla explained that the expansion of the companies designing and implementing petroleum projects in foreign projects comes within the framework of contributing to the development of economic returns as well as enhancing the distinguished global image of Egyptian companies in the regional and international markets and contributing to the acquisition of Egyptian cadres of global expertise and skills.

During the meeting, Enppi's Chairman Mohamed Abdel Aziz reviewed the most important performance indicators during 2022, as the total revenues amounted to EGP 17.3 billion, an increase from EGP 11.3 billion in 2021.

**EL MOLLA LAUDS THE 2022 ACHIEVEMENTS OF THE PETROLEUM MARINE SERVICES COMPANY**

Minister of Petroleum and Mineral Resources Tarek El Molla praised the results of the Petroleum Marine Services' (PMS) work in the field of offshore petroleum construction and its significant role in implementing the goals of the ministry.

This statement came during a video conference that was held for the company's general assembly to discuss the business results for the year 2022, the Ministry of Petroleum and Mineral Resources aid in an announcement.

El Molla urged to hasten the completion of projects that aim to accelerate production and the expansion of partnerships with petroleum entities in the local and regional market.

Amr Badawy, PMS Chairman, discussed the company's business performance, pointing out that PMS had signed 91 contracts worth \$339 million.

**EL MOLLA REVIEWS THE 2022 BUSINESS PERFORMANCE OF CARGAS**

Minister of Petroleum and Mineral Resources Tarek El Molla affirmed the ministry's commitment to continue expanding the use of natural gas as an alternative fuel for cars.

El Molla highlighted that cars have been converted to operate on natural gas at remarkable rates. He added that there have been major achievements in building stations and conversion centers nationwide since the launch of the presidential initiative.

The minister's words came during the General Assembly of Cargas to approve the business results for the year 2022. The meeting was held at the headquarters of the Egyptian Natural Gas Holding Company (EGAS).

During the meeting, Cargas Chairman Hassanein Mohamed Hassanein provided a detailed review of the company's business performance in the year 2022.



## REVENUES

## EMC ACHIEVES EGP 7.2B IN REVENUES IN 2022

Minister of Petroleum and Mineral Resources Tarek El Molla highlighted the continuation of the ministry's strategy in supporting petroleum entities and achieving the optimal utilization of all its expertise.

This came during the General Assembly to approve the results of the work of the Egyptian Maintenance Company (EMC) for the year 2022.

El Molla stated that the successive launch of Egyptian maintenance, consulting, contracting, and petroleum services companies to work on petroleum projects abroad achieves added value for these companies.

EMC's Chairman Ashraf Bahaa explained that the company has been able, over the



course of 25 years, to fulfill its obligations towards its customers, overcoming many challenges and difficulties. He added that EMC remains to be the best choice for integrated maintenance services, which contributed to its presence among the top 250 contracting companies in the world.

## TOWN GAS ACHIEVES REVENUES WORTH EGP 3.2B IN 2022

Town Gas announced that it has achieved revenues of EGP 3.2 billion in addition to a net profit worth more than EGP 72 million in 2022.

The announcement was made during the general assembly meeting of the company to approve its operational results for the year 2022.

During his presentation, Chairman of Town Gas Mohamed Fathy highlighted that natural gas deliveries have increased to 200,000 residential customers, 1,351 commercial customers, 51 bakeries in addition to 21 industrial customers in Cairo, Alexandria, and Port Said.

Also, Town Gas has connected natural gas to 167 gas Stations as part of the state's



initiative to increase the usage of natural gas as fuel. Moreover, the company contributed to the Haya Karima ("Decent Life") initiative, connecting natural gas to 22 villages as well as delivering it to 16,000 housing units in the social housing project.

## PETROJET'S REVENUES HIT EGP 40B IN 2022

Minister of Petroleum and Mineral Resources Tarek El Molla confirmed that the optimization of human cadres as well as assets and equipment have been critical factors in the continued success of petroleum projects implemented by the sector's companies, especially Petrojet.

Petrojet's role in executing petroleum projects has grown both locally and regionally, now including projects in major Arab oil-producing states such as Saudi Arabia and the UAE, according to the minister's statement.

This came during the General Assembly of the Petroleum Projects and Technical Consultations Company (Petrojet) at the company's headquarters to approve the business results for the year 2022. The meeting took place in the presence of petroleum sector leaders, members of the



Board of Directors, and representatives of the Central Auditing Organization.

El Molla praised the company's accomplishments in human development, inclusiveness, and equality as well as in promoting the role of women in a sector. This comes as female engineers and workers in the Petrojet work system have proven their competence.

## MODERN GAS ACHIEVES REVENUES OF EGP 2.45B IN 2022

Chairman of Modern Gas Mohamed Qandil stated that the company has achieved revenues of EGP 2.45 billion in 2022 which increased by 9.6% compared to the previous year.

He added that Modern Gas is connecting natural gas in nine governorates noting that it has delivered natural gas to 176,000 customers in 2022.

This came during the general assembly meeting of the company chaired by Minister of Petroleum and Mineral Resources Tarek El Molla via video conference to approve its annual results for the year 2022.

Qandil said also that Modern Gas has installed 185,000 prepaid meters and contracted with 196,000 home customers and 187,000 commercial customers, in addition to 11,000 industrial customers.

## DEVELOPMENT

## EUG ORGANIZES TECHNICAL WELL DEVELOPMENT WORKSHOP

The Egypt Upstream Gateway (EUG) team organized a specialized technical workshop on developing the wells of aging oil fields and the best methods to optimize their exploitation.

According to the Ministry of Petroleum and Mineral Resources, the workshop also shed light on the first global bid that was recently launched for the development of these aging fields in eight regions of the Gulf of Suez and the Eastern Desert.

Leaders and experts from the oil and gas sector and international companies were active participants in the workshop. The attendees included Samir Raslan, Undersecretary of the Ministry of Petroleum for Agreements and Exploration, Mohamed Radwan, EUG Director, Anastasia Poly, Director of Exploration at SLB, and experts from international companies specialized in developing these fields.

## SENATE ENERGY, ENVIRONMENT COMMITTEE DISCUSSES GREEN HYDROGEN DEVELOPMENTS WITH SCZONE LEADERSHIP

The Senate Energy and Environment Committee held a meeting to discuss business developments and negotiations that the Suez Canal Economic Zone (SCZONE) is carrying out with international alliances and companies in the green fuel projects sector, the Cabinet announced.

The meeting discussed the future vision of the green hydrogen industry in the economic zone, especially after the success it achieved in COP27.

During COP27, SCZONE signed nine framework agreements with major international companies to localize the green fuel industry within the zone, in addition to opening the first green hydrogen plant within the Sukhna Industrial Zone of the Authority.

The meeting was chaired by Representative Abdel-Khaleq Ayad in the presence of Representative Noha Zaki, Secretary of the Committee. It also included members of the Energy Committee of the Senate, with the participation of Waleid Gamal Eldien, SCZONE Chairman, based on the proposal submitted by Representative Mahmoud Abu Sedira.

## IQAT GOLD MINE STARTS COMMERCIAL PRODUCTION TRIALS

Minister of Petroleum and Mineral Resources Tarek El Molla announced the commencement of trials of commercial production of gold from the Iqat site in southern Egypt.

The Iqat site comes as a culmination of the ambitious plan that was drawn up to start production early in light of the advantages that the site enjoys. Its reserves are estimated at about 1.2 million ounces of gold, and the extraction rate is 95%, and it is considered one of the highest extraction rates.

During an inspection of the stages of work and production at the Iqat site, El Molla explained that the site is a pure Egyptian investment in the field of gold exploration and exploitation through the Egyptian Shalateen Company, which is witnessing a successful partnership and fruitful cooperation with the Egyptian private sector.

El Molla stated that Iqat Gold Mining Company was formed between Shalatin, the Egyptian Mineral Resources Authority (EMRA), and the Wealth and Resources Mining Company, who are in charge of work in the detection area, then, work began to establish highly efficient facilities and infrastructure and to operate it through a group of Egyptian youth with skills and experience within a system that includes with them some specialized international experts.

## CHEVRON



### CHEVRON'S ANCHOR PLATFORM TO GIVE MUCH-NEEDED PRODUCTION BOOST

Chevron announced that the Anchor semi-submersible oil platform, part of the company's U.S. Gulf of Mexico offshore project, is near completion.

The could company highlighted that this is regardless of the fact that the project's teams worked through the pandemic, following health

and safety protocols, during a time when much of the world was under lockdown. Then came pandemic-induced supply chain challenges and a skilled worker shortage.

"I have been on the project for several years and enjoyed coming in early and seeing it through to engineering and fabrication," said Chris Braun,

Anchor's floating production unit delivery manager.

Anchor will help Chevron increase oil and gas production to meet growing demand for lower-carbon energy.

## ARAMCO

### SAUDI ARABIA MAINTAINS CRUDE SUPPLY TO ASIAN REFINERS DESPITE OPEC+ CUTS



Despite OPEC+'s surprising announcement last week about production cuts of 1.16 million barrels per day from May for the rest of the year, Saudi Aramco will maintain the same crude volumes supply to several North Asian buyers, Reuters reported.

People and investors, who were watching Aramco's monthly allocation, are wondering

whether the additional voluntary cut will actually affect supply, or whether it is designed just to shore the price up.

The OPEC+ announcement caused Brent and U.S. West Texas Intermediate crude futures to jump 6% last week, returning to levels last seen in November.

Last week, Saudi Aramco also surprised the market by raising prices for the flagship Arab Light crude it sells to Asia for a third month in May. It also increased the prices of other oil grades to Asian clients amid expectations of tighter market supply.

## GAZPROM

### GAZPROM ESTABLISHES MIDDLE EAST UNIT



Gazprom, the Russian majority state-owned multinational energy corporation, is establishing unit in the Middle East, Reuters reported.

This was company announced this in a regulatory disclosure without revealing any details.

Numerous Russian businesses are relocating their operations outside of Europe, which imposed sanctions on Moscow as a result of its activities in the Ukraine.

## QATARENERGY

### QATARENERGY TO PARTICIPATE IN IRAQ'S GGIP



QatarEnergy announced its agreement to acquire a 25% stake in the Gas Growth Integrated Project (GGIP), a massive gas project in Iraq, marking the rare entry of a major producer into a market that Western firms have pulled back from in recent years, AP reported.

TotalEnergies introduced GGIP in 2021 with the goal of creating infrastructure to recover natural gas from a number of hydrocarbon fields in southern Iraq. When the natural gas released during oil production is burned and released into the atmosphere, that is where it is presently being "flamed." In order to increase output, the project also seeks to treat seawater for injection into oil reservoirs.

Iraq's Basra Oil Company controls 30% of the project, with TotalEnergies holding a 45% stake.

According to QatarEnergies, the initiative will have total investments of about \$10 billion.

"We are pleased to be part of this significant development, which is important for Iraq's energy sector," Saad Sherida Al-Kaabi, the Minister of State for Energy Affairs and head of QatarEnergy, said in a statement.

PETRONAS

PETRONAS Carigali, SMJ Sdn Bhd Ink FOA

PETRONAS Carigali Sdn Bhd and SMJ Sdn Bhd have signed a Farm Out Agreement (FOA) for the transaction of 50% of PCSB's non-operating participating interest in the Samarang Production Sharing Contract (PSC).

