EGYPT OIL&GAS NEWSPAPER

PROUDLY THE OFFICIAL PUBLICATION

EGYPES EGYPT ENERGY SHOW

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OPERATIONAL EFFICIENCY PRACTICES MEET SDGs, ENHANCE OUTPUT

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EDITOR'S LETTER

Dear Reader,

Business operations include all the things it does to create products or services. If your operations aren't efficient enough you could be wasting money and effort. Efficient operations should be cost-effective, and reduce waste while maintaining quality and service.

In the oil and gas sector, operational efficiency can help operators reduce energy use, limit the use of natural resources, and run processes more efficiently to drive out carbon from the value chain.

The current oil and gas landscape has driven the entire industry to reevaluate its operations, adopting long-term strategies to manage costs and achieve sustainability. Enhancing operational efficiency was a key enabler to achieve the industry targets.

In our issue, we cast light on Egypt's journey to enhance operational efficiency in a way that helps Egypt achieve its sustainable development goals (SDGs) and ramp up production.

In our economy section, we offered an economic recipe for operational efficiency in the energy sector, while our industry insight explains the connection between decarbonization and operational efficiency.

Our research and analysis section is offering a deep look into Egypt's journey toward a digitalized future. In our politics section, we are following the expected impact of the Saudi-Iranian rapprochement on the regional geopolitical scene and the global energy markets.

We also offer interesting coverage of the She is Energy event, which was organized by EOG, in tribute to the great role women are playing in the energy industry today. Hope you have a very enjoyable reading and a safe journey toward operational excellence in all of your business domains.

IHAB SHAARAWY
Managing Editor

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She Is Energy: Women to Reshape the Future of Energy

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TOP 5

EL SISI INAUGURATES NITROGEN FERTILIZER COMPLEX IN AIN SOKHNA

President Abdel Fattah El Sisi inaugurated a complex of nitrogen fertilizer factories in Ain Sokhna, the Presidential Spokesman said in a statement.

The inauguration was attended by Prime Minister Mostafa Madbouly, Commander-in-Chief of the Armed Forces & Minister of Defense and Military Production, Mohamed Zaki, Minister of Petroleum and Mineral Resources Tarek El Molla, and a number of ministers and senior statesmen, according to Middle East News Agency.

The Chairman of the Board of Directors of El Nasr Company for Intermediate Chemicals, Ehab Abd Alsamiee, confirmed that the nitrogen fertilizer factories complex in Ain Sokhna, which consists of 6 factories, aims to achieve Egypt's 2030 strategy and support the implementation of national projects to expand the state's agricultural area.

EGYPT EXTENDS CLOSING DATE OF EGAS BID ROUND FOR 12 OPEN E&P BLOCKS

The closing date of the latest Egyptian Natural Gas Holding Company (EGAS) bid round has been extended to the 1st of June, 2023.

The bid round offers 12 open blocks for exploration in the Mediterranean Sea and Nile Delta, according to the Egypt Upstream Gateway (EUG).

Marketed through EUG, it includes six blocks in the Nile Delta, four blocks in East Mediterranean, and two blocks in West Mediterranean.

EGYPT, GERMANY HOLD FIRST MEETING OF HIGHER COMMITTEE FOR ENERGY COOPERATION

Minister of Petroleum and Mineral Resources Tarek El Molla has participated in the first meeting of the Higher Organizing Committee for Cooperation between Egypt and Germany in the fields of Energy and Hydrogen in collaboration with the German Arab Chamber of Industry and Commerce (GACIC).

The meeting was attended by Parliamentary State Secretary at the Federal Ministry for Economic Affairs and Climate Action of Germany, Stefan Wenzel in addition to several Egyptian ministers and officials as well as a number of German and Egyptian Companies working in green energy.

EL MOLLA MEETS WITH EGX CHAIRMAN TO REVIEW SHARES TRADING MECHANISMS

Minister of Petroleum and Mineral Resources Tarek El Molla held a meeting with Rami El-Dokany, Chairman of the Egyptian Stock Exchange (EGX), and the heads of the petroleum sector companies listed on the EGX to discuss the enhancement of trading for shares of sector companies listed on EGX.

The talks highlighted that oil, gas, and petrochemicals are at the forefront of the sectors that attract Arab and foreign investors. The meeting further highlighted that these firms enjoy strong performance indicators and high profitability, which qualified these companies to be the most traded Egyptian companies on the stock exchange in 2022.

During the meeting, El Molla pointed out the importance of cooperation with the EGX in exploiting all opportunities and efficiently employing the competitive advantages enjoyed by the listed petroleum sector companies, thus helping to increase their attractiveness to investors and enhance the value of shares.

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 installation of the new EPF was accomplished with the support and guidance of the Ministry of Petroleum and Mineral Resources and reflects the efforts of many stakeholders in the development, including the Petro Gulf Misr Joint Operating Company, Ganope, EGPC, Kufpec and key contractors such as PPIS, PMS, and Petrojet.

A BLAST FROM THE PAST

In April 2015, former Petroleum Minister Sherif Ismail inaugurated Phase 9a of the mega project to develop deepwater oil fields of the West Delta Deep Marine (WDDM) concession in the Mediterranean Sea.

Sanctioned in March 2013, Phase 9a was valued at $1.5 billion and was involved in the development of nine wells across the WDDM concession. The first well was put into production in July 2014, and as of November 2014, seven wells from the project became operational. The two remaining wells came online in early 2015.

The WDDM concession in the Mediterranean Sea consists of 19 gas fields, of which 12 fields were online in 2015.

The fields are located at water depths ranging from 700m to 850m, approximately 90km to 120km from the shore.

Saipem was the main engineering, procurement, installation, and commissioning (EPIC) contractor for the Phase 9a subsea infrastructure, including flow-lines and umbilicals. General Electric (GE) and OneSubsea were the suppliers of the subsea controls and production tree equipment. Drilling activities for Phase 9a are being performed by Saipem, Diamond Drilling and Transocean, while the long lead items for the project were supplied by Cameron and Vetco Gray.

NUMBER OF THE MONTH

12.1%

Egypt Was The Highest Arab Country in LNG Exports Growth in 2022

Egypt's exports of liquefied natural gas (LNG) last year outperformed all Arab countries, in terms of the growth rate compared to 2021. Egypt's LNG exports amounted to about 7.4 million tons (mmt) from both Damietta and Idku liquefaction plants in 2022, compared to about 6.6 mmt in 2021.

This increase was due to the outstanding performance achieved by Damietta plant in 2022; as the total shipments exported amounted to about 4.14 mmt, representing the highest quantities exported from the station since its reopening in February 2021.

It is also worth mentioning that Egypt ranked third in the Arab world and sixth globally, in terms of LNG exports to European countries in 2022, according to the Organization of Arab Petroleum Exporting Countries (OAPEC).

INVESTMENTS

EL MOLLA, LOONEY DISCUSS BP'S INVESTMENT PLANS IN EGYPT

Minister of Petroleum and Mineral Resources Tarek El Molla met with bp CEO Bernard Looney on the sidelines of CERAWeek, the ministry said in a statement.

The meeting reviewed the British company's projects and investment plans in Egypt in the field of research and exploration for oil and gas with the aim of increasing production.

Looney expressed his company's interest in strengthening its strategic partnership with the Egyptian petroleum sector by exploring investment expansion in research and exploration activities, stating that Egypt had a unique experience in developing its energy sector and enhancing its infrastructure to attract investors and major companies.

Looney further highlighted bp's aspiration to extend its long-term partnership with Egypt as the company enjoyed more than 60 years of success in the country.

ADNOC SHOWS INTEREST IN EXPANDING INVESTMENTS IN EGYPT

A delegation from the Abu Dhabi National Oil Company (ADNOC), including the company's Executive Director for Low Carbon Solutions and International Growth Musabbeh Al Kaabi and its Senior Vice President for Strategic Investments at ADNOC Mohamed Al Aryani, affirmed that they are interested in growing ADNOC's investments in Egypt.

This came during their meeting with the Minister of Petroleum and Mineral Resources Tarek El Molla on the sidelines of CERAWeek being held in Houston in the US.

For his part, El Molla welcomed ADNOC's desire to a become partner in the Egyptian petroleum sector and praised its work on an ambitious investment plan for the coming period.

EGYPT, EOG RESOURCES DISCUSS INVESTMENT OPPORTUNITIES

Minister of Petroleum and Mineral Resources Tarek El Molla met with officials from EOG Resources, one of the leading US companies in the field of research and production, especially in non-traditional production methods, on the sidelines of CERAWeek, the ministry said in a statement.

The meeting included J Pat Woods, President of the International Business of the company, and Joe Korenek, Vice President of Business Development.

The company's officials expressed its desire to start investments in Egypt for the first time for research and production of oil and gas, in light of the company's plans to exploit promising opportunities to increase production.

EL MOLLA, VAALCO CEO DISCUSSING RAMPING UP INVESTMENTS IN EGYPT

On the sidelines of CERAWeek, Minister of Petroleum and Mineral Resources Tarek El Molla met with George Maxwell, CEO of VAALCO Energy, which started investing in research and exploration activities for oil and gas in Egypt in a number of concession areas in the Eastern and Western Desert regions, the ministry said in a statement.

The company started in the Egyptian concessions after the merger of the Canadian company TransGlobe with the American company, the meeting dealt with the situation of research and exploration activities in the company's concession areas.

VAALCO Energy, which owns a diversified investment portfolio in Canada, Egypt, Equatorial Guinea and Gabon, has also expressed interest in increasing its investments in Egypt during the coming period.

TOTALENERGIES EXPANDS ITS INVESTMENTS PORTFOLIO IN THE EGYPTIAN PETROLEUM SECTOR

On the sidelines of CERAWeek, the Minister of Petroleum and Mineral Resources, Tarek El Molla, has conducted a meeting with the CEO of Total Energies Patrick Pouyanné to review the company's practices and investments portfolio in the petroleum sector of Egypt including fuel marketing, promoting high-quality mineral oils in addition to its natural gas exploration and production activities.

For his part, El Molla pointed out that the Egyptian market is promising and attractive for investments since it is a key starting point for petroleum products entering the African market.

PRODUCTION

EL MOLLA WITNESSES RENEWABLE ENERGY, HYDROGEN PRODUCTION PANEL DISCUSSION AT CERAWEEK

During his participation at CERAWeek, Minister of Petroleum and Mineral Resources Tarek El Molla witnessed a panel discussion focused on the projects of renewable energy, emissions reduction, and green hydrogen as one of the sustainable solutions to secure energy resources in alignment with the goals of The Paris Agreement.

The US Secretary of Energy Jennifer Granholm was the main speaker during this part of CERAWeek. She affirmed that the acceleration of issuing the permits for energy projects remains a top priority for the White House.

Granholm expressed President Joe Biden's support for a bill that was introduced in December 2022, which sought to accelerate approvals for clean energy, oil, and natural gas projects. Although it was rejected, there is still optimism about the law and its ability to catalyze clean energy projects, she added.

EGYPT, ENI DISCUSS EFFORTS TO ACCELERATE PRODUCTION PLANS

Minister of Petroleum and Mineral Resources Tarek El Molla met with Guido Brusco, Chief Operating Officer of the Natural Resources Sector at Eni, the largest producer and investor in the oil and gas industry in Egypt, the ministry said in a statement.

The minister discussed with the official of the Italian company the progress of joint efforts to speed up the implementation of development and production plans for crude oil and natural gas fields and discoveries to take advantage of high international prices and support plans to increase production to secure local needs.

EL MOLLA REVIEWS PLANS TO INCREASE PRODUCTION IN SINAI, EASTERN, WESTERN DESERTS

Minister of Petroleum and Mineral Resources Tarek El Molla stated that the ministry's strategy to maximize production from natural resources works in complete harmony with the elements of the production system and adopts all applicable ideas as well as unconventional ideas, the ministry said in a statement.

El Molla noted that all the production companies operating in Egypt still have a lot to achieve in light of the development of the necessary technologies for production and the petroleum potentials that exist in the oil concession areas and the support provided by the ministry's strategy and partners.

This came during the meeting with officials of a number of production companies in the regions of Sinai and the Eastern and Western Deserts to coordinate and expedite the implementation of plans to increase production, which comes within the framework of the minister's periodic meetings with all oil production companies.

INAUGURATIONS

EL MOLLA OPENS PHASE 2 OF THE PREDICTIVE MAINTENANCE PROJECT FOR FUEL STATIONS

Minister of Petroleum and Mineral Resources Tarek El Molla opened the second phase of the predictive maintenance project, which is part of the Supervisory Control and Data Acquisition (SCADA) system at 102 natural gas stations.

This came during his inauguration of the first portable station for converting and maintaining vehicles to run on natural gas.

This project is a part of the Ministry's strategy to develop and modernize the petroleum sector by expanding digitalization applications, especially operating systems.

El Molla has listened to a presentation by the Chairman of the Gastec Abdel Fattah Farahat about the process of applying predictive maintenance technology in SCADA system through automatic follow up processes that monitor the performance of the equipment and detect any problem that could occur.

EL MOLLA INAUGURATES A 36 MW SOLAR POWER STATION AT THE SUKARI MINE

Minister of Petroleum and Mineral Resources Tarek El Molla has inaugurated a solar power station with a capacity of 36 megawatts at the Sukari mine, in addition to a batteries storage system with a capacity of 7.5 megawatts to supply the mine.

This project will help reduce expenditures and enhance production sustainability. The station enjoys the mine's advantageous geographical position in the Eastern Desert, an area that has the highest level of solar radiation and exposure for about 10 hours per day.

The station also helps reduce fuel consumption in the mine by 22 million liters per year and reduces carbon emissions by 60,000 tons of CO2 equivalent.

EL MOLLA INAUGURATES MINING SERVICES PLANT IN MARSA ALAM

Minister of Petroleum and Mineral Resources Tarek El Molla has inaugurated the Marsa Alam plant, a field laboratory affiliated with the Mineral Resources Central Laboratories.

The minister inspected the plant units, which include the atomic and fiery analysis units, the weighing and samples preparation room, and the scientific library. El Molla emphasized the urgency of linking the plant to the central laboratories in Dokki.

El Molla explained that the development of the plant is part of an initiative to upgrade and enhance the efficiency of workers and buildings while providing them with modern technologies to optimize the exploitation of mineral resources and increase its contribution to the national economy. It is worth noting that this is also part of a wider effort to develop plants and mining centers affiliated with the Egyptian Mineral Resources Authority (EMRA).

Head of the EMRA Yasser Ramadan explained that the plant was established in the 1940s, as one of the services of the mining center of the EMRA in Marsa Alam.

EL MOLLA INAUGURATES FIRST MOBILE NATURAL GAS VEHICLE CONVERSION, MAINTENANCE STATION

Minister of Petroleum and Mineral Resources Tarek El Molla inaugurated the first mobile station for converting and maintaining cars to operate with natural gas, which is the first of its kind in Egypt and the Middle East, the ministry said in a statement.

This comes within the framework of supporting the state's plan to expand the use of natural gas in cars by providing non-traditional applications and solutions.

The mobile station is characterized by the availability of all components of conversion kits, equipment, and manual tools used in the conversion process in one mobile car.

El Molla highlighted the importance of the station as a pillar that comes within the framework of innovative solutions used by the ministry to support the presidential initiative and the national project to expand the conversion of cars to be fueled by natural gas, which is witnessing a major boom since the launch of the presidential initiative to convert cars to run on gas.

COOPERATION

EGYPT, GREECE DISCUSS OPPORTUNITIES FOR MORE ENERGY COOPERATION

Minister of Petroleum and Mineral Resources Tarek El Molla met a Greek economic delegation from the American-Hellenic Chamber of Commerce (AmCham Greece), chaired by its President Nikolaos Bakatselos, during which El Molla affirmed the importance of enhancing mutual cooperation in energy.

In the meeting, the minister addressed a number of topics related to strengthening cooperation between Egypt and Greece which will be intensively studied during the coming period.

He elaborated that one of these topics is the trade of liquefied natural gas (LNG) which can open new horizons for cooperation in transporting, shipping, and marketing LNG from Egypt to the middle of Europe, Bulgaria, and Romania via Greece as it is the gate for this market. This is in addition to the cooperation in marine transporting for petroleum products and LNG.

Moreover, El Molla called for studying cooperation in the petrochemicals field and to get benefits from the equipment and technologies provided by the Greek companies to recycle plastics and reduce consumption through the projects of this sector. He also called for cooperation in mining especially green minerals which have a key role in the energy transition.

EL MOLLA, JORDANIAN PARLIAMENT DELEGATION DISCUSS WAYS TO BOOST COOPERATION IN NATURAL GAS ACTIVITIES

Tarek El Molla, Minister of Petroleum and Mineral Resources, received a delegation from the Jordanian Parliament headed by Member of Parliament Obaid Yassin.

During the meeting, the two sides discussed aspects of cooperation between Egypt and Jordan in natural gas activities, and displayed Egypt's pioneering experience in natural gas projects, especially its use as fuel for cars, and how to transfer it to Jordan.

During the meeting, El Molla stressed the depth of the relations between the two countries, indicating that cooperation between the two countries in natural gas activities witnessed continuous integration and coordination to achieve mutual benefit for the two countries.

AMOC SIGNS PROTOCOL TO BOOST ACADEMIC COOPERATION WITH EDUCATIONAL INSTITUTIONS

The Alexandria Mineral Oils Company (AMOC) has signed a cooperation protocol with the High Education Institutions to boost academic cooperation.

The agreement also aims to prepare the students for the labor market and expand the field of research. The protocol was signed by the Chairman and Managing Director of AMOC, Amr Lotfy, and the partners from the educational institutions.

It should be noted that AMOC is interested in developing and raising human capabilities as the cornerstone for the company's progress.

El Molla Highlights Importance of Global Cooperation in Ensuring Energy Sustainability

Minister of Petroleum and Mineral Resources Tarek El Molla affirmed that the global efforts and

ARAMCO

ARAMCO, DHL SUPPLY CHAIN DECLARE NEW END-TO-END PROCUREMENT, LOGISTICS HUB JV

Aramco declared that it will enhance supply chain efficiency and sustainability by signing a joint venture (JV) agreement with DHL Supply Chain, in order to create, the region's first hub catering to customers in the industrial, energy, chemical, and petrochemical sectors.

Aramco's announcement is intended to be operational in 2025 and provide reliable end-to-end integrated procurement and supply chain services for companies across the industrial, energy, chemical, and petrochemical sectors. The joint venture would initially focus on Saudi Arabia, with the potential to expand across the MENA region.

The joint venture is anticipated to bring value in satisfying customers' supply chain purchasing, warehousing and inventory management, transportation, and reverse logistics demands thanks to Aramco's leading energy and industrial supply chain ecosystem and DHL's world-class logistics capabilities.

The goal of the joint venture is to implement more environmentally friendly supply chain, transportation, and warehousing solutions as well as industry best practices in procurement and supply chain management.

SHELL

SHELL ACHIEVES STELLAR PROGRESS IN ITS 2022 ENERGY TRANSITION EFFORTS

Shell announced the release of its Energy Transition Progress 2022 report to showcase the achievements they have made with their energy transition strategy.

The report displays Shell's steps toward becoming net-zero emissions energy business, including their goal to cut net absolute emissions from their operations and the energy that is used to operate them by 50% by 2030 compared to 2016 on a net basis. The company has passed more than half the road to its destination by achieving a 30% energy reduction by the end of 2022.

This report also outlined the company's investment decisions that were taken to increase the production of low-carbon fuels, solar, wind power, and hydrogen while balancing the need to provide secure, affordable energy to help satisfy global demand. The company also increased the number of electric vehicle charge points that they own or operate worldwide by 62% around 139,000 in 2022.

In 2022, Shell's progress report was put to an advisory shareholder vote, as it will be every year until 2050, and received nearly 80% of the vote.

EXXONMOBIL

EXXONMOBIL CONSIDERS SELLING MAJORITY STAKE IN LNG TERMINAL OFFSHORE ITALY

ExxonMobil announced that it may sell its majority stake in the Rovigo liquefied natural gas (LNG) terminal, Italy's main regasification terminal, as part of a larger strategy to get rid of its non-core assets.

The Italian main terminal is owned by Exxon's subsidiary ExxonMobil Italiana Gas (70.7%), QatarEnergy subsidiary Qatar Terminal Company Limited (22%) and Snam Spa (SRG.MI) (7.3%). Exxon stated that although it was confirming market interest, it had not yet made a decision regarding a potential sale and had not found a buyer.

"Tests like this are consistent with our focused investment strategy, highlighting our willingness to divest noncore assets to those who can derive greater value," Exxon spokesperson Meghan Macdonald said.

The offshore terminal, managed by Italy's Terminale GNL Adriatico, is located in the northern Adriatic Sea, about 15 km off Porto Viro in the Veneto region. The facility has recently had its regasification capacity expanded to 9 billion cubic meters of natural gas per year.

CHEVRON

CORTEVA, BUNGE, CHEVRON COLLABORATE TO PRODUCE WINTER CANOLA

Corteva, Bunge, and Chevron U.S.A., a subsidiary of Chevron, declared a commercial partnership to introduce proprietary winter canola hybrids that produce plant-based oil with a lower carbon profile.