The FOA is the second significant development between PCSB and SMJSB following the

Commercial Collaboration Agreement (CCA) signed between PETRONAS and the Sabah State Government on 7 December 2021.

In accordance with the FOA, PCSB will continue to run Samarang PSC, with SMJSB joining as a non-operating partner. Around 36,000 barrels of oil and gas equivalent (kboe/d) are presently produced by the Samarang field, which is about 50 km off the coast of Sabah. The gas is supplied to consumers in Kota Kinabalu and Labuan at a rate of 134 million standard cubic feet per day (MMscf/d).

This partnership demonstrates PETRONAS' ongoing dedication to achieving its shared goal of sustainable development for the country's oil and gas sector.

## TOTALENERGIES



### IRAQ, TOTALENERGIES TO MOVE FORWARD WITH GGIP

In reaffirming their commitment to the Gas Growth Integrated Project's (GGIP) agreement that was signed in September 2021, TotalEnergies and the Iraqi government have jointly defined the necessary conditions and mutual insurances to move forward with the GGIP.

In the GGIP agreement, the Iraqi government and TotalEnergies have agreed on a 30% stake in Basrah Oil Company (BOC). Furthermore, in agreement with the Iraqi government, TotalEnergies has invited QatarEnergy to take a 25% stake in the GGIP.

The consortium will thus be composed of TotalEnergies (45%), Basrah Oil Company (30%) and QatarEnergy (25%).

The GGIP seeks to boost the development of Iraq's natural resources to improve the country's electricity supply.



## BAKER HUGHES



### QATARENERGIES REQUESTS MAJOR LNG ORDER FROM BAKER HUGHES FOR NFS PROJECT

Baker Hughes, one of the world's largest oil field services companies, declared an order to be booked in the first quarter of 2023 with its partner QatarEnergy to provide two main refrigerant compressors (MRCs) for the North Field South (NFS) project, which will be executed by Qatargas.

According to the company's announcement, the MRCs are part of two LNG "mega trains" representing 16 million tons per annum (MTPA) of additional capacity that is estimated to further maximize Qatar's LNG production capacity to 126 MTPA, helping to propel Qatar as a leader in global LNG production by 2027.

This major LNG order reflects more than two decades of trust and successful collaboration between Baker Hughes, QatarEnergy, and its various operating companies across the energy value chain. Most notably, Baker Hughes has supported Qatargas since the early 1990s with core LNG liquefaction technology.

## PETROFAC



### TAREQ KAWASH NAMED PETROFAC'S NEW GROUP CHIEF EXECUTIVE

Petrofac, an international services company that designs, builds, manages, and maintains oil, gas, refining, petrochemicals, and renewable energy infrastructure, announced that Tareq Kawash has been named the company's Group Chief Executive and Executive Director.

The company also confirmed that Sami Iskander has left the Company and has stepped down from the Board.

"We are delighted to welcome Tareq Kawash as our new Group Chief Executive. Tareq has joined us from McDermott, where he was most recently Senior Vice President of its Global

Onshore and Middle East Offshore Business Lines, and a member of McDermott's Executive Committee. With 30 years' international EPC leadership experience, and an impressive business development track record, Tareq is exceptionally well placed to build on the foundations laid by Sami," Petrofac's Non Executive Chairman René Medori said.

## WINTERSHALL DEA



### WINTERSHALL DEA AWARDED SECOND STORAGE LICENSE FOR CO2 IN NORWAY

The Norwegian Ministry of Petroleum and Energy have awarded the Havstjerne CO2 storage license in the Norwegian Sea to Wintershall Dea and its partner Altera.

Wintershall Dea will be the operator of the license, holding 50% of the shares. The license is located 135 kilometers southwest of Stavanger and has an estimated annual storage capacity of up to 7 million tonnes.

"This second licence award in Norway supports our ambitious target to build a global carbon management portfolio that potentially can abate 20 to 30 million tonnes of CO2 per year by 2040. We are proud of the trust that the Norwegian Ministry of Petroleum and Energy places in our expertise and our ability to contribute to reaching Europe's climate goals," said Hugo Dijkgraaf, member of Wintershall Dea's Board of Executive

Directors as well as its Chief Technology Officer. "We are working intensively on delivering the infrastructure Norway needs to become a hub for European carbon storage", he added.

This award is seen by the Havstjerne partnership as a major step towards developing the Norwegian Continental Shelf into a leading European CO2 storage area.

## bp



### bp, UBER JOIN FORCES TO CUT EMISSIONS

Uber, bp declared a new global mobility partnership that would see the two businesses collaborate to assist Uber meet its goal of becoming a zero-emission transportation platform in the US, Canada, and Europe by 2030 and globally by 2040.

The companies will use their global footprints to help drivers switch to EVs by giving them access to safe and convenient charging, including at extremely fast speeds.

This agreement, which is thought to be an industry first between a ride-hailing platform and

an integrated energy company, will help drivers make this transition.

Uber wants all platform rides to be in electric, micromobility, or public transportation by 2040; It wants to be a net zero firm by 2050 or earlier and to assist the global transition to net zero.

## ENI



### ENI TO PLAY LEADING ROLE AS A KEY CCS DEVELOPER IN THE UK

Eni, being the operator of the transport and storage of carbon dioxide for the HyNet CCS project, announced that a new landmark development has contributed to its strategy to play a key role in the UK's decarbonization.

The UK Department for Energy Security and Net Zero (DESNZ) announced that carbon capture projects that will access the £20 billion in funding provided by the government for Track 1 initiatives.

The United Kingdom, which has identified the capture, transport, and storage of CO2 as one of

the fundamental tools for achieving the objectives in the fight against climate change, will be positioned as one of the leading countries for the development of carbon, capture, and storage (CCS) by implementing the HyNet CCS project.

## ADNOC



### bp, ADNOC ANNOUNCE BID FOR INTEREST IN NEWMED ENERGY

bp and ADNOC made a non-binding offer to take NewMed Energy private through an acquisition of the free float and a partial acquisition of Delek's stake, through this transaction bp and ADNOC will hold 50% of NewMed Energy.

bp plans to make a new joint venture that will be focused on gas development in international areas of mutual interest including the East Mediterranean.

When completed, this would strengthen the broader strategic partnership between ADNOC and bp

across oil and gas, hydrogen, and carbon capture and storage technology and would deepen the partners' long-standing relationship.

# GAS FACILITIES & GRID

## EXPANSION IN EGYPT OVER FYS (2017/18-2021/22)

BY JOLLY MONSEF, MARIAM AHMED & MAHA BALBAA

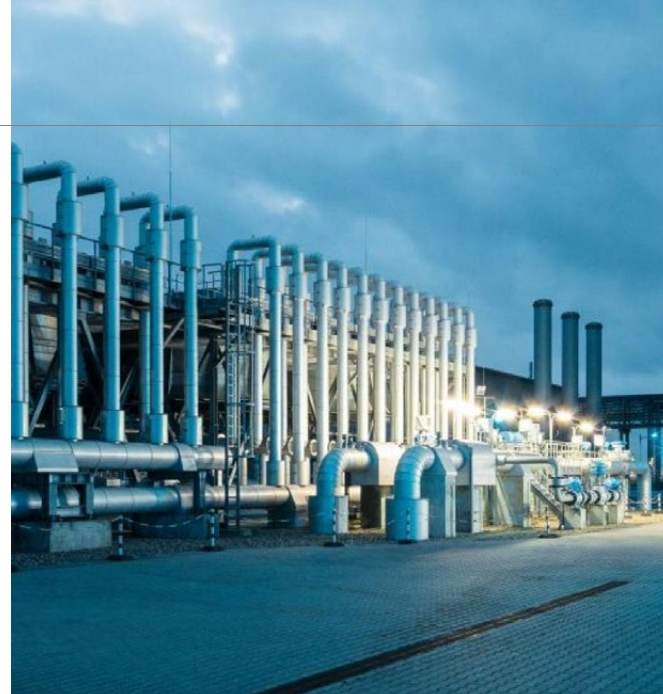
Capitalizing on natural gas as a transitional fuel has become a strategic priority and a prerequisite to succeed in the transition to an environmentally friendly fuel. Hence, this strategy has primarily focused on expanding the usage of natural gas through extending the national gas grid across several governorates to connect residential, commercial and industrial units with natural gas, along with raising the natural gas grid efficiency with investment injections in the sector. The expansions in natural gas facilities as well as scaling up their efficiency and capacity design are also fundamental to maximizing the functionality of the facilities in terms of connecting natural gas fields and end-users.

### GAS FACILITIES OVERVIEW

#### Types & Capacities

The Egyptian treatment and processing gas facilities have a central role in developing the gas industry. Natural gas has to go through these plants to purify the discovered gas from impurities and remove any contaminants that could affect the effectiveness of gas transportation pipelines, according to the Croft Production System website. This is in addition to extracting natural gas liquids, such as propane, butane, and even heavier components as well as ethane gas.

Over Fys (2017/18-2021/22), the Egyptian gas processing facilities exceeded 30 plants on average in operation, processing over 83.9 billion cubic feet per day (bcf/d). Egypt has two Liquefied Natural Gas (LNG) plants: the Spanish Egyptian Gas Company (SEGAS) located in Idku and the Egyptian LNG (ELNG) in Damietta – which are mainly for converting gas into a liquid.



### Flashbacks

The Egyptian Natural Gas Holding Company (EGAS) started in 1980 with the distribution of natural gas to end-users (Households). Then, in the mid-80s, it started the project of developing the national gas grid. According to the law issued in August 2017 and the executive regulations in February 2018, the Gas Regulatory Authority (GASREG) was established to regulate the gas market and provide all networks and gas facilities. These drivers have contributed to developing Egypt's gas infrastructure and promoting the gas market.

The average capacity of the two plants reached 1,200, and 750 million cubic feet per day (mmcf/d), respectively. Low-Temperature Separator (LTS) facilities have the largest design capacity, accounting for around 62% of Egypt's gas facilities' total capacity. Zohr and Port Fouad fields are connected to the leading LTS operating facilities in Egypt, with average capacities of 2,900 and 2,180 mmcf/d, respectively.

Concerning the Liquefied Petroleum Gas (LPG) facilities, those connected to Abu Madi and Abu Qir fields have the lion's share in the total LPG capacity of 624 and 336 mmcf/d on average, respectively. While UGDC and W/D Gas Complex facilities are the largest NGL-producing facilities in Egypt with average design capacities of 1,300 and 920 mmcf/d respectively, according to EGAS annual reports.