The collaboration's goal is to expand the supply of vegetable oil feedstocks mainly for the growing domestic renewable fuels market.

The partners plan to create a new revenue opportunity for farmers with a sustainable crop rotation by introducing the winter canola crop into the southern United States.

The proprietary winter canola hybrids from Corteva can be used in a double crop system, following soybeans or cotton. "We're pleased to work with Bunge and Chevron to bring a new option in the southern U.S. that will deliver solutions for farmers to increase productivity and sustainability on their acres, as well as contribute to the need for renewable and less carbon-intensive fuel options," said Chuck Magro, CEO, Corteva Agriscience.

EQUINOR

EQUINOR MAKES ITS SECOND DISCOVERY OF THE YEAR

Equinor made the eighth oil and gas discovery well in the North Sea area since 2019. The new discovery, which represents the second discovery of the year, is near the Troll field.

The well that has significantly more oil than gas is named Heisenberg and its volumes are estimated to be between 24 and 84 million barrels of oil equivalent, with slightly more oil than gas. The discovery well was drilled by the Deepsea Stavanger drilling rig. Equinor is the operator, and DNO is a partner.

The finding is regarded as having commercial potential, in part because it can make use of already-existing infrastructure linked to the Troll B platform. Before determining whether the amounts can be recovered, an appraisal well must be performed to obtain a more accurate estimate of the size. The appraisal well may be drilled by the parties in 2024.

UNIPER

UNIPER'S NEW CEO LEAVES EQUINOR'S BOARD OF DIRECTORS

Following his appointment as Uniper SE's CEO Michael Lewis has announces that he will step down from his position as a member of the board of directors in Equinor ASA on March 16, 2023, in order to prevent any potential conflict of interest. It has not been announced when he will start serving as Uniper's CEO.

ADNOC

ADNOC GAS SHARES JUMP BY 18% OVER IPO PRICE

ADNOC Gas's stakes have jumped to 2.8 dirhams ($0.7625), compared to 2.37 dirhams at its initial public offering (IPO), Reuters reported. This indicates that ADNOC Gas's shares have increased by about 18% over its listing price in the Abu Dhabi market debut on Tuesday. ADNOC, state-backed oil giant, had earlier this month increased about $2.5 billion through sales of roughly 5% of its gas business in an IPO.

WINTERSHALL DEA

WINTERSHALL DEA INVESTS IN WELLSTARTER TO IMPROVE WELL FLOW MONITORING

Wintershall Dea has invested in Norway-based firm Wellstarter, a provider of smart well flow diagnostics.

The company has created an innovative solution of wireless downhole flow that is both affordable and real-time. Optimized reservoir management is made possible by Heatwave Inflow Profile log (HIPlog) technology, which is essential for maximizing field recovery.

Reservoir management key decisions, for instance, where to drill infill wells, how to complete a well and how to balance production and injection all need reliable downhole production data. This data can be collected using conventional technologies, such as production logging tools, which can be very costly and risky. Using real-time data, HIPlog provides inexpensive, low-risk, and emission-free steady-state flow tracing. Based on heat pulses discharged into the well stream, it does so. The heat pulse is detected by sensors and can be immediately examined locally or remotely.

PETROBRAS

EQUINOR, PETROBRAS INK LOI TO ASSESS SEVEN BRAZILIAN OFFSHORE WIND PROJECTS

Equinor, Petrobras have inked a letter of intent (LoI) during CERAWeek to expand the cooperation between the two companies and evaluate seven offshore wind generation projects.

The LoI will enable the two companies to assess the technical, economic, and environmental feasibility of seven offshore wind power generation projects off the Brazilian coast with the potential to generate up to 14.5 GW.

"Equinor and Petrobras have a long history of successful partnership. We are happy to expand our collaboration to renewables, enabling a broad energy offering in Brazil. Together we are actively engaging to contribute to the realization of offshore wind and Brazil's energy transition, by creating the necessary initial conditions for renewables energy to develop in a sustainable way," says Anders Opedal, CEO of Equinor.

TOTALENERGIES

TOTALENERGIES ENTERS POLISH MARKET WITH BIOGAS, SOLAR PROJECTS

TotalEnergies has expanded its renewable business in Poland by buying Polska Grupa Biogazowa (PGB), the nation's largest biogas generator, and a 200-megawatt (MW) development pipeline of solar projects.

PGB, which employs 130 people in nine regions, specializes in producing biogas from organic waste to produce renewable heat and power.

The acquisition of PGB raises TotalEnergies' biogas production capacity to 1.1 TWh and gives the company a leading position in the promising Polish market, which represents Europe's fourth-largest potential for biogas and biomethane production, estimated close to 100 terawatt-hours (TWh).

With the purchase of six solar projects currently in development, TotalEnergies is also entering the Polish solar market.
Together, these projects have a combined production capacity of 200 MW. The first solar farms are anticipated to go online by 2025 and are situated in northern and western Poland.

BP

BP PULSE, APCOA SIGN AGREEMENT TO BUILD EV HUBS ACROSS EUROPE

bp pulse and APCOA Parking Group have inked a strategic pan-European frame agreement to open more than 100 EV fast charging hubs across Europe.

According to the agreement, bp pulse will install ultra-fast charging at APCOA car parks – 'Urban Hubs' – in Germany, Austria, Belgium, Luxembourg, The Netherlands, Poland and the UK over the coming three years. This will help the company expand its charging network of public charging stations and speed up the development of urban e-mobility infrastructure throughout Europe.

This project is a Part of APCOA'S intentions to transform its car parks into Urban Hubs which will offer physical and digital infrastructure for transportation, logistics, e-charging, and technology-based services.

The bp pulse and 'APCOA Connect' app in the UK and 'APCOA Flow' app in Europe will be digitally integrated as part of the two businesses' joint effort to offer a convenient customer journey. The car park's entry and exit gates will open automatically as the approaching vehicle approaches, and registered users will be able to identify, access, book, and pay for their charging and parking at the car park using their mobile devices.

SHE IS ENERGY: WOMEN TO RESHAPE THE FUTURE OF ENERGY

Egypt Oil & Gas hosted the She is Energy event on March 19th at Dusit Thani LakeView Hotel, taking place in the presence of many distinguished female figures across the energy industry and under the high patronage of Minister of Petroleum and Mineral Resources Tarek El Molla.

The event witnessed speeches by key players from the industry, including the founders of the Women in Energy Network and leaders from the Egypt Oil & Gas Group (EOG) and the EOG Committee.

Eleanor Rowley, Managing Director Egypt at Capricorn Energy PLC and Co-Founder of the Women in Energy Network, has opened the event by highlighting the significance of the Women in Energy Network. Additionally, she talked about the role of women in the oil and gas industry and how this role is important to the sector. "Two qualities exemplified by women in our industry are: passion and determination. There are other places and roles we could be playing in life, the fact that we choose this one is very intentional." Rowley said.

The opening also included the virtual participation of Iman Hill, CEO of the International Association of Oil & Gas Producers IOGP. During a recorded interview with EOG, she presented her vision for the Egyptian sector as well as the career prospects for women in the energy sector. The She is Energy event featured a rich panel discussion between Eleanor Rowley, Managing Director of Capricorn Energy Egypt; Alexandra Thomas, Managing Director of Neptune Energy Egypt; Layla El Hares, Managing Director of Siemens Energy Egypt and Co-Founder of the Women in Energy Network; Dalia El Gabry, Commercial General Manager of Shell Egypt; and Nihal AbdelKarim, Development Engineer Manager at IEOC.

The panel discussed the challenges facing women across their career paths, highlighting why it is important to have one network facilitating women's journey to success. "There are two reasons why I think it is important to have a women's network. The first one is to create a pipeline of future leaders, so we fill in the pipeline from the early stage and help more women," El Hares stated.

It is important for women to support each other to help talents achieve their career paths. "It is important to have a role model woman in place, that can give you even the mindset of where you want to go," AbdelKarim pointed out.

Women have many talents that can, when empowered, enrich the energy sector. "The Egyptian Energy Industry is rich with female talent at all levels and in all disciplines," Rowley stated. The panel also highlighted women's abilities that make them key players in the industry to develop. "Ability to take risks and seek opportunity to always develop yourself has been a key milestone for women," El Gabry noted.

The successful panel highlighted equal opportunities for all. "Career development isn't gender specific. It is specific to everybody, whoever you are, whatever your role, everybody should have access to career development. And actually, it's really an important business value addition," Thomas indicated.

In the breakout session, the distinguished panelists each led a themed discussion. Nihal AbdelKarim led a discussion on role modeling, Dalia El Gabry led talks on women empowerment, Layla El Hares led a discussion on women in the field, Alexandra Thomas was the leader for the career development discussion, and Eleanor Rowley led a discussion on career challenges.

Furthermore, Lamia Oushy, Health and Wellness Advisor at Apache Corporation Egypt, delivered an interesting interactive team building activity during the "She is Energy" event titled "Empowering Women through Wellness." During the activity, she encouraged women to practice self-gratitude and find empowering quotes and share their quotes to motivate others.

Two qualities exemplified by women in our industry are: passion and determination. There are other places and roles we could be playing in life, the fact that we choose this one is very intentional.

ELEANOR ROWLEY
Managing Director Egypt at Capricorn Energy PLC
and Co-Founder of the Women in Energy Network

There are two reasons why I think it is important to have a women's network. The first one is to create a pipeline of future leaders, so we fill in the pipeline from the early stage and help more women.

LAYLA EL HARES
Managing Director of Siemens Energy Egypt
and Co-Founder of the Women in Energy Network

Career development isn't gender specific. It is specific to everybody, whoever you are, whatever your role, everybody should have access to career development. And actually, it's really an important business value addition.

ALEXANDRA THOMAS
Managing Director of Neptune Energy Egypt

Ability to take risks and seek opportunity to always develop yourself has been a key milestone for women.

DALIA EL GABRY
Commercial General Manager of Shell Egypt

It is important to have a role model woman in place, that can give you even the mindset of where you want to go.

NIHAL ABDELKARIM
Development Engineer Manager at IEOC

DINNER & AWARDS CEREMONY

The day was concluded by a joyous dinner and awards ceremony, attended by many petroleum sector officials and notable figures from both the government and corporate worlds.

The event started with a series of eloquent and inspiring opening speeches. Attending the event on behalf of Minister of Petroleum and Mineral Resources Tarek El Molla, Chairman of the Egyptian Natural Gas Holding Company (EGAS) Magdy Galal who read the minister's message, noting that efforts to boost women's empowerment within the industry are heading in the right direction. "Looking closely at the oil and gas sector, the sector currently has a lot of distinguished female employees and leaders who enrich the petroleum business with their tireless efforts."

Mohamed Fouad, CEO and Founder of Egypt Oil & Gas and Co-Founder of the Women in Energy Network, also praised the progress that has been made and the extraordinary work that has been done by the Women in Energy Network. "Since the inception of the Women in Energy Network last year and the official inauguration last October, I am personally very pleased to be one of the co-founders and I am also very pleased with the amount of progress and efforts being made in the equality, diversity, and inclusivity of our industry here in Egypt."

Looking closely at the oil and gas sector, the sector currently has a lot of distinguished female employees and leaders who enrich the petroleum business with their tireless efforts.

H.E. TAREK EL MOLLA
Minister of Petroleum & Mineral Resources

David Chi, VP & Country Manager Apache Corporation, EOG Committee Chairman, commended the role of El Molla in carrying out the necessary measures to achieve the amount of progress in women's inclusion that is seen today. "We have seen a lot of progress [in women's inclusion] in the oil and gas sector under the leadership of His Excellency Minister of Petroleum and Mineral Resources Tarek El Molla. This is why we have a lot of female leaders here today."

After the speeches, the awards ceremony commenced with handing out the Ministry Awards to Sheerin Mohamed from General Petroleum Company (GPC), Hanan El Bahrawy from the Egyptian Natural Gas Holding Company (EGAS), Neveen Tantawy from EGAS, Amany AbdelHakim from the Egyptian General Petroleum Corporate (EGPC), Sarah AbdelHady from Gemsa Petroleum Company (Gampetco), Gehan Alsayed from Misr Petroleum Company, Samah Amer Saad from United Gas Derivatives Company (UGDC), Dina Hegazy from United Gas Derivatives Company (UGDC), Sarah Reda from Petrobakr Petroleum Company, Riham Awad Khalda Petroleum Company, and Aliaa Abdelatef (retired and highly respected all over the industry).

A number of inspiring women and experts in the field also won the prestigious She is Energy Award including EGPC's CEO Assistant for Information Technology and Telecommunications Iman Ahmed Wafy (Legacy Award), UOG Country Manager Dr. Samir Abdel Moaty (Promotion of Female Talent Award), bp Environmental and Social Advisor Yousra Morsy (HSE Award), Neptune Energy's Contracts & Purchasing Advisor Ragia Habib (Business Excellence Award), SLB HSE and Facility Manager for Egypt, Sudan, and the East Mediterranean Lilian Mahfouz (Leadership Award), Shell's Planning Manager for Integrated Gas, Renewables & Energy Solutions Sally Kenawy (Inspire Award), and Baker Hughes Subsea Field Engineer Diana George (Young Achiever Award).

The celebration was ended with a classy cuisine and a musical performance playing the inspiring tunes of success.

We have seen a lot of progress [in women's inclusion] in the oil and gas sector under the leadership of His Excellency Minister of Petroleum and Mineral Resources Tarek El Molla. This is why we have a lot of female leaders here today.

DAVID CHI
VP & Country Manager Apache Corporation, EOG Committee Chairman

Since the inception of the Women in Energy Network last year and the official inauguration last October, I am personally very pleased to be one of the co-founders and I am also very pleased with the amount of progress and efforts being made in the equality, diversity, and inclusivity of our industry here in Egypt.

MOHAMED FOUAD
CEO and Founder of Egypt Oil & Gas and Co-Founder of the Women in Energy Network

WOMEN ENERGY PIONEERS HONORED AT THE SHE IS ENERGY AWARDS CEREMONY

Iman Ahmed Wafy - Winner of the Legacy Award

With 35 years of experience in the sector, Iman Ahmed Wafy knows what true dedication and commitment mean, working as the EGPC's CEO Assistant for Information Technology and Telecommunications. Throughout her career, she was one of the many unique women who played a special role in both the human development and IT aspects of the energy sector, contributing to the Ministry's Middle Management Program.

Dr. Samir Abdel Moaty - Winner of the Promotion of Female Talent Award.

As the Country Manager of UOG, Dr. Samir Abdel Moaty's contribution to women's inclusion has been both pivotal and inspiring. Dr. Samir runs the Al Amal program which trains and develops geoscience university graduates. This program, now in its 14th year, has been essential to give women the tools that they need to pursue long and successful careers in the energy industry.

Yousra Morsy - Winner of the Woman in HSE Award

With global climate change becoming a main concern for experts around the world, the industry is in need of vibrant, innovative women ready to ensure that we lead a more environmentally prosperous future, and one such woman is Yousra Morsy. As an Environmental and Social Advisor at bp, Yousra played an essential role in building the Environmental Management System and developing the Low Carbon Plan in Egypt.

Ragia Habib - Winner of the Business Excellence Award

Excellence would be an understatement when describing Ragia Habib's role in the industry as Neptune Energy's Contracts & Purchasing Advisor. Ragia played a leading role in closing groundbreaking deals, such as the OBN Seismic Survey for the first time in Egypt as well as many high-value core contracts that are essential for drilling activities in the country.

Lilian Mahfouz - Winner of the Leadership Award

You can't have success without a leader and no success is better than when there's a woman leader behind it. SLB for years has enjoyed the hard work, dedication, and above all leadership of Lilian Mahfouz, as she rose up the ranks to become the company's HSE and Facility Manager for Egypt, Sudan, and the East Mediterranean.

Sally Kenawy - Winner of the Inspire Award

A brilliant financial mind is what drives every organization forward and Sally Kenawy has redefined brilliance in her path to success as Shell's Planning Manager for Integrated Gas, Renewables & Energy Solutions. Her skills and due diligence have been a significant contribution to Shell's performance in Egypt and her ability to balance both her professional and work life is above all inspiring.

Diana George - Winner of the Young Achiever Award

She hit the ground running when she joined Baker Hughes becoming the first woman to be a Subsea Field Engineer for the company. Diana George is a trendsetter and a source of empowerment for other women to explore careers in the same field.

EGYPT'S OIL & GAS

SECTOR TOWARDS A DIGITALIZED FUTURE

BY JOLLY MONSEF, MARIAM AHMED & YOUSTINA MOUNIR

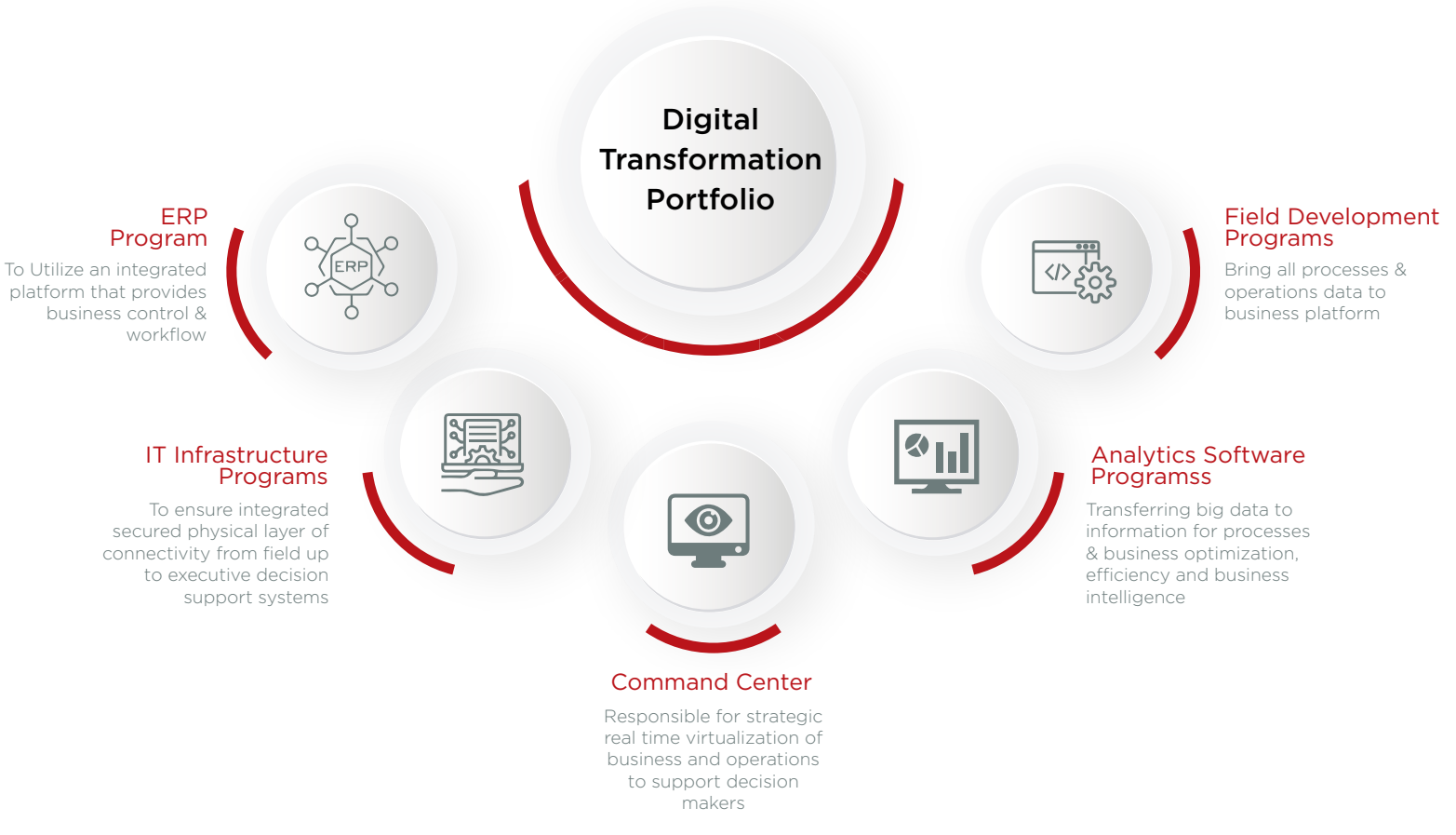
The world is going digital and embracing sundry new technologies. In this regard, the Egyptian oil and gas sector does not tolerate keeping pace with this development, through adopting the digital transformation program. This program comes as the seventh pillar of the sector's modernization program, which was developed in 2016, to transform the oil and gas sector into one that operates digitally on a wider scope.

Flashbacks

The Egyptian oil and gas sector has pioneered digital operations over the past 60 years. This digital adaptation was evident in the widely deployed technologies in the oil and gas sector, such as the Supervisory Control and Data Acquisition (SCADA) systems, the Distrusted Control Systems (DCS), and the smart and digital instruments used in companies and fields.