#### EGYPT'S GAS FACILITIES OVER FYS (2017/18-2021/22)

■ Average Number

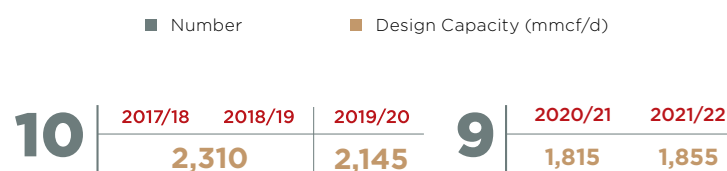




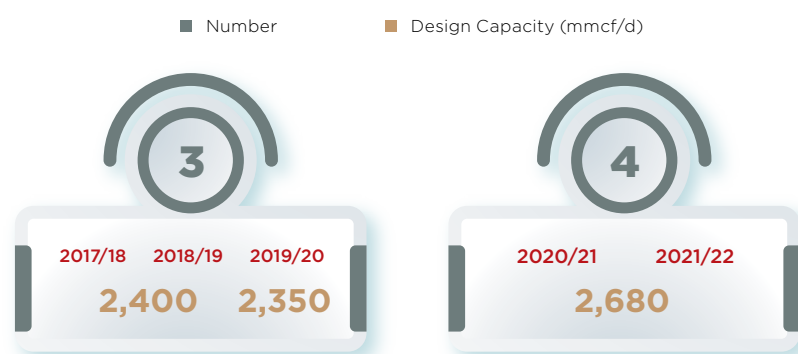
## LTS FACILITIES



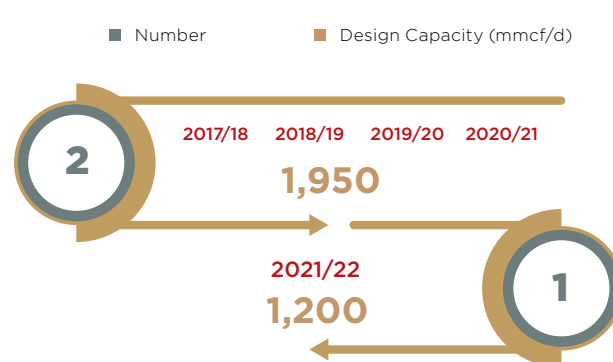
## LPG FACILITIES



## NGL FACILITIES



## LNG FACILITIES



## NATIONAL GAS GRID EXPANSIONS

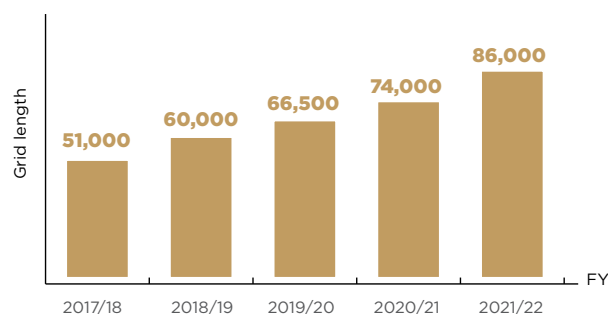
National Gas Grid has been expanding through the completion of new gas pipelines, as well as other pipelines under implementation to support the maximum number of individuals and industrial activities with natural gas. Natural Gas Grid length was extended to reach 86,000 km

(High- & Low-pressure Pipelines) by the end of FY 2021/22 with a growth rate of 68.6% compared to that in FY 2017/18.

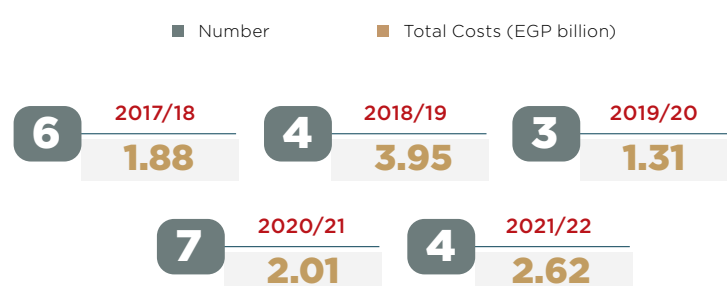
Over FYs (2017/18-2021/22), 24 national gas grid projects were implemented incurring a total cost of EGP 11.76 billion, according to EGAS annual reports.

## National Gas Grid

## EXPANSION (km)



## IMPLEMENTED PROJECTS



## Major Projects

■ Implemented Project ■ Grid Length (km) ■ Total Costs (EGP billion)

2017/18  
Algameel / Damietta pipeline

50 | 1,876

2018/19  
Tina / Abu Sultan pipeline

92 | 3,946

2019/20  
Idku / Abu Hommos pipeline

28 | 1,308

2020/21  
Doubleing / Abu Hommos pipeline

25 | 2,008

2021/22  
AL Amirya / Borg El Arab / El Alameen pipeline

120 | 2,620

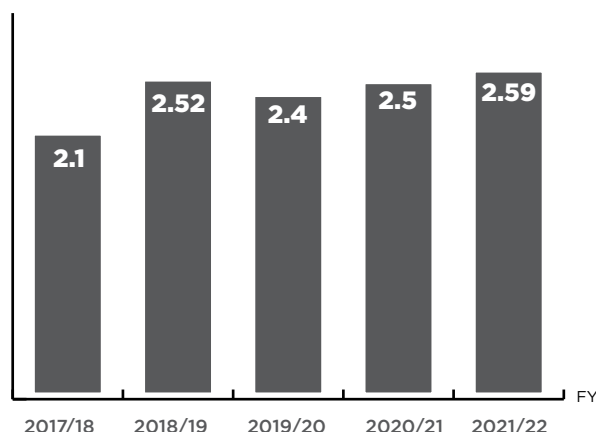
## NATURAL GAS & ITS DERIVATIVES PRODUCTION

In 2017, Zohr, the giant gas field, started its production, contributing to increasing Egypt's production of natural gas. Natural gas then is transmitted to the processing gas facilities to produce different types of derivatives such as injection gas, LPG, Propane, and Ethane/Propane. The average production of natural gas and sales of gas over the FYs (2017/18-2021/22), reached 2.4 trillion cubic feet (tcf) and 2.3 tcf,

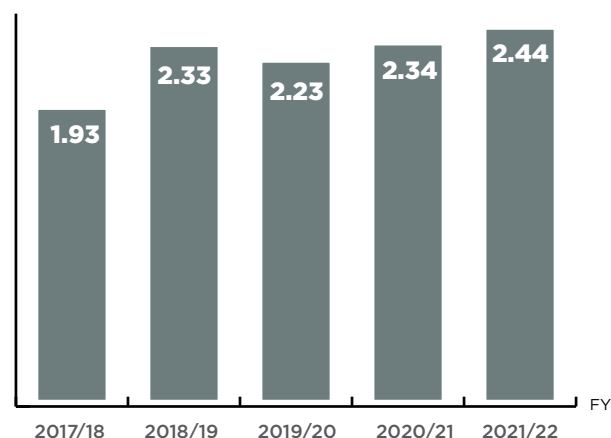
respectively. While average production of injection gas, LPG, Propane, and Ethane/Propane reached 167.9 billion cubic feet (bcf), 1,165 million tons per year (mmt/y), 528.4 mmt/y, and 1,089 mmt/y, respectively.

It is worth mentioning that LPG production increased to 1,855 mmt/y in FY 2021/22 due to the expansion in the facilities' design capacity, explained in EGAS annual reports.