DIGITAL TRANSFORMATION PORTFOLIO

Within the digital transformation program framework, the Ministry of Petroleum and Mineral Resources (MoPMR) set a digital transformation portfolio that encompasses five main pillars to achieve a comprehensive digital transformation process. These pillars include Enterprise Resource Planning (ERP) systems, and developing information technology (IT) infrastructure that are decisive for digital transformation. Moreover, the portfolio focuses on establishing command centers, Data Analytics Software and field development programs.



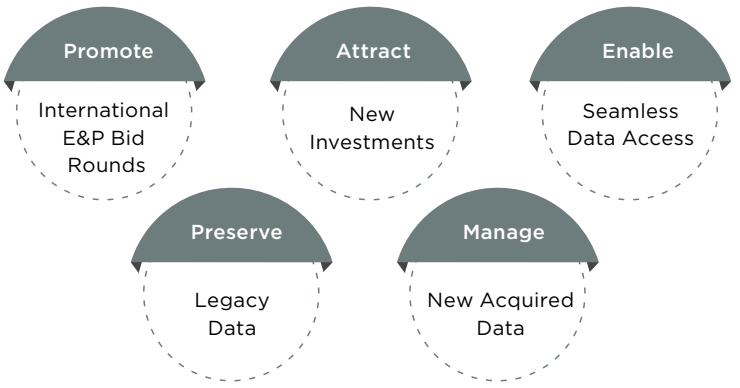
TRANSFORMATION ACROSS SECTOR'S VALUE CHAIN

The main objective of the digital transformation program is developing and modernizing Egypt's oil and gas sector to be more efficient, achieve optimal performance across the whole value chain, upstream, midstream and downstream. It is worth mentioning that establishing the Egypt Upstream Gateway (EUG) is considered to be a significant step towards digitalizing the upstream activities, being the first exploration and production (E&P) digital data center.

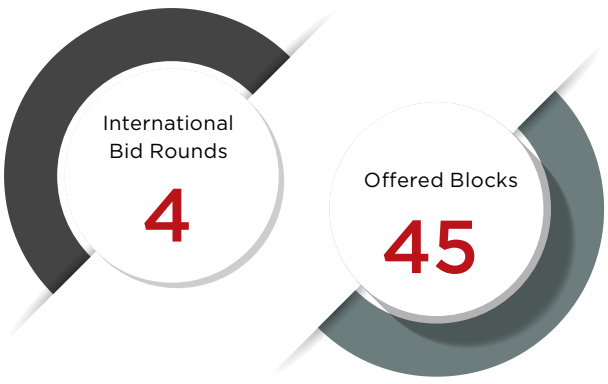
UPSTREAM

1. EUG

EUG VISION



EUG ACHIEVEMENTS



2. Digital Applications

Egypt Production Digital Centre

Monitoring and reporting oil & gas production data using AVOCET Software

GIS Platform

Digitizing asset's locations and data maps of production locations

Digital Data Centre

Preserving, managing and analyzing oil & gas sector data

MIDSTREAM

1. Monitoring & Control for Oil & Gas Grids

NATA Control Center

Enhancing management, operation and monitoring of national gas network

ERP Systems

Implemented across GASCO & PPC

Phase 1 of PPC SCADA System

Enhancing management, operation and monitoring crude oil & products network

Phase 1 of Automatic Tank Gauging System

Completed for PPC

DOWNSTREAM

1. ERP System Implementation

Holding Companies as EGPC and others

More than **60** companies

Affiliated companies, including refineries and sales & distribution companies

2. Refinery Operations

Phase 1 of Radar Tank Gauging System	Phase 1 of Linear Programming
Monitoring operations & storage facilities	Optimizing process operations and supply chain activities

3. Sales & Distribution Operations

Digital monitoring of petroleum products consumption

Automatic Tank Gauging System

Tracking petroleum products transportation and distribution

Digital Smart Systems & GPS

Facilitating identifying nearest locations of fuel stations

First Mobile Application "MOP Stations"

COLLABORATION WITH DIGITAL PARTNERS

The MoPMR is keen to continue collaboration and cooperation with different digital partners through signing Memoranda of Understanding (MoUs) and agreements to accelerate digitalization implementation efficiently by using various modern solutions and technologies.

The collaboration mainly aims to support digital transformation projects, benefit from the IT companies' advisory services in digital transformation, and enhance digital transformation to meet international best practices.

Signed MoUs and Agreements for Digital Transformation

Feb, 2023

MoPMR & IBM
EGPC & Cisco
EGPC & Oracle
Enppi & SAP
Tanmia Petroleum Company & Huawei Technologies
EMC & Huawei Technologies

Mar, 2022

Abu Oir & SAP

Feb, 2022

MoPMR & Apache

MINISTRY'S FUTURE PLANS

The MoPMR paid attention to developing future plans for digitalization, being one of the most essential aspects of the sector's future. The future plans are mainly focused on continually expanding the sector's digital foundation projects, continuing collaboration with partners to deploy the latest technologies, synthesizing information, business analytics, and insights, as well as, supporting unlocking the full potential of the Egyptian oil and gas sector.

Digital transformation is not just transforming processes to become digital; it is the approach to remodeling any enterprise to incorporate digital technology across different sectors to achieve greater efficiencies. The MoPMR seeks to digitize Egypt's entire oil and gas sector by establishing integrated digital systems to leverage integration and improve coordination between sector entities. This is in addition to ensuring the availability of data to support, speedy decision-making and being able to help when facing crises.

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1,500 Conference speakers	**164** Countries represented

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His Excellency
Suhail Mohamed Faraj Al Mazrouei
Minister of Energy and Infrastructure
United Arab Emirates

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DECARBONIZATION: THE KEY TO ACHIEVING OPERATIONAL EFFICIENCY

BY RANA AL KADY

To begin with, the oil and gas sector has advanced substantially over the past decade thanks to the implementation of new and innovative decarbonization strategies that have improved operations and explored previously unimaginable potential. Oil and gas research has undergone a rapid digital transition, and many businesses are now coming to recognize meaningful investment returns. Companies might anticipate even greater achievements in the future by keeping up with and improving their strategies and future plans. With that, it is important to ask: how can oil and gas firms go through a transition process in order to boost the oil and gas sector's operational effectiveness?

General Overview

Firstly, setting emission-reduction targets in the oil and gas sector is still in its beginning stages. In fact, it is expected that oil and gas corporations' reported plans to reduce Greenhouse Gas (GHG) emissions by approximately 30%, significantly below the standards set forth in the Paris Agreement. Potentially, improved operating efficiency, digitalization, and the utilization of renewable energy sources might enable oil and gas activities to completely decarbonize. The majority of decarbonization capability must be realized through capital spending, although some strategies, such as the use of renewable energy, electrification, and operational efficiency, are now economically viable for several oil and gas projects. Besides other things, the decarbonization capacity of oil and gas sites differs depending on the product, oil and gas activity, power source, and network emissions.

Consequently, effective operation equates to responsible operation. Most of all, it is a cost-effective first move in lowering pollutants, the third largest cause of pollutants, as well as intermittent flaring and venting. A recent study demonstrates that firms in the top percentile of operational efficiency have the least pollutants in the industry based on the resilience of their operations across a worldwide range after fundamental considerations are taken into account. The finest resources emit approximately three times as much as those in the third quartile, which can accomplish just under 7 kg per barrel of oil equivalent.

The Necessity of Decarbonization

Furthermore, the country's demand for fossil fuels is rising in spite of efforts to transition to a carbon-neutral society. The oil and petrol sector has a problem in supplying the rising demand for energy while also lowering total emissions. In order to promote the transition to a low-carbon future, such situations require persuasive methods.

As suggested by a data analyst in the oil and gas industry, "While [decarbonization] is underrated, it is one of the most practical ways to allow oil and gas companies to be able to become effective in their operations, but also it will allow [companies] to achieve targets in sustainability and take off some of the pressure that oil and gas companies are facing because of the amount of emissions." One method to uphold environmental requirements is to integrate carbon-neutral forms of technologies like wind and solar within carbon-intensive projects in the industry. Oil and gas firms may anticipate cutting emissions and use of energy along the whole production chain by using dependable and integrated solutions.

Decarbonization Methods

There are a multitude of ways in which the oil and gas sector would be able to achieve decarbonization through operational efficiency. For example, some studies have suggested that up to US$5.8 trillion would be needed annually until 2050 to enable the energy transition. The oil and gas industry is highly suited to finance new energy ventures due to its extensive expertise in obtaining cash, even in the most intense of sectors, in addition to its capacity for sustaining strong balance books and reliable returns.

Additionally, markets for renewable energy are expanding quickly. Decision making on the optimum source of energy for each effort will get more difficult as technology evolves and as clean energy sources expand. Hence, the oil and gas industry has long used competitive intelligence to provide the appropriate energy to the appropriate location at the appropriate time at the appropriate price.

Moreover, in terms of risk management, there is a risk of budget overruns and setbacks when investing the sum needed to have an impact on the world. Oil and gas firms must be efficient at seeing and minimizing the risks associated with big projects, in addition to those that result from doing business in several different countries and in a wildly uncertain market.

In conclusion, the lack of pipeline infrastructure, growing sustainability and environmental concerns, decreased output, and greater legislations have all contributed to the oil and gas industry's rising operational efficiency during the last few years. Oil companies are relying on decarbonization to boost efficiency and compete favourably with rivals. Businesses are beginning to understand how decarbonization may help them keep their market share and provide fresh potential growth. Organizations need a transition process to take use of evolving environmental goals without losing efficiency in order to make the most of these new prospects.

There are a multitude of ways in which the oil and gas sector would be able to achieve decarbonization through operational efficiency.

ZERO LIQUID DISCHARGE: AN ENABLER FOR SUSTAINABILITY

BY FATMA AHMED

With global calls for the green energy transition to achieve sustainability, the petroleum sector is focusing on ways to preserve the environment while keeping production moving continuously at the same time. Wastewater is one of the big issues faced by the petroleum sector. Since technology is the main aid for getting solutions, it evolved Zero-liquid discharge technology to help increase operational efficiency. This technology is a wastewater management strategy that eliminates liquid waste and maximizes water usage efficiency.

Spot Light on Zero Liquid Discharge

According to an article entitled "Zero Liquid Discharge Solutions," Zero liquid discharge (ZLD) refers to a "treatment process in which the plant discharges no liquid effluent into surface waters, in effect completely eliminating the environmental pollution associated with treatment. It is about removing any liquid waste and increasing the water usage efficiency". An article published by Klaren bv indicated that this method also aims to recover valuable mineral resources from wastewater.