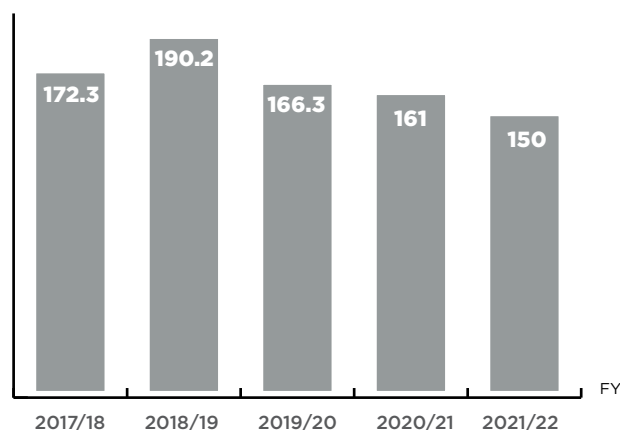
**NATURAL GAS (tcf)**



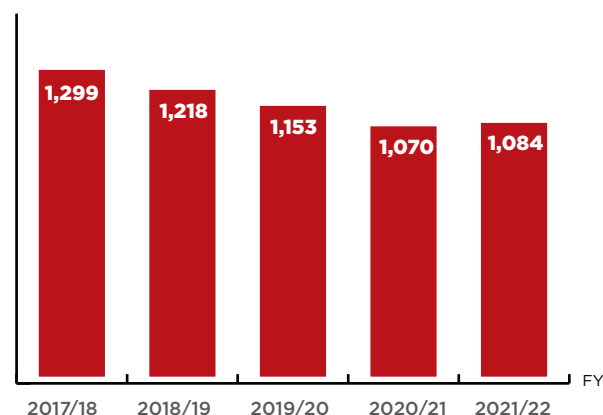
**SALES OF GAS (tcf)**



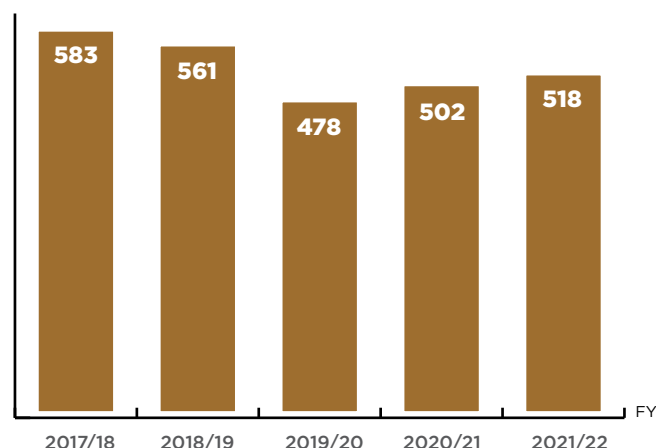
**INJECTION GAS (bcf)**



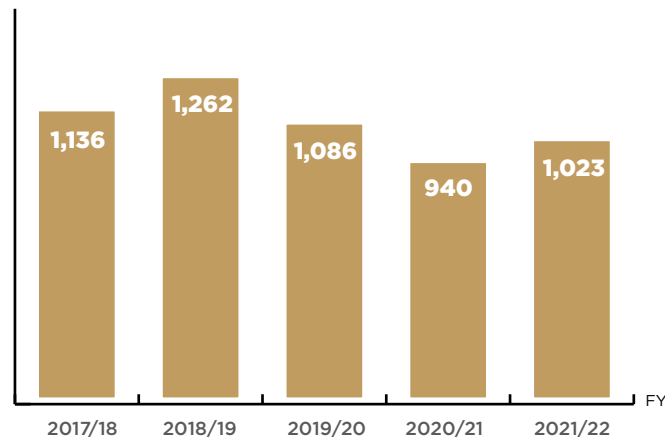
**LPG (mmt/y)**



**PROPANE (mmt/y)**



**ETHANE/PROPANE (mmt/y)**



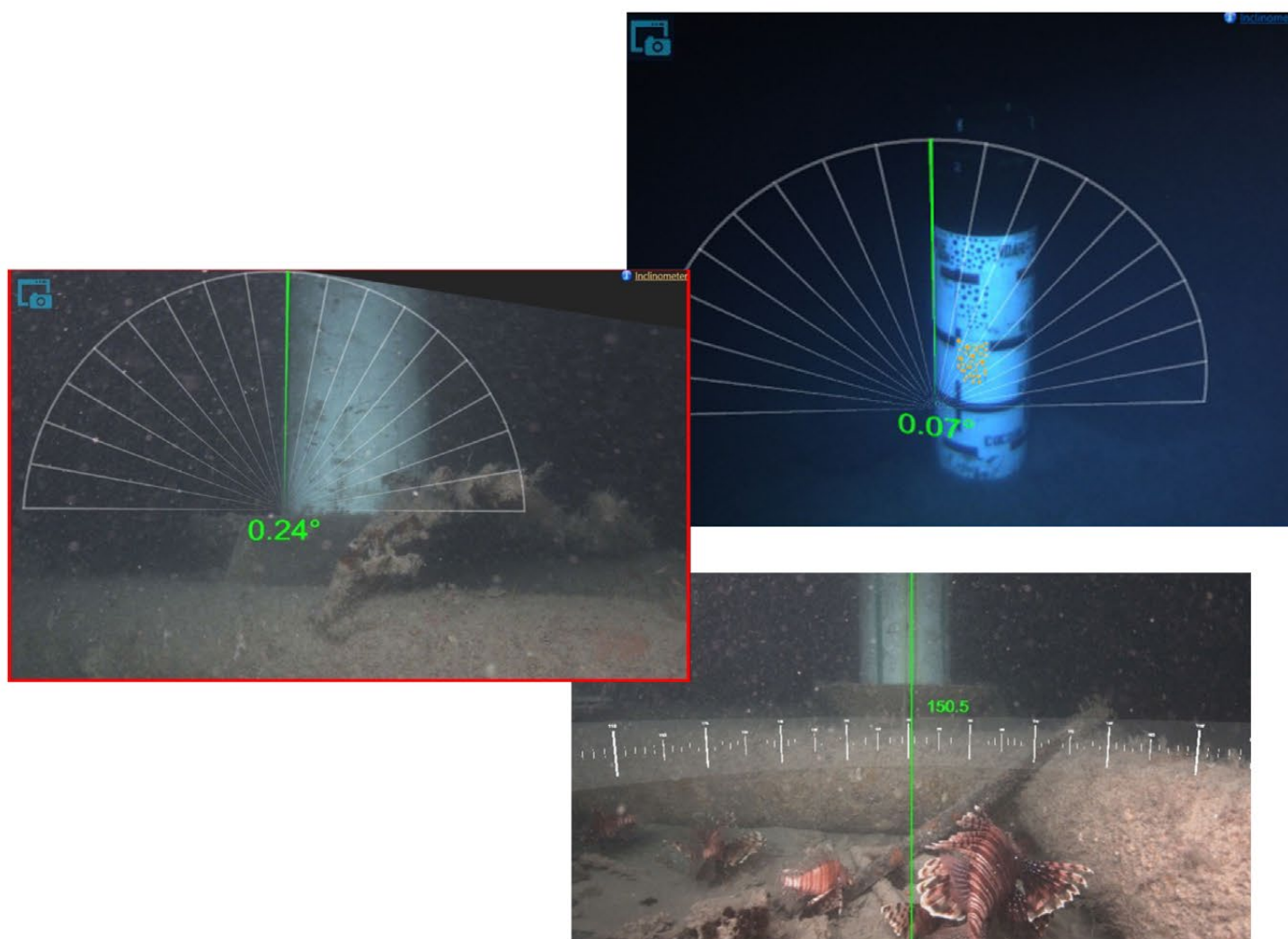
Egypt has a strong natural gas infrastructure and facilities to meet its local needs and support its position to be a regional natural gas hub. The national grid is a vital link in the energy chain. The expansions of the national grid are necessary for maximizing natural gas usage and enhancing economic development.

On the other side, Egypt's LNG plants are the key engine to elevating its exports among East Mediterranean countries. Therefore, intensive devotion to increasing investments in natural gas facilities and helping sustain their efficient development over time will always be a fundamental driver of the natural gas sector.



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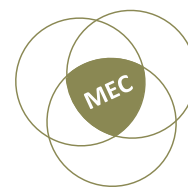


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# MEDITERRA ENERGY CORPORATION: WHEN THE TRACK RECORD SPEAKS FOR ITSELF



**MEDITERRA**  
ENERGY CORP.

**F**ortifying endurance while delivering excellence is one of the key elements of success within the energy industry, especially during challenging times. To say that Mediterra Energy Corporation is a living example of overcoming obstacles would be an understatement.

Established in Calgary in 2012, Mediterra Energy Corporation is a Canadian energy firm working in the international upstream oil and gas industry, specifically focused on the exploration and development potential in the Middle East and Africa. Mediterra Energy Corporation is part of the Woitas Group of Companies and is the first international company in the Group.

Since its establishment, Mediterra adopts a strategy that seeks to use innovative and unique approaches in E&P, which is especially important for extracting oil in various types of challenging reservoirs. It is a methodology that has laid the foundations for the company's success in all the regions it has worked in.

As one of the most active E&Ps in Egypt over the past few years, Mediterra's drilling activities in the hydrocarbon-rich nation were never hindered whether by the pandemic or even the historic dip that oil prices took in 2020.

With Egypt moving towards being a regional energy hub, Mediterra was quick to move in on the action by creating a diverse asset portfolio within the country. These assets include the Sudr, Asl, Matarma development leases (100% operated working interest); Al Baraka and WAB Development Leases (with 100% operated working interest in light oil production within Komombo concession); Block 7 and 8 (with 40%

working interest in 5.6 million acres of exploration land which surrounds the Al Baraka and WAB development leases). For Komombo, the company has drilled the first horizontal well in Upper Egypt and believes that intensifying investment in this strategic region is the key element that can unlock its true potential.

The company is the operator of two contracts with the Egyptian government, which have some of the best fiscal terms in Egypt and the MENA region. This includes a service agreement (SMA) and a product-sharing contract for Komombo. SMA involves a cluster of three fields and multi-year development opportunities while the product-sharing agreement involves the Al Baraka and West Al Baraka development leases.

As a key player in the Egyptian market, the secret to the company's success in sustaining production growth lies in its continued drilling activities and robust performance even with the challenge of commodity cycles. Mediterra Energy Corporation has drilled more than 140 new wells in the Sinai and Komombo regions within the past four years.

Drilling operations are taking place at an accelerated pace and are currently at their highest level with 6-7 new wells per month using three drilling rigs and three workover rigs. Production has also witnessed significant growth surpassing 15,000 bbl/d.

Mediterra Energy Corporation has also been provided with the support of the Ministry of Petroleum and Mineral Resources, in addition to its relevant bodies to boost the capital program of assets in the Sinai including Sudr, Asl, and Matarma Oil Fields ("SMA"). This support has also contributed to new oil pool discoveries in Upper Egypt (Komombo).

In their concessions, Mediterra adopts a special approach, where they assume that "No easy Oil" is left so they try to build economies of scale with new approaches and technologies. They also tend to bring the Canadian approach of extracting oil from difficult and different types of reservoirs.

In line with the company's aggressive drilling and production growth targets, the company has secured over 1,000 military approvals for future wells and an additional +200 well locations are in the process of being approved.

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There have also been continuous meetings between the Ministry and members of the company's board to explore ways to enhance cooperation and ensure that the company's expertise in the oil & gas field can be exploited in the best way possible. Last February, Minister of Petroleum and Mineral Resources Tarek El Molla met with a delegation from Mediterra Energy Corporation to discuss E&P and follow up on the company's business operations in its concession areas, including Kom Ombo and Sinai.

During the meeting, the Ministry was briefed on the updates on the company's business activities in the Kom Ombo concession areas (Al-Baraka and West Al-Baraka) in cooperation with GANOPE. They also discussed their activities in Sudr, Matarma, and ASL in Sinai, where they are collaborating closely with the General Petroleum Company (GPC).

In that meeting, El Molla praised Mediterra Energy Corporation for its role as an essential partner of the Egyptian energy sector due to its push to excel in operational results. He referred to the impressive outcome of drilling activities in its concession areas in cooperation with the Egyptian

General Petroleum Corporation (EGPC) and South Valley Egyptian Petroleum Holding Company (GANOPE).

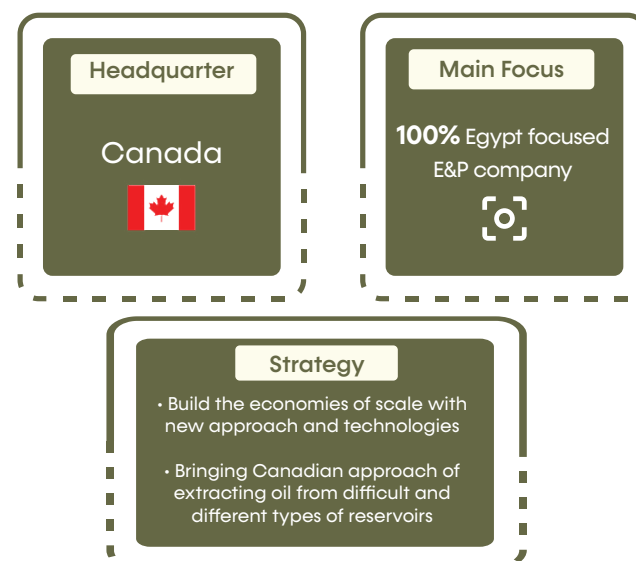
El Molla described Mediterra as a key contributor in helping the Egyptian petroleum sector intensify E&P activities since the Egyptian government has put emphasis on efforts to secure more discoveries while increasing local production.

Mediterra's delegation also updated the minister about their commitment and plans for increased investment in Egypt and continue their growth. As a long-term goal, Mediterra seeks to accomplish a sustainable production of >20,000 bbl/d and 2P reserves of >100 million barrels through the drill-bit.

Being one of the most active operators in Egypt, they have more than 450 development locations that are helping realize their corporate goal.

Being a key enabler in reducing Egypt's reliance on oil imports by unlocking the country's rich oil resources, Mediterra Energy Corporation has become a catalyst to boost Egypt's self-sufficiency with its oil discoveries being essential for meeting the needs of the local market.

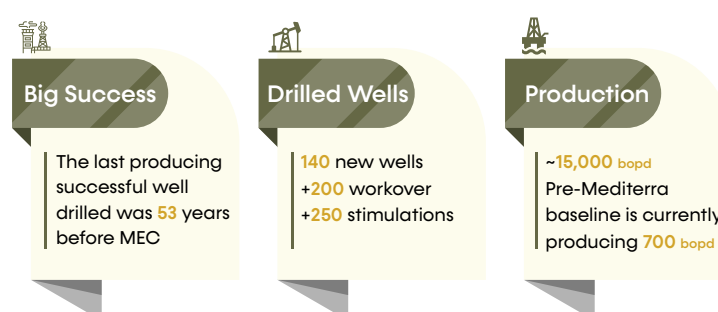
## MEC PROFILE



## MEC IN EGYPT



## SINAI: REVIVING 80-YEAR-OLD FIELDS



**El Molla praised Mediterra Energy Corporation for its role as an essential partner of the Egyptian energy sector due to its push to excel in operational results.**



# HUMAN CAPITAL DEVELOPMENT LEADS OIL, GAS SECTOR TO ASTONISHING MILESTONES

BY SARAH SAMIR

**T**he Egyptian Ministry of Petroleum and Mineral Resources (MoPMR) has been keen to develop the capabilities of its human resources. Through the Modernization program's 3<sup>rd</sup> pillar, the Ministry has been working on developing talents and preparing them to be the future leaders. Whether through its Middle Management program, or the Young Professional program, the Ministry has trained human cadres to lead a promising oil and gas future.

## Middle Management Program

MoPMR is providing a thorough training program that comes in accordance with the latest international practices in order to enhance human development. The Middle Management development program is implemented with the help of sector IOCs and top international universities, to enhance the capabilities of future leaders.

The candidates for the Middle Management training are fairly selected as the Ministry pays great attention to equal opportunities in selecting candidates through several stages of tests that are subject to criteria of transparency and equality in selection.

In March 2023, Minister of Petroleum and Mineral Resources, Tarek El-Molla, honored the graduates of the Middle Management Program Phase 2.

Through the program, the Ministry aims to support young talents with the chance to learn about the latest practices and modern methods implemented in the largest international companies. Through the program, the enrolled get to gain different experiences, adding key skills and expertise to their career, preparing them to be the future Egyptian leaders and to be capable of serving the country, not only the oil and gas sector. The Ministry signed several cooperation protocols and agreements to develop middle management, including the joint memorandum of intent (MoI) with IECC, part of the Italian energy company

Eni, to cooperate in training middle management cadres, which was signed in February 2023.

## Capacity Building, Developing Talents

As a part of the modernization program, the Ministry is keen to develop its talents and ensure building the of human capital. This comes as the Ministry aims to develop the oil and gas sector's workforce and to introduce a comprehensive talent management system.

The Human Capital Productivity program, which includes the senior management evaluation and succession aims to build and sustain transformational leaders for the future. The program further features the safety capability building and culture change program, which aims to develop and sustain health, safety, and environment (HSE) culture inside the oil and gas industry.

In this regard, the Ministry signed several memoranda of understanding (MoUs), including the one signed with Kuwait Energy Egypt in February 2023 to provide capacity buildings for operation safety and assets integration teams.

## Young Professionals

The Ministry is adapting the Young Professionals program (YPP) to create a dynamic pool of youth who have a

competitive chance and equal opportunity to help them lead future growth. This program helps young professionals set a clear career path and develop their capabilities.

The Egypt Petroleum Show and Exhibition (EGYPS 2023) featured a Youth Engagement Program (YEP) and a YPP. The YPP hosted around 450 university students and aimed at meeting with the industry's young professionals, sharing viewpoints, and exchanging opinions with the sector's senior representatives and top executives. Meanwhile, the YEP was attended by 200 high school students and it created a platform to get their interest, and to introduce the student to future career opportunities in the energy sector. The programs were sponsored by ExxonMobil and they included a number of edutainment and experiential zones such as robotics, engineering, artificial intelligence, and cyber security.

Through the different programs in the human capital development pillar, the MoPMR is keen to develop its cadres and empower them to a level of great success. These programs will not only empower the sector's employees, but will help attract new talents to the sector, and eventually lead the sector to achieve huge milestones.

**The Ministry is adapting the Young Professionals program (YPP) to create a dynamic pool of youth who have a competitive chance and equal opportunity to help them lead future growth.**







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# ZERO-CARBON: AN INTRO TO DEVELOPING HUMAN CADRES TO ACHIEVE SUSTAINABILITY GOALS

BY RANA AL KADY

It is a truth universally acknowledged that we are currently living in an era wherein vying for achieving the net zero is the status quo; this is a clear indication of environmental requirements from administrations, the public, and buyers. Companies are taking notice and attempting to implement their environmental obligations. However, greater climate information and the ability to use it will be needed at every level of management in order to integrate climate change awareness and decarbonization initiatives into the company strategy. Capacity development is a crucial component of the overall transition to net zero. Organizations may make fact-based choices on the dangers and possibilities associated with environmental issues if they have a greater awareness of the consequences of climate change and existing ways of tackling them.

## General Overview

Firstly, due to the extreme diversity of the oil and gas sector, individual businesses may choose very distinct transitional plans to achieve net-zero carbon emissions. Nevertheless, all oil and gas businesses ought to put a top focus on reducing emissions from their main activities. This involves addressing operational methane emissions and doing away with flaring. Corporations should energize activities wherever feasible by utilizing renewable power, either by buying it from the power grid or by incorporating off-grid renewable energy sources into different sectors (i.e. infrastructure). Suppliers that can back up their claims with evidence of successful efforts to cut emissions can make a convincing case for why their oil and gas resources should be chosen over alternatives with greater emissions.

## Youth Capacity Building

Building capacity is crucial for human cadres in achieving the net-zero goals that Egypt and other international bodies have set. An essential condition for achieving the lofty goals that were originally set is the ability to regulate the magnitude and unpredictability associated with the years to come, the complexity and interconnected importance of the changing climate, the necessity and the difficult dynamics that exist between various actors. Nevertheless, Egypt will have to take into consideration the pressing need to expand and build its economy when this capacity issue arises.

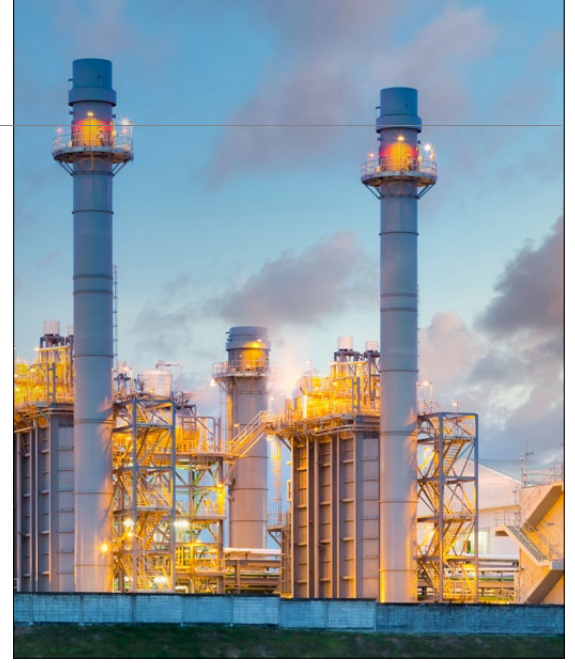
At the moment, the main concern is that with all the new internal and external pressures from governmental organizations, legislative bodies, and NGOs focused on environmental practices, oil and gas companies will have to ensure that

they meet the necessary requirements to reduce emissions with the least impact on productivity. With that in mind, newer generations are entering the oil and gas field with some knowledge and awareness about recent environmental practices and requirements relevant to climate change (i.e. via COP events, United Nations reports, etc.). As suggested by a Climate Change Expert, "There are two main problems that have to be understood; [one] is that the young people have some knowledge from social media and campaigns, but are not hired by the [oil and gas] sector to take advantage of them. Also, we have to make a 'bottom-up approach' to teach everyone from the young people to high-level managers about the sustainability goals and how to achieve these in the industry so that it is easy to achieve these."

At the same time, people working in the oil and gas industry for some time also have some awareness of industry practices but require more updates on recent legislations and strategies possible. Thus, introducing capacity building on emissions in the oil and gas industry, will result in a new set of human cadres being specialized in energy efficiency and emissions practices and strategies.

The main aim of a capacity-building program is to increase the ability of youths to tackle the issue of climate change, especially in susceptible nations, through practical actions; to encourage a proactive sharing of knowledge and insights acquired; and to deal with the connections among environmental action and the adoption of pertinent practices and policies.

According to the Sustainable Development Goals (SDGs) of the United Nations,



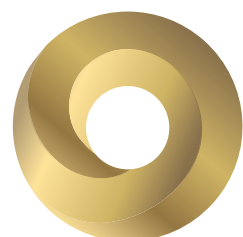
empowering young people could result in a decrease in countries' increasing poverty gap and increasing rates of unemployment.

**At the moment, the main concern is that with all the new internal and external pressures from governmental organizations, legislative bodies, and NGOs focused on environmental practices, oil and gas companies will have to ensure that they meet the necessary requirements to reduce emissions with the least impact on productivity.**

**The main aim of a capacity-building program is to increase the ability of youths to tackle the issue of climate change, especially in susceptible nations, through practical actions; to encourage a proactive sharing of knowledge and insights acquired; and to deal with the connections among environmental action and the adoption of pertinent practices and policies.**



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# CO<sub>2</sub> FOAM INJECTION: AN EFFECTIVE PATH FOR ENHANCED OIL RECOVERY

BY FATMA AHMED

In light of the increasing demand for oil and gas globally, efforts are drawn to boost production. Reducing CO<sub>2</sub> emissions while providing the needed energy at the lowest costs becomes vital for a safe and secure future. With the continued technological development, CO<sub>2</sub> foam injection has emerged as one of the much-needed technologies seeking to enhance oil recovery and can be used for carbon storage, which is useful in achieving decarbonization goals.

## More about CO<sub>2</sub> Foam Injection

Carbon dioxide injection refers to pushing the CO<sub>2</sub> into the reservoir to increase the oil production by reducing oil viscosity and providing miscible or partially miscible displacement of the oil. CO<sub>2</sub> enlarges the oil, therefore pushing it towards the producing well for extraction, GK Today stated.

A study published by Intechopen mentioned that the CO<sub>2</sub> injection technique was started for EOR applications in the 1950s. However, it has been seen as impractical due to its low viscosity compared to formation fluids, leading to viscous fingering and an early breakthrough.

Then, polymer flooding emerged to reduce the mobility ratio of the displacing fluid to the displaced fluid. However, polymer flooding caused "formation damage due to physical adsorption of the high-molecular-weight polymer on the rock surface and mechanical trapping within the smaller-diameter pore throats." After that, CO<sub>2</sub> foam came out in the 1960s to replace the polymer seeking to avoid such formation damage.

## CO<sub>2</sub> Foam Efficiency

The article by Intechopen said that foam contains little water, which helped in reducing the formation damage, especially in water-sensitive formations and allows fast clean-up. Another article published by the National Center for Biotechnology Information (NCBI) elaborated that "foam injection can be considered as an effective way for gas channeling mitigation, mobility ratio modification, sweeping efficiency enhancement, and oil recovery increasing in the gas flooding process." It has the ability to

block high permeability areas as well as block water and gas in porous media.

According to the International Energy Agency (IEA)'s data about enhanced oil recovery (EOR) projects reported in April 2019, there are about 500,000 barrels of oil produced daily by using CO<sub>2</sub> which represents around 20% of total oil production from EOR. During CO<sub>2</sub>-EOR, part of the injected CO<sub>2</sub> stays under the ground. "If the CO<sub>2</sub> that returns to the surface is separated and reinjected to form a closed loop, this results in permanent CO<sub>2</sub> storage," IEA stated. According to IEA data in 2019, between 300 kg CO<sub>2</sub> and 600 kg CO<sub>2</sub> are injected in EOR processes per barrel in the US.

## Case Study

Frontiers released an article about the benefits of enhanced oil recovery and CO<sub>2</sub> sequestration that addressed a case study of injecting CO<sub>2</sub> into three different wells. These scenarios included CO<sub>2</sub> injection into the reservoir, CO<sub>2</sub> injection into the aquifer, and CO<sub>2</sub> injection into the aquifer followed by waterflooding. The three well configurations were considered; these configurations include all injectors and producers being drilled vertically, all wells being drilled horizontally, and vertical injectors and horizontal producers being used. By using the Computer Modeling Group software package, the following results were concluded: "The highest oil recovery of 73% of the original oil-in-place (OOIP) was obtained by injecting CO<sub>2</sub> into the reservoir, utilizing vertical injectors and producers. During EOR treatments, around 7,928 tons of carbon dioxide can be sequestered in the reservoir/aquifer systems, on average." Injecting CO<sub>2</sub> into the water zone was very successful and enhanced the oil recovery by around 68–70% of the OOIP. Horizontal producers and injectors gave more oil.



"Overall, injection of CO<sub>2</sub> into the depleted reservoir can provide dual benefits of CO<sub>2</sub> sequestration and enhanced oil recovery."