Lenntech published an article stating that ZDL technologies consist of brine concentrators and crystallizers that use thermal evaporation to turn the brine into highly purified water and solid dry products that can be gotten rid of or generate salt from it. Also, there are other promising technologies with high recoveries that have emerged and can be used in different combinations to lower the cost and raise the efficiency of the systems.

According to meg.cz, which is one of the ZLD providers, the ZLD process consists of three steps; pretreatment, concentration, and thermal treatment. "Pretreatment is used to reduce the amount of Total Suspended Solids (TSS), Chemical Oxygen Demand (COD), and turbidity. After removal or significant reduction of TSS, COD, and turbidity of treated wastewater, other wastewater treatment processes can be used."

It explained the second step, stating that the "concentration of dissolved solids in the ZLD system is usually accomplished by membrane technologies, such as reverse osmosis (RO), electrodialysis (ED) or by a combination of RO with ED. With the help of ED technology or the above-mentioned combination of RO + ED, we can achieve recovery of more than 98 % of treated water."

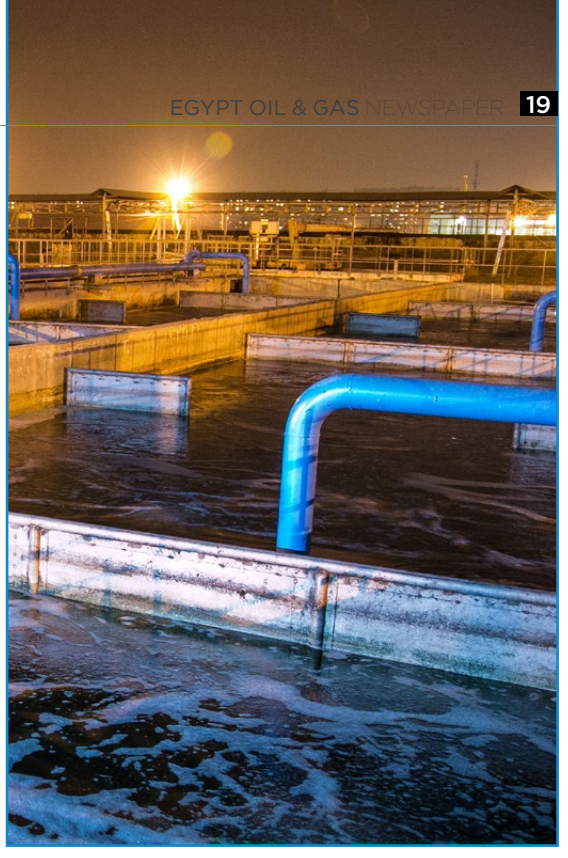
In the third step, thermal treatment, "the last step of the ZLD process is usually consisting of an evaporator and crystallizer. The output of this process are crystalline salts NaCl, Na2SO4, etc. These salts can be sold for further processing. Any unusable solid waste is landfilled at controlled landfills. Evaporated water can be reused as condensate."

Significance of ZLD

ZLD systems have impressive benefits. It can minimize the amount of wastewater which helps in lowering the costs of waste management as well as maximize the amount of water recovery. In addition, it reduces environmental pollution or issues. So, this technology is very beneficial in achieving sustainability and providing a safer environment.

ZLD Application in Oil and Gas

An example of applying ZLD in the petroleum sector is having the Aquatech company sign a contract with Egyptian Ethylene and Derivatives Company (ETHYDCO) to provide a water treatment facility that includes the first integrated ZLD plant in Egypt. The integrated solution consists of a microfiltration system, a High-Efficiency Reverse Osmosis (HERO™) system, followed by a Fractional Electrodeionization(FEDI™) and brine concentrator, and finally, a crystallizer and sludge treatment system.

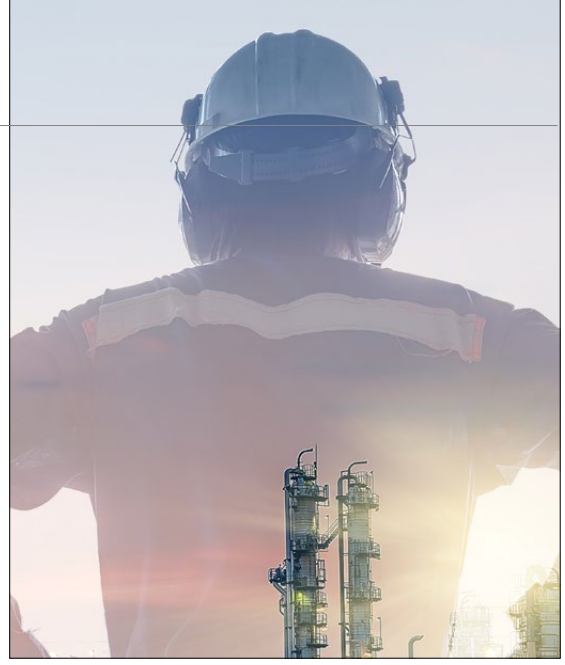


ETHYDCO has taken this step seeking to "optimize a consistent composite mix of treated effluent and water from Nile River canal." The plant started operation in 2015 and was keen on meeting all the required standards of ZLD established by the Egyptian government to protect the river Nile.

Zero liquid discharge (ZLD) refers to a "treatment process in which the plant discharges no liquid effluent into surface waters, in effect completely eliminating the environmental pollution associated with treatment.

ZLD systems have impressive benefits. It can minimize the amount of wastewater which helps in lowering the costs of waste management as well as maximize the amount of water recovery.

THE ECONOMIC RECIPE FOR OPERATIONAL EFFICIENCY IN THE ENERGY SECTOR



BY NADER RAMADAN

Being one of the hottest topics in any energy forum or think tank, operational efficiency is paramount for the success of any economy, especially in today's atmosphere which values that endurance counts the most for survival. While economic experts may agree that optimizing operational efficiency is a must and main priority for policymakers, economic strategies and approaches may vary based on the general situation of a particular country or region. Nonetheless, there is a consensus that one of the most important strategies is taking measures to boost the role of information technology within the energy sector while opening the country up to investment by creating lucrative, attractive opportunities.

Adopting economic policies that promise foreign investors stability is the first essential step to optimize operational efficiency. As the financial aspect of any healthy economy plays a pivotal role in its well-being, it can also act as a catalyst and provide the fiscal power needed to accelerate measures to enhance operational efficiency and drive production. For this reason, creating an economy with flexibility in its investment regulations is essential in ensuring that the wheels of the energy sector are well-oiled and ready to turn.

Allocating state resources to bolstering technological development forms a fundamental of securing the necessary investments needed to enhance operation efficiency. The emergence of sophisticated digital platforms for investment through bid rounds, such as the Egypt Upstream Gateway (EUG), has been a key enabler in the improved operational efficiency that has been witnessed up till today, pouring the necessary financial resources needed to meet the costs of the training, digitalization, and asset maintenance.

Foreign investment can also help bridge the gap between the limited facilities available locally and the unlimited technical and financial resources available on an international level to boost operational efficiency. It goes without saying that when foreign investments are put into key assets within the country, it is within the mutual interest of the host country (such as Egypt) and a foreign investor to ensure that all measures taken to optimize operational efficiency are up to an acceptable level.

This is why flexible policies that bypass traditional bureaucracies must be adopted, especially when applying regulations to joint ventures (JVs) and other multinational partnerships that apply world-class technologically superior methods onsite to revive the local energy sector.

With increased investment, digitalization can also play its role in optimizing the operation of onsite equipment as well as asset monitoring and maintenance practices to ensure that returns to the companies and investors experience sustainable growth. Once confidence is fully secured, this can be a tool to attract even more investments and additional talent that can contribute to the enhancement of operational efficiency.

"The integration of digital processes into operations enables fundamental processes such as the predictive maintenance of machinery, remote monitoring of field operations, and the collection and standardization of data with instant, reliable, and easily accessible information on modern intelligent digital platforms. This transformation is then complemented with the incorporation of AI (Artificial Intelligence) that can use and coordinate these various tools to help make business decisions in which delays or the inability to act agilely can trigger logistics nightmares or significant hidden costs. With so many new operational, labor and health processes that this new reality has generated for this sector, society's expectations regarding its efficiency and its companies are increasing. These expectations and demands are stronger than ever," said Enrique Mallea in the article titled "Technology leads to operational efficiency in the energy sector".

Building an environment that encourages private sector cooperation both inside and outside of any country is also vital for ensuring that operational efficiency reaches its full potential. Investments must be directed to the building of open platforms of communication where experts can communicate and learn to enhance operational efficiency within the country in the most effective way possible.

"Parallel to handling, digitalizing, and cleaning the data, companies must ensure collaboration with a robust and well-aligned partner ecosystem. Bringing operators on board such as the OSDU Forum, academia, and technology partners will result in the optimum foundation for the next step; getting the organization on board. These partners, as well as the often geographically spread-out employees, must be provided with the technological framework that can utilize the data as well as scale up the digitalization project with no operational delays. This will most likely require a cloud-based solution, which in turn has the benefit of moving digital operations away from the engineers' trust "Excel on steroids" and onto AI and machine learning-driven platforms that can leverage the data to its full capacity," said experts from Kongsberg Digital in their article titled "How can the Energy industry achieve Operational Efficiency and remain cost-competitive?".

With a global market that has become increasingly competitive and demands robust performance for emerging economies, operational efficiency is an essential ingredient for economic survival and building endurance for the rough tides ahead. As operational efficiency is a critical aspect of any growing energy sector, it should be the specific focus of policymakers and corporate officials who need to lead the pack and build new roads to a more prosperous future.

> *Adopting economic policies that promise foreign investors stability is the first essential need to optimize operational efficiency.*

PETROLEUM AGREEMENTS: THE BACKBONE OF THE EXPLORATION AND PRODUCTION SECTOR

The petroleum industry is considered one of the modern industries in the Middle East and the oil-producing Arab countries, which means that the history of petroleum contracts is relatively recent. The first oil contract concluded in the Middle East was between the Iranian government and the English British Petroleum Company in 1901, being the first model of the contractual relationship between an oil-producing country and a foreign company specialized in the oil industry and affiliated with a consuming country.

Crude oil receives great attention from the major countries as one of the national, security, economic, industrial and development goals for all countries of the world. As officials of the energy sector in the world seek to provide resources for foreign exchange, this can be achieved through several additional tracks, including issuing more bids for research and exploration in promising and attractive areas for international companies. This is in addition to re-evaluating the agreements signed with companies currently operating to improve the terms of the contract, if this was a legal issue, especially in light of the thirst for global energy markets and the strong competition between production companies.