With the continued technological development, CO<sub>2</sub> foam injection has emerged as one of the much-needed technologies seeking to enhance oil recovery and can be used for carbon storage, which is useful in achieving decarbonization goals.

Foam injection can be considered as an effective way for gas channeling mitigation, mobility ratio modification, sweeping efficiency enhancement, and oil recovery increasing in the gas flooding process.



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# CAPACITY BUILDING: A CATALYST FOR GROWTH IN ENERGY ECONOMICS

BY NADER RAMADAN

**B**uilding economies is not about building institutions but building the right people who are ready to oversee economic growth and pave the way for a more economically prosperous future. Indeed, grooming the right people to take on the next period of economic challenges is a difficult yet necessary task that can sow the seeds of the economic prosperity of tomorrow. It's no mystery that the recipe for cooking up robust economic growth, especially in energy economics, is not just limited to the availability and amount of resources at a country's disposal. Rather a huge contributing factor to economic growth in the energy sector can be lies in building the human capacities that are available in the market.

The correlation between energy economics and capacity building is no secret. For example, Japan, a country smaller in size that has fewer resources, has one of the world's largest economies and greatly outperforms nations that have more territory, resources, and raw materials. This is mainly due to the fact that the country has built a country and culture where productivity and efficiency are cherished and professionals working within their industries have the necessary credentials and skillsets to ensure continued economic prosperity.

The International Labour Organization highlights that capacity building is first and foremost the key to building an energy economy that can quickly adapt to change and develop quickly. "Given the importance of these issues, the ILO's 2008 International Labour Conference (ILC) general discussion on how skills development could better serve the twin objectives of increasing the quantity of labour employed and the productivity of labour was timely. The ILC adopted conclusions that provide a forward-looking framework for strengthening linkages between skills, productivity, employment, development and decent work. These conclusions underscore the principle that effective skills development policies need to be integral components of national development strategies in order to prepare the workforce and enterprises for new opportunities and preparedness to deal with change. In order to successfully link skills to productivity and employment creation skills policies should target three objectives: matching supply to current demand for skills; helping workers and enterprises adjust to change; and anticipating and delivering the new and different skills that will be needed in

the future," it said in a report by Mary Kawar titled "Skills Development for Job Creation, Economic Growth and Poverty Reduction".

Part of the challenge that many economies around the world face, particularly in the energy sector, is the lack of the necessary human capacities to bring about energy efficiency. Innovation and technology have always been a fundamental part of making production more efficient while delivering on society's energy needs. As the lack of energy efficiency severely affects economic performance and hinders the productive capacity of the energy economy, capacity building can provide the necessary human resources that are needed not only to provide the necessary innovation but to give the local economy a competitive advantage over other markets. A separate report by Dennis Rondinelli titled "Institutions and Market Development: Capacity Building for Economic and Social Transition" highlights that "the basis of national economic development is shifting quickly from mass production industries relying on low-wage labour and cheap raw materials and energy to a technology- and knowledge-based system of production and services. Such a system will require better educated and higher skilled workers, modern infrastructure, and flexible and responsive public and private organizations. This shift to a technology-based and knowledge-based system of production and services will provide higher incomes to those workers and managers who have the skills and knowledge to participate effectively."

In recognizing the important role that capacity building in guaranteeing the future growth of the energy sector, Egypt's Ministry of Petroleum and Mineral Resources has



been at the forefront of signing many agreements with international companies to enhance capacity building within the sector. This is part of an effort that not only contributes to Egypt's overall economic well-being but also works to enhance business culture at both an organizational and economic level. The efforts to build human capacities, in the long run, have also been actively explored with Ministry's Middle Management programs, which has attracted many across the industry.

In seeking to be a self-sufficient nation, Egypt has embarked on a long journey to improve the quality of its human resources through training and capacity-building initiatives. These efforts will significantly reduce the country's dependence on foreign expertise from abroad and create the potential to breed a younger generation of more highly trained professionals who can take the sector to the next level and possibly even promote entrepreneurship while boosting the local private sector. Reaping the economic benefits of capacity building is a slow and costly process, but the long-term benefits of this process are guaranteed.

*"Building economies is not about building institutions but building the right people who are ready to oversee economic growth and pave the way for a more economically prosperous future."*

# HOW LOSS MANAGEMENT CONCEPTS AND LEGISLATIONS COULD REMEDY ECONOMIC CHALLENGES

**L**oss management is the process of identifying, analyzing, and mitigating potential losses or risks that could negatively affect an individual, business, or organization. It involves implementing strategies and measures to prevent, reduce, or transfer risks in order to minimize financial, reputational, or operational losses.

The goal of loss management is to establish an effective risk management framework that helps individuals or organizations to proactively manage and reduce their exposure to risks. This process involves several steps. First, it is essential to identify potential risks that could affect an individual or organization, such as financial, operational, legal, or reputational risks. Second, risks need to be evaluated by analyzing the potential impact of the identified risks and determining their likelihood of occurrence. Third, a risk management plan needs to be developed by creating a plan to mitigate identified risks through implementing measures, such as risk transfer, risk reduction, or risk avoidance. Fourth, the risk management plan needs to be implemented and put into action and this includes training employees, establishing policies and procedures, and utilizing technology and tools to monitor risks. The fifth and final step involves monitoring and reviewing risks, including regularly reviewing and updating the risk management plan to ensure its effectiveness, as well as identifying and addressing new or emerging risks. Overall, loss management is an essential process for any individual or organization looking to proactively manage potential risks and reduce the likelihood and impact of losses.

There are various legislations and regulations that govern loss management across different sectors and industries. In the financial sector, loss management is governed by regulations, such as the Basel Accords, which provide international standards for banking supervision and require banks to maintain sufficient capital to cover potential losses. Other regulations that govern loss management in the financial sector include the Dodd-Frank Act in the USA. In occupational health and safety, loss management in the workplace is governed by the relevant legislations. These laws require employers to provide a safe and healthy work environment and to identify and manage workplace hazards that could cause harm or injury to employees. With regards to environmental protection, it is governed by various national and international laws and regulations, such as the Clean Air and Clean Water Act in the USA and the EU's REACH regulation for the management of chemicals. Disaster management in many countries involves disaster management legislations that outline the responsibilities of government agencies and organizations in preparing for and responding to natural or man-made disasters. These laws require the development of disaster management plans and protocols

to minimize the loss of life, property, and infrastructure in the event of a disaster. Overall, the specific legislations and regulations that govern loss management depend on the sector or industry in question and vary by country or region. It is important for individuals and organizations to familiarize themselves with the relevant laws and regulations in order to effectively manage potential losses and mitigate risks.

When dealing with a huge economic crisis, loss management can play an important role in minimizing financial losses and helping to stabilize the situation. There are a number of strategies that can be used to apply loss management concepts and legislations in such a situation. First, identify and manage risks by analyzing the potential impact of various factors, such as market volatility, supply chain disruptions, or changes in government policies. Once these risks are identified, appropriate measures can be taken to mitigate them, such as diversifying investments or creating contingency plans. Second, strengthen financial regulations to prevent future crises. This can include implementing measures to increase transparency and accountability, as well as enhancing risk management requirements for financial institutions. Third, implement stimulus measures in order to stabilize the economy during a crisis. Governments may need to implement stimulus measures, such as tax breaks, subsidies, or investments in infrastructure. These measures can help to stimulate economic activity and prevent further financial losses. Fourth, it is important to maintain adequate insurance coverage, which can help individuals and businesses to recover from financial losses resulting from a crisis. It is important to regularly review insurance policies and ensure that they provide sufficient coverage for potential risks. Fifth, develop and implement a crisis management plan to minimize losses and maintain business continuity during a crisis. This plan should include protocols for communicating with stakeholders, identifying and mitigating risks, and ensuring the safety and well-being of employees. Overall, loss management strategies and legislation can help to mitigate the impact of a crisis and facilitate a more effective response. By identifying and managing risks, implementing appropriate regulations and stimulus measures, maintaining adequate insurance coverage, and having a well-developed crisis management plan, individuals and organizations can minimize their losses and recover quickly from a crisis.



I think that there are some economic crises that cannot be fully resolved through the application of remediation for legislations, regulations, and loss management protocols alone. Economic crises can be complex and multifaceted, and may require a range of different strategies and approaches in order to be effectively addressed. For example, some economic crises may be the result of broader systemic issues, such as a lack of economic growth or inequality that cannot be fully addressed through regulatory or loss management measures alone. These issues may require broader policy solutions, such as changes to tax policies or investments in education and workforce development, in order to address the root causes of the crisis. In addition, some economic crises may be the result of factors that are beyond the control of any one organization or government such as natural disasters or global economic shocks. In these cases, it may be necessary to implement more immediate measures, such as disaster relief or emergency funding, to help mitigate the immediate impacts of the crisis. Overall, while regulations, legislations, and loss management protocols can play an important role in mitigating economic crises, there may be situations where broader policy solutions or more immediate measures are also necessary in order to get effectively address the crisis.

Thus, several strategies could be recommended to effectively address Egypt's current economic challenges. When it comes to fiscal and monetary policies, the Egyptian government could implement fiscal policies, such as tax cuts or increasing government spending to stimulate economic growth. The central bank could also use monetary policy measures, such as adjusting interest rates or quantitative easing to encourage borrowing and investment. Investing in infrastructure, such as transportation and telecommunications, can also help improve economic growth and create job opportunities. Diversifying the economy could also be essential for reducing Egypt's reliance on a single sector, such as tourism, and investing in other sectors like manufacturing, agriculture, or technology. Moreover, supporting small businesses and medium-sized enterprises (SMEs) can create job opportunities and contributes to economic growth. The government could offer tax incentives, provide access to financing, or offer training programs to support the growth of SMEs. Finally, focusing on education and workforce development is a well-promised investment and can help to improve the skills and productivity of the workforce, which can in turn drive economic growth.

It is important to note that addressing an economic crisis often requires a multifaceted approach and will depend on the specific circumstances of the crisis. A combination of these legislations and other strategies may be necessary to effectively alleviate Egypt's economic challenges.

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



# TWENTY YEARS AFTER SADDAM'S FALL, YOUNG IRAQIS HOPEFUL TO PURSUE THEIR DREAMS

BY IHAB SHAARAWY

**A**s Iraqi people were marking the two-decade anniversary of the US invasion, the Iraqi energy sector was poised to gain new momentum by reaching an agreement on a long-delayed \$27 billion energy project with TotalEnergies. In the meantime, the central Iraqi government and Kurdish authorities were able to strike a deal to end a standoff over oil sales that had blocked nearly 500,000 barrels a day in exports and sent crude prices rising.

The new deals should usher in a major shift in Iraqi energy dynamics. However, many Iraqis are still wary about the energy sector's ability to alter their economic and social pains. Twenty years after the fall of Saddam Hussein, Iraq is still seen as weakly governed; a country prone to instability and meddling by neighbors.

Political infighting, foreign meddling, and corruption could cost Iraq the opportunity to invest in growing output more quickly. As the energy transition gathers pace, it means Baghdad may lose the opportunity to cash in the hundreds of billions of barrels it has in the ground.

## Constant Challenges

Following the US invasion in 2003, Iraq adopted a more democratic system, holding elections regularly since 2005. It has a parliament and there have been peaceful transfers of power from government to government. However, Iraq can't be described as consolidated democracy, given the pervasiveness of armed militias and related political parties that have used violence or the threat of violence to threaten the government and other political actors or to protest or alter election results.

Another reason for the state of fragility in Iraq is the spoils system, which was set up after the invasion. According to the system, the presidency should be preserved for an ethnic Kurd, the prime ministry for a Shiite Muslim, and the speakership of parliament for a Sunni Muslim. This system both encourages spectacular corruption and emphasizes ethnic and religious division at the expense of a genuinely national Iraqi identity. These related problems tend to undermine confidence in the political system.

The overthrow of Saddam and Iraqi security forces in 2003 created a vacuum that opened the door for the rise of both Islamic State fighters and Iranian-allied political parties and militias in Iraq, which engaged in horrific sectarian violence.

The new system after Saddam was not able to solve the Iraqi unity problem that existed even before the American invasion, with the three Kurdish regions of Iraq never

incorporated into the country in ways that made sense to Kurds. Iraq's Kurdish regions built a state within a state and appeared to be driving toward independence.

The division has led to increasing foreign meddling as the country has been caught between several external actors including Iran, Turkey, and the US with each power securing its allies in Iraq. Iran's strong presence in Iraq's politics has caused alarm in the US, the Arab world, and, to some extent, Turkey. The country has become a venue for several confrontations between Iran and the US. In one of these confrontations, one of Iran's top military leaders was assassinated.

Ankara also intervenes in Iraq, carrying out military operations against Kurdish militants in the north. There are also a number of European countries that have military deployments in Iraq as part of the anti-Daesh coalition.

The current political makeup and foreign interference in the country have worsened the country's economic, security, and political situation, pushing the people to the streets in mass protests asking for better living conditions.

The latest of such protests came last month after measures taken by the US in recent months, to stamp out money laundering and the channeling of dollars to Iran and Syria from Iraq, have severely restricted Iraq's access to hard currency. Since the US invasion of Iraq in 2003, Iraq's foreign currency reserves have been housed at the US Federal Reserve, giving the Americans significant control over Iraq's supply of dollars.

## Light at the End of the Tunnel

Iraqis' frustration with high unemployment, the dismal state of infrastructure, and the long-standing corruption bushed the Iraqi youths to the streets on several occasions where violent incidents caused the death of hundreds of people.

Despite being OPEC's second-largest crude producer, one-in-five of Iraqi people lives in poverty and the youth unemployment rate stands at one-quarter, the World Bank said.



Although more than 90 percent of the government's revenue comes from oil, some local leaders see oil reserves as both a blessing and a curse as they fuel vicious competition between political elites and armed groups at the expense of the Iraqi people.

Despite optimism about the flourishing oil revenues, which stems from the fact that in the first eleven months of 2022, Iraq's budget revenues increased by 59% yearly to \$100.9 billion, Iraqi activists called for a massive economic shift to shore up the private sector so that there are more job opportunities for young people instead of depending on oil reserves only. However, luring international companies into investing in Iraq requires stability.

Today some experts see division in Iraq shifting from traditional division along Shi'ite, Sunni, and Kurdish lines to become mainly between the political elites and Iraqi masses. Twenty years after the fall of Saddam and with new breakthroughs in the energy industry and economic and political reform, many Iraqi young people are hopeful about nascent freedoms and opportunities to pursue their dreams.

*Political infighting, foreign meddling, and corruption could cost Iraq the opportunity to invest in growing output more quickly.*

*The overthrow of Saddam and Iraqi security forces in 2003 created a vacuum that opened the door for the rise of both Islamic State fighters and Iranian-allied political parties and militias in Iraq, which engaged in horrific sectarian violence.*

## NUCLEAR ENERGY UNLEASHES UNLIMITED POTENTIAL FOR EGYPT'S ENERGY SECTOR

**W**hile the global debate on nuclear energy continues, it is expected that the map of this type of energy will witness remarkable changes in the coming years, in light of the divergent opinions about it, and the accompanying divergent measures among many countries. Nuclear energy still has the ability to generate abundant primary energy supplies with little or no harmful direct emissions.

A nuclear plant is under construction in El-Dabaa to generate electricity, and a contract for its implementation has been signed with the Russian side (Rosatom Co.). It includes four nuclear reactors and its benefits include high safety rates, simplicity of design, low costs and an extensive lifespan of more than 60 years compared to thermal stations.

El-Dabaa was chosen as the site for the establishment of the first peaceful nuclear power plant for several reasons, the first of which is that El-Dabaa is a suitable and very safe place, close to water sources that can be used to cool nuclear plants. It is also a stable land far from the earthquake belt, which ensures that no nuclear leakage occurs, in addition to being about 60 kilometers away from population centers, and therefore it will not pose an environmental or societal danger.

The importance of the Dabaa nuclear project lies in the benefit that it will accrue to Egypt in many fields, as well as the qualitative shift that will place Egypt on the list and among the countries that possess clean, peaceful nuclear energy.

Egypt's entry into the nuclear club means that the Egyptian economy will enter a broader field, and there will be direct benefits on its production of electricity. It will also allow the country to diversify its sources of relatively cheap and inexhaustible alternative energy as well as avoid price fluctuations in the energy market. It is clean and does not harm the environment through the emission of greenhouse gases that contribute to climate change.

After the inauguration of this project, Egypt will officially become a peaceful user of nuclear energy, representing a major milestone in its quest to economically develop. Egypt is moving towards building a modern state based on solid scientific foundations, taking in its path all the means for advancement and scientific progress, especially nuclear energy. It has also become involved in most scientific, medical, agricultural and industrial fields, and even in the areas of nutrition, and increasing plant and animal production.

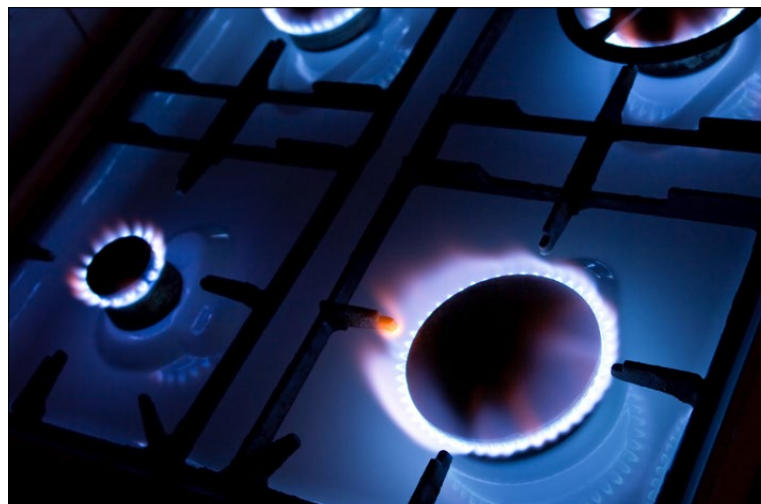
The Russian company Rosatom said that the nuclear plant that will be built in El-Dabaa will cost \$21 billion and is expected to be completed in 2028-2029. Russia will provide a government export loan to Egypt worth \$25 billion in order to finance activities and services related to equipment for the construction and operation of the Egyptian nuclear power plant.

Five years separate Egypt from achieving the long-awaited nuclear dream, by operating the first peaceful nuclear power reactor to produce electricity in the El-Dabaa region of Matrouh Governorate.

Eng. Mohamed Abdelraouf

*Production Gen Mgr In Khalda petroleum company*

## SIXTY PERCENT OF EGYPT'S GAS EXPORTS WENT TO EUROPE FOR THE FIRST TIME



**F**or the first time, 60% of Egypt's natural gas production was shipped to Europe, according to the Egyptian Ministry of Petroleum and Mineral Resources.

Together with Algeria, Nigeria, Mozambique, and Libya, Egypt is one of Africa's top five producers of natural gas. The Suez Canal and the Suez-Mediterranean Pipeline (SUMED) are two crucial pieces of transportation infrastructure in the world's energy markets that are controlled by Egypt. Oil and liquefied natural gas (LNG) cargoes heading north from the Persian Gulf to Europe and North America flow through the Suez Canal. The Suez Canal is also used by shipments heading south to Asia from North Africa and countries along the Mediterranean Sea. The fees collected from these two transit hubs represent important sources of income for the Egyptian government.

Egypt primarily exports natural gas as LNG, but it began exporting natural gas to Jordan via the Arab Gas Pipeline in 2018. Egypt has historically been a net exporter of natural gas, but by the mid-2010s, Egypt needed to import natural gas to fulfill rising local demand. Egypt's natural gas production surged dramatically as a result of huge natural gas discoveries since 2016, such as the Zohr, Atoll, and West Nile Delta projects that were fast-tracked for development and production. Meanwhile, natural gas consumption has remained relatively steady, allowing Egypt to export some of its excess natural gas via pipelines and LNG. Egypt's natural gas imports dropped considerably by 2019 after reaching a record high of 294 bcf in 2016; Egypt exported approximately 177 bcf in 2019.

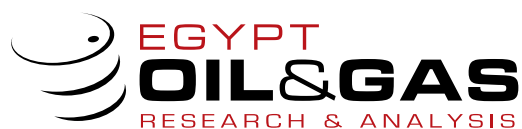
Since its reopening in 2021, the Damietta liquefaction facility has exported 7.2 million tons of natural gas. In 2022, over four million tons of liquefied natural gas were exported, representing the highest in the plant's nearly 20-year history. The plant's production ceased for eight years until restarting in February 2021. This places it first in Egypt for liquefied natural gas exports. According to the government, almost 60% of all cargoes from the Damietta liquefaction plant were shipped for the first time to Europe.

Egyptian natural gas exports reached a record 8 million tons in 2022, up from over 7 million tons the previous year, according to a statement from the Ministry of Petroleum and Mineral Resources about 2022 achievements and milestones. The value of natural gas exported during the year was around \$8.4 billion, compared to approximately \$3.5 billion in 2021, representing a 171% increase over 2021. The increase in Egypt's natural gas sales revenue was attributable to higher global liquefied natural gas export prices.

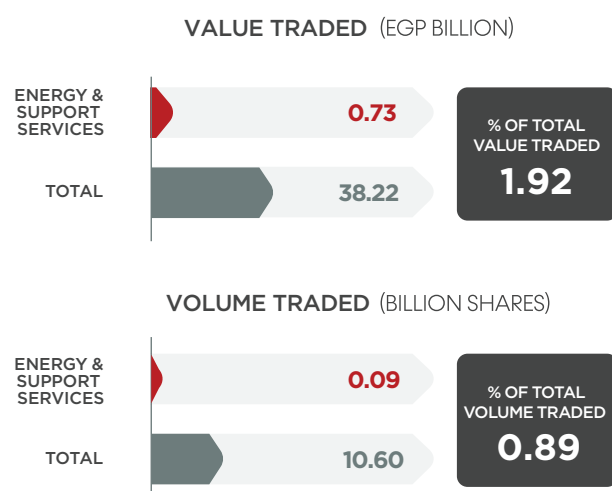
Furthermore, Egypt is hoping to boost natural gas production and rationalize usage in order to deliver gas exports to countries affected by the Russian invasion of Ukraine. All of these endeavors contribute to strengthening Egypt's position as a regional energy hub in the Mediterranean.

Geo. Mohamed Gamal Salah, M.Sc.