Therefore, we find that commitment agreements to search for and exploit oil and gas represent the backbone of the oil and natural gas sector in particular and for the state in general. According to those agreements, oil and natural gas exploration can be done through foreign, Arab and Egyptian companies, which in turn supply billions of dollars as direct investments, with the aim of increasing and supporting the production of oil and natural gas. This is in addition to indirect investments, which directly affects the state's public treasury and the country's national product positively. Increasing research, exploration and development work and the subsequent increase in production rates also work to reduce the import bill and the cost of production, which is ultimately in the interest of the national economy.

According to the foregoing, we find that the oil sharing contracts are based on the participation of oil and natural gas producing countries or one of their oil institutions with a foreign company in oil exploration and exploitation with equal participation in obligations and rights. Therefore, the basic idea of oil sharing contracts is to consider the state or one of its national companies as a full partner in the exploitation of oil and natural gas, provided that the exploration risks remain on the shoulders of the foreign partner. In partnership contracts, the company undertakes the financing and implementation of development, operation and production operations throughout the contract period and the formation of a joint management committee between them periodically to follow up and discuss the common basic matters.

It is worth noting that foreign contracting companies that came to contract are looking for two things:

- It is securing energy for its countries during the global struggle of the economic blocs, and most importantly, marketing it and using it as a political card, and then the profit comes.

- Material profit to support the national economy for partner companies in production.

On the other hand, petroleum sharing contracts take multiple forms between oil-producing countries and foreign companies operating in the oil industry, the most important of which is the joint venture contract and the production sharing contract.

In general, petroleum agreements contribute to attracting more investments and have an effective role in developing the oil and gas resources of countries and strengthening national energy security by working to achieve self-sufficiency in oil and natural gas. It also helps achieve fair geographical distribution of development plans throughout the country, with ensuring that there is enough oil and natural gas supplies to meet the needs of future generations.

There is no doubt that achieving these goals requires more major investments to support and develop the infrastructure of the oil and natural gas industry, including pipeline networks and production facilities, as well as investment in all activities and fields of the oil and gas industry, refining and petrochemicals. In order to start implementing this plan, there is a need to include clauses in the model of petroleum agreements that stimulate and encourage foreign partners to invest, especially in light of the high cost of developing discoveries in general and in deep water areas in the Mediterranean in particular, as well as the risk factor. Therefore, some clauses were put in the new agreements. It aims to achieve an appropriate return on investment, which encourages the foreign partner to invest and quickly put discoveries into production to meet the needs of the local market, especially of natural gas, and work to promote and achieve a balance between the interests of the two parties.

Is It Still Profitable?

Even with oil prices at $80/barrel, exploration can be profitable for companies. Ironically, the price crash of 2015 favored exploration, as much capital shifted away from traditional exploration to short-cycle shale oil. Since 2016, the majors have drilled fewer traditional exploration wells - which are usually capital-intensive and long-term - and instead focused on faster-yielding exploration. And six of the seven main companies achieved higher returns from traditional exploration in the period from 2016 to 2020, compared to the previous five years.

On the other hand, the largest oil producers in the world face limits that prevent them from extracting it, as the average commercial success rate reached about 40%, while the technical success rate in the countries of the world reached about 50%, as the world witnessed a state of decline in exploratory drilling rates, Governments that have the resources will want to maximize the value of their oil and gas revenues through the energy transition.

In conclusion, agreements in the field of oil and natural gas have become one of the most important legal tools that govern this important strategic activity. This is especially the case in countries that depend almost entirely on oil and where the exploitation of oil requires entering multiple contracts between the country that has natural wealth and one of its agencies or companies. On the one hand, an acceptable degree of balance must be achieved between the interests of the producing country and the companies that conduct research and exploration.

By Dr. Ahmed Sultan.

Vice-Chairman Energy Committee Cairo Engineers Syndicate.

OPERATIONAL EFFICIENCY PRACTICES MEET SDGs, ENHANCE OUTPUT

BY SARAH SAMIR

The oil and gas sector has been implementing several operational efficiency practices to help Egypt achieve its sustainable development goals (SDGs). The Egyptian oil and gas sector, through the Modernization program, is set to ensure the operational efficiency of the upstream, midstream, and downstream sectors. This comes as the industry adopts digital transformation, and works on decarbonizing the oil and gas sector's process, and petroleum products as well; while the Ministry of Petroleum and Mineral Resources (MoPMR) works on developing refineries and transportation.

Digital Transformation

The Egyptian oil and gas sector has been embracing digital transformation across its upstream, midstream, and downstream businesses. This comes as the Ministry established the Egypt Upstream Gateway (EUG) in 2020, in cooperation with Schlumberger. The EUG came as a digital platform that aims to maximize the value of the country's natural resources data in the exploration and production (E&P) sector. The platform digitally promotes Egypt's oil and natural gas bid rounds.

As Egypt started the digital transformation journey early on, it helped the sector overcome the COVID challenge of social distancing. It ensured operational efficiency as it empowered the oil and gas industry talents to work remotely and keep the business on track.

The digital transformation of the sector extends to the distribution and tracking of petroleum products. The Ministry ensures having a GPS tracking system for the petroleum products transportation vehicles to guarantee they will not be misdistributed and reach the black market.

Decarbonization

As Egypt is enhancing the oil and gas operational efficiency and ensuring it comes in line with sustainable development, the country pays attention to decreasing the industry's carbon footprint. Concetto Fischetti, International Association of Oil & Gas Producers (IOGP) Energy Transition Director wrote in August 2022 that "for the industry at large to successfully decarbonize, the oil and gas industry needs to lead by example."

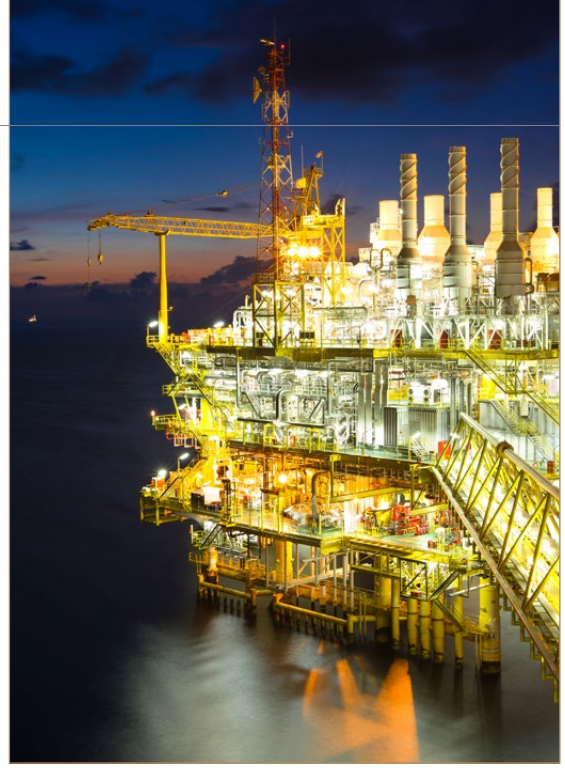
Egypt successfully hosted the United Nations Climate Change Conference (COP27) on November 2022, featuring a day for oil and gas decarbonization for the first time in the history of COP, giving a seat for the oil and gas industry on the climate action table.

Moreover, the country has been sealing several Memoranda of Understanding (MoUs) and agreements to commit to the goal of decreasing carbon emissions and capturing carbon to reuse the pressurized CO2 produced from the carbon-capturing process for better operational efficiency.

Refineries Development

Egypt is committed to the modernization of its refineries, as it performs technical updates which will improve refineries' operational performance. Upgrading the old refineries guarantees an increase in their operational efficiency and production capacity. Therefore, the country can ensure an increased output of petroleum products, which eventually decreases the import bills.

Developing the Egyptian refineries helped the country boost "investments by $4,545 million (EGP 72.43 billion) between FYs (2015/16-2018/19) compared to the period between FYs (2011/12-2014/15)," according to a report published by Egypt Oil & Gas in 2020.



With operational efficiency across the different levels of the oil and gas sector, Egypt is ensuring an increase in production. Moreover, the country ensures enhancing the quality of decarbonized production, while it makes sure the sector is digitally connected.

The EUG came as a digital platform that aims to maximize the value of the country's natural resources data in the exploration and production (E&P) sector.

As Egypt is enhancing the oil and gas operational efficiency and ensuring it comes in line with sustainable development, the country pays attention to decreasing the industry's carbon footprint.

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SAUDI-IRANIAN RAPPROCHEMENT RESHAPES REGIONAL GEOPOLITICAL SCENE

BY IHAB SHAARAWY

After years of tension that involved suspected attacks and proxy wars in several parts of the region, the archrivals, Saudi Arabia and Iran, decided to reestablish diplomatic relations. The China-brokered Saudi-Iran rapprochement is seen as a major diplomatic breakthrough that may alter the regional geopolitical scene.

The agreement, signed by Saudi Arabia and Iran in Beijing, was described as a major victory for China, which emerges for the first time as an influential mediator in this region. It is also seen as another setback for the United States, which sees its role and influence in the Middle East diminishing.

Some experts are still cautious not to exaggerate their optimism while predicting the impact of this rapprochement between the Saudi Kingdom and the Islamic Republic on the conflicts in Yemen, Lebanon, Iraq, and Syria. They also wonder: how can better relations between the two giant energy producers affect energy markets and OPEC policies?

A Window for Peace

Saudi Arabia and Iran have been locked in a fierce struggle for regional dominance.

Their rivalry is aggravated by religious differences as Iran is largely Shia Muslim, while Saudi Arabia is a leading Sunni Muslim power.

After the Iranian Revolution in 1979, relations deteriorated as Saudi Arabia was alarmed by Iran's tendency to export its model beyond its own borders.

As uprisings across the Arab world in 2011 caused political instability throughout the region, Iran seemed more determined to establish itself or its proxies across the region and achieve control of a land corridor stretching from Iran to the Mediterranean.

Iran and Saudi Arabia were not directly fighting, but they are engaged in a variety of proxy wars around the region. In Yemen, Iran backed Houthi rebels who seized control of the capital in 2014, prompting a Saudi-led intervention the following year and fighting that has left hundreds of thousands dead and caused one of the world's worst humanitarian crises.

In the Syrian civil war, Iran supported the Syrian regime with military and financial aid, while Saudi Arabia was a major supporter of rebel groups. Iran and Saudi Arabia also have competing interests in Lebanon, Iraq, and Bahrain where they supported opposite factions.

The news about the rapprochement between the two archrivals sent waves of optimism about the easing of conflict in these countries. Under the deal, both countries would restore agreements related to security, trade, and culture. They also agree to respect the other's sovereignty and to not interfere in the internal affairs of the other.