*Petrophysicist, GUPCO*



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



## 02 PERFORMANCE OF PETROLEUM COMPANIES IN THE EGYPTIAN EXCHANGE IN MARCH 2023



### NATIONAL DRILLING

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



### ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	9.05	↑ 43.2



### EGYPT GAS

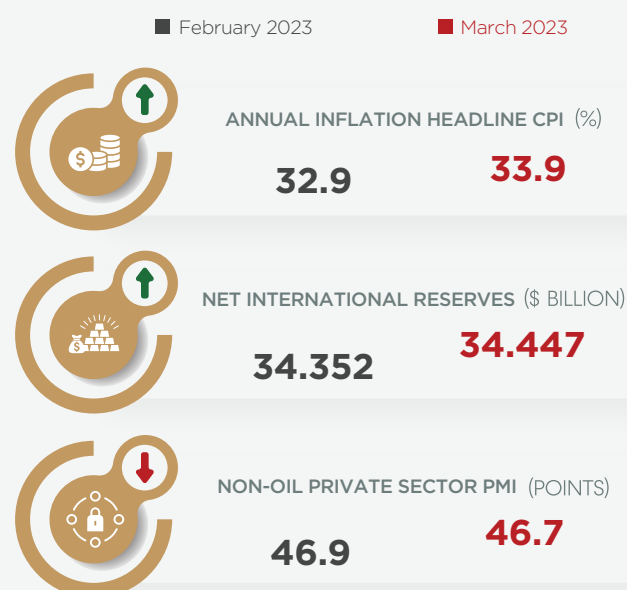
CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	31.97	↓ 14.06



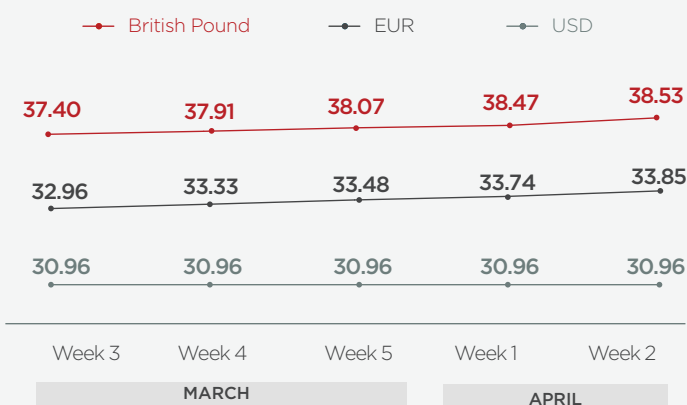
### SIDI KERIR PETROCHEMICALS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	20.6	↑ 57.01

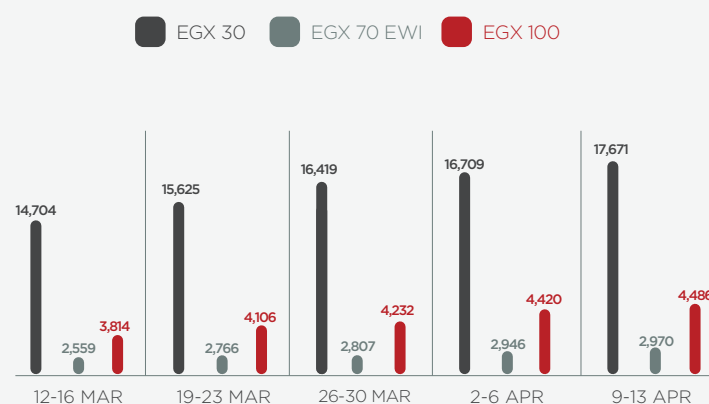
## 03 MAIN ECONOMIC INDICATORS



## 04 EXCHANGE RATES



## 05 CAPITAL MARKET INDICATORS

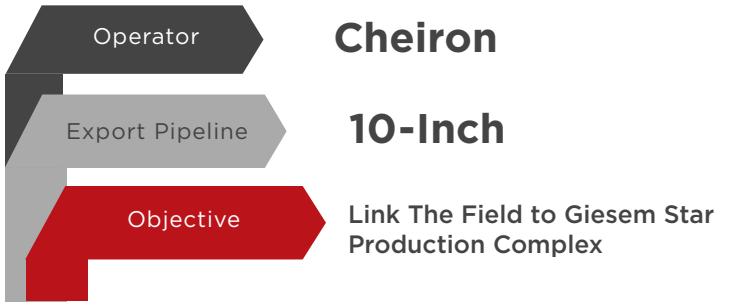


Source of Raw Data: CBE, CAPMAS, Egyptian Exchange, PMI by S&P Global

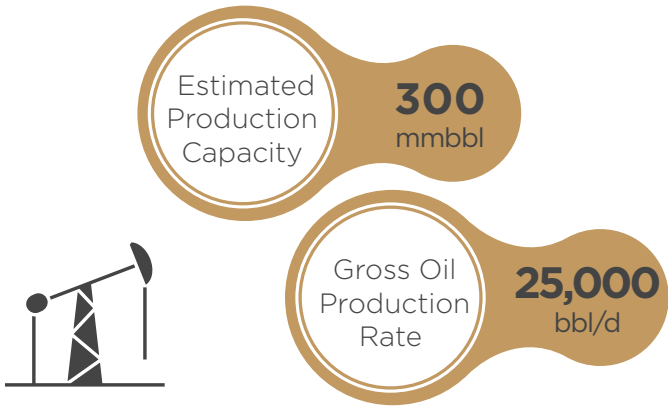


01 GNN OIL FIELD'S EARLY PRODUCTION FACILITY BROUGHT ON STREAM

FACILITY



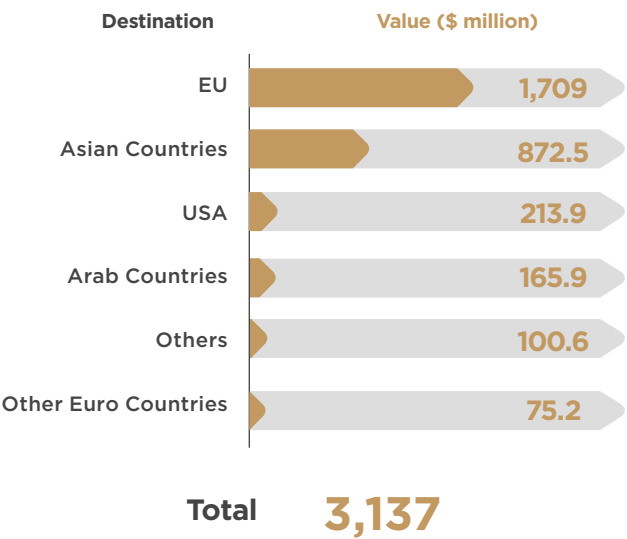
GNN FIELD PRODUCTION



02 IMPLEMENTED PUBLIC INVESTMENTS DURING Q1 2022/23 (EGP million)

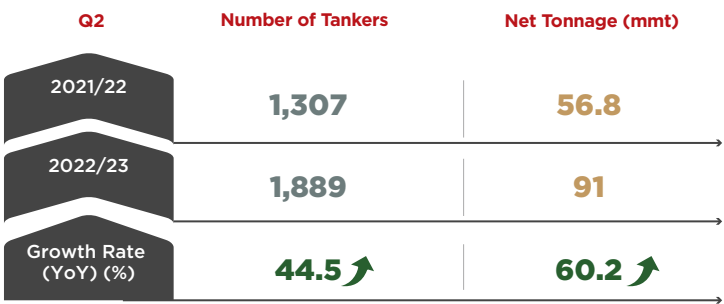


03 EGYPT'S PETROLEUM PRODUCTS\* EXPORTS PER DESTINATIONS DURING Q1 2022/23

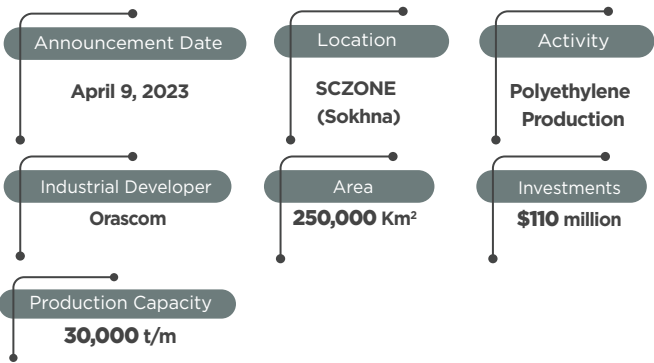


\*Natural Gas, Oil Bunkering & Jet Fuel.

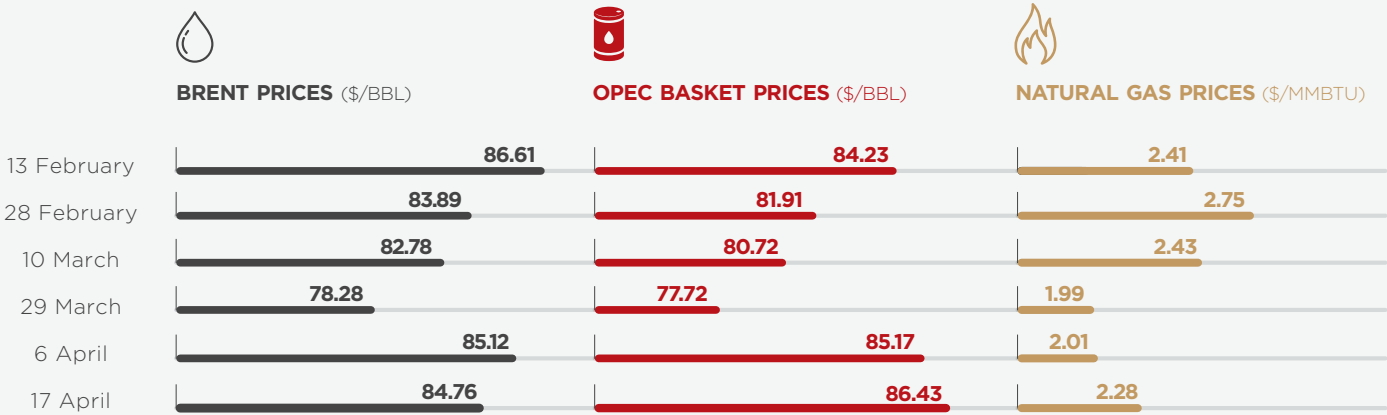
04 OIL TANKERS' TRAFFIC THROUGH THE SUEZ CANAL



05 LAYING THE CORNERSTONE FOR THE INDIAN "FLEX EGYPT FACTORY PROJECT"



06 INTERNATIONAL OIL PRICES



# Achieve exceptional drilling performance with an advanced, integrated BHA

- Eliminates days of rig time to deliver significant savings
- Delivers superior hole quality to eliminate reaming runs
- Drills longer laterals with greater speed
- Accomplishes exact well placement with near-bit azimuthal gamma-ray measurements
- Attains superior wellbore quality with automated wellpath trajectory control

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Advanced rotary steerable service

### CASE STUDY: DELAWARE BASIN, UNITED STATES

Baker Hughes delivered superior wellbore quality and faster penetration rates

**17%**

improvement in  
drilling efficiency

**39%**

reduction in average  
dogleg saved

**62%**

saved in  
drilling costs

**2.7 days**

reduction in  
drilling time

**\$160K**

reduction in  
maximum dogleg

### TECHNOLOGIES AND SERVICES

- Lucida™ advanced rotary steerable service
- Dynamus™ extended-life drill bit