Many experts predict that easing tensions between Riyadh and Tehran could see the two push for political reconciliation in Lebanon, make it more palatable for Riyadh to interact with the Assad regime in Syria, and may provide a boost in efforts to end the conflict in Yemen.

However, some experts believe that the reconciliation between Riyadh and Tehran is no "magic wand" for conflicts in these countries, as there are no easy solutions for these complex conflicts.

Some White House officials have shown skepticism about China's ability, and desire, to play a role in resolving some of the region's most difficult crises, including the long, disastrous proxy war in Yemen.

Growing Role For China

However, the landmark deal is seen as a diplomatic victory for China in a region where geopolitics has been dominated by the US for a long time. It comes at the same time China proposes an initiative to end Russia's war in Ukraine.

The deal also comes at a time when relations between the US and China have become highly contentious over issues ranging from trade to espionage and increasingly the two powers compete for influence in parts of the world far from their own borders.

It also comes as Iran accelerates its nuclear program after two years of failed U.S. attempts to revive a 2015 deal that aimed to stop Tehran from producing a nuclear bomb. Hence, came the interpretation by some experts who see the deal as a slap at the Biden administration and as evidence that China is the rising power.

The White House downplayed China's involvement, saying that internal and external pressure, including effective Saudi deterrence against attacks from Iran or its proxies, ultimately brought Tehran to the table.

However, there is a growing concern in the US about China's motives. According to news reports, Republican Representative Michael McCaul, chairman of the US House of Representatives Foreign Affairs Committee,

rejected China's portrayal of itself as a peace broker, saying it "is not a responsible stakeholder and cannot be trusted as a fair or impartial mediator."

Meanwhile, White House spokesperson John Kirby said the US was closely monitoring Beijing's behavior in the Middle East and elsewhere. "As for Chinese influence there or in Africa or Latin America, it's not like we have blinders on," he said. "We certainly continue to watch China as they try to gain influence and footholds elsewhere around the world in their own selfish interests."

Still, Beijing's involvement adds to a perception of growing Chinese power and influence and shrinking US global presence.

Saudi-Iranian Friendship Energy Effect

One of the most important gains Gulf countries can achieve after the Saudi-Iranian deal is lowering the risk of attacks on energy facilities and shipping vessels. Hence, it can be seen as an advantage for crude oil importers and exporters in the Middle East and could stabilize the global oil market.

Experts believe that Iran-Saudi cooperation can also play a significant role in the decision-making process of OPEC, and prompt some regional countries that follow the policies of Saudi Arabia to restore their relations with Iran.

Saudi Aramco CEO Amin Nasser showed optimism, indicating that improving bilateral Iran-Saudi relations will have a positive impact on global oil markets, as the Iranian Oil Ministry has issued a statement saying that it would welcome any offer for foreign investment in its oil and gas projects.

Without naming any country or company, the Oil Ministry said any offer for investment in Iranian oil and gas projects, especially from members of the OPEC+ alliance of oil-producing nations, would be welcome in Tehran.

Saudi Arabia is the largest oil exporter in the world and a leading member in the OPEC+ grouping, which consists of the Organization of Petroleum Exporting Countries (OPEC) and allies like Russia.

Iran is the third largest natural gas producer and still a key supplier of crude oil to Asian markets despite being subject to sanctions imposed by the US since 2018.

However, one of the expected essential effects is the one concerning China, which is nearer than ever to achieving another geopolitical advantage by convincing Saudi Arabia to accept the petro-yuan for payment for its crude oil exports to China. This will be another blow to the US and the petrodollar.

Some experts are still cautious not to exaggerate their optimism while predicting the impact of this rapprochement between the Saudi Kingdom and the Islamic Republic on the conflicts in Yemen, Lebanon, Iraq, and Syria.

CLIMATE CHANGE ... THE UNEXPECTED DANGER

The world is going through one of the most difficult periods full of the consequences of climate change. Since the industrial revolution, humans have relied on fossil fuels such as coal, oil, and gas to secure the energy they need in industry, transportation, and other activities. These activities resulted in huge emissions of greenhouse gases, the most significant of them is carbon dioxide. In addition, the processes of uprooting trees, the retreat of natural systems, and the decline of forest areas also contributed to the secretion of additional quantities of greenhouse gases.

Accordingly, human activities have contributed to the intensification of greenhouse gases in the atmosphere, and this causes the retention of additional quantities from infrared radiation reflected by the Earth's surface, which leads to higher rates of heat on the Earth's surface and consequently, climate change.

By the end of the twenty-first century, scientists predict that human activity will increase global temperatures by 3 to 6 degrees Celsius, with significant negative effects on all facets of the human and environmental systems.

It is anticipated that climate change will increase the severity and frequency of hazardous climatic events like floods, hurricanes, droughts, seasonal disturbances, and forest fires, along with the significant financial and human losses these events cause, particularly in underdeveloped areas of the world that lack the resources to mitigate their effects and adapt to them.

According to studies, there are climate change solutions that are both feasible and accessible, but only if governments take immediate action. These studies brought to light the reality that the longer the necessary steps are delayed, the higher the costs will be for future generations. If the world intends to maintain warming to a minimum of two degrees Celsius this century.

Data revealed by the latest report of the Intergovernmental Panel on Climate Change (IPCC) suggests that waiting 15 years and not acting until 2030 would increase costs on average by about 50 percent until 2050, if the world hopes to keep warming to a minimum of two degrees Celsius this century.

Energy sector experts find that reducing net emissions to zero is achievable within the framework of strong and well-planned economic growth that emphasizes four approaches:

1. Work begins with a shift from depending on fossil fuels to generating electricity with the use of clean energy that reduces carbon in the production of electricity.

2. As clean energy increases, a massive shift in clean electricity production can increase access to green energy and replace polluting fuels.

3. Increasing energy efficiency helps in reducing demand.

4. To preserve the integrity of natural carbon capture pathways through better management of forests and lands that will help offset residual emissions through carbon capture and storage.

To confront the climate catastrophe before it is too late, decisive action must be taken to cut greenhouse gas emissions in order to slow and ultimately stop the pace of climate change.

Mohamed Atia

Process Engineer at Egyptian Refining Company (ERC)

GREEN HYDROGEN IN EGYPT: FUELING A GREENER FUTURE

Egypt tops the list of Arab countries in the production of green hydrogen, and indeed the global nineties occurred for the production of green cooling. This raised the number of projects within this field in the region to 34 projects.

In July 2021, Egyptian President Abdel Fattah El Sisi directed that it be the fuel of the future that is friendly to participation, and it is expected that Egypt will add green hydrogen to the integrated energy system for the year 2035, which has already launched.

What is Green Hydrogen?

Green hydrogen is a carbon-free fuel whose source of production is water and its production processes ensure the separation of hydrogen molecules from oxygen molecules in water, by means of electricity generated from renewable energy sources.

This technique relies on the generation of hydrogen, which is a light and highly reactive global fuel, through a chemical process known as "electrolysis", and this method is based on the use of an electric current to separate hydrogen from the oxygen in the water. Electricity would be obtained from renewable sources and the process involves energy production without emitting carbon dioxide into the atmosphere.

The International Energy Agency points out that this method of obtaining green hydrogen would save 830 million tons of carbon dioxide (CO2), which is emitted annually when this gas is produced using fossil fuels, and replacing all gray hydrogen in the world requires 3,000 terawatt hours / year from new renewable energy sources. However, there are some questions about the feasibility of green hydrogen due to the high cost of its production.

Hydrogen as Clean Energy

Hydrogen is the most abundant chemical element in nature, and it is a source of clean energy that only emits water vapor and does not leave any residue in the air, unlike coal and oil. However, despite the world's orientation to green hydrogen because of its great benefits and its minimal impact on the environment, this does not mean that this type of fuel has disadvantages as well.

Advantages of Green Hydrogen

- Green hydrogen does not emit polluting gases either during combustion or production. It also is storable and can be used later for other purposes

According to a report, the International Energy Agency (IEA) estimated that the price of a ton of green hydrogen from renewable energy sources is between 2.5 to 5.5 euros, equivalent to 2.8 to 6.19 US dollars half by 2030.

The IEA also expects that the costs of water analysis will decrease from 900 euros to 450 euros after 2030, then a new decrease to 180 euros after 2040, which heralds a promising future of clean, green energy.

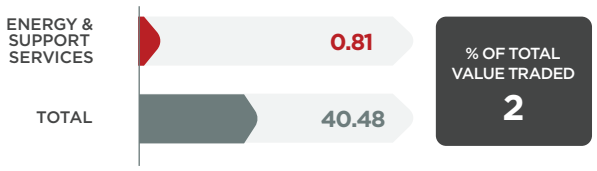
Nasr Yassien

Petro-Disouq Operations Manager & Board Director

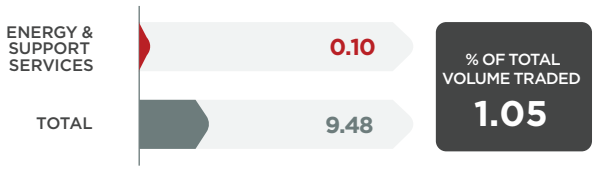
EGYPT OIL&GAS
RESEARCH & ANALYSIS

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

VALUE TRADED (EGP BILLION)



VOLUME TRADED (BILLION SHARES)



02 PERFORMANCE OF PETROLEUM COMPANIES IN THE EGYPTIAN EXCHANGE IN FEBRUARY 2023

NATIONAL DRILLING

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

ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	8.49	34.34

EGYPT GAS

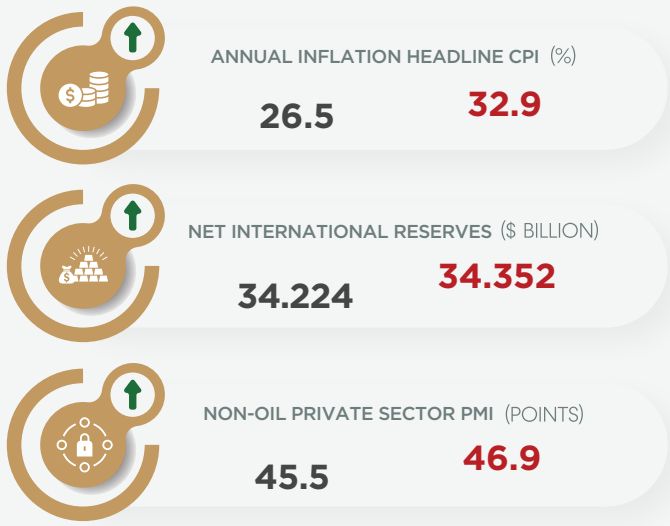
CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	35.16	5.48

SIDI KERIR PETROCHEMICALS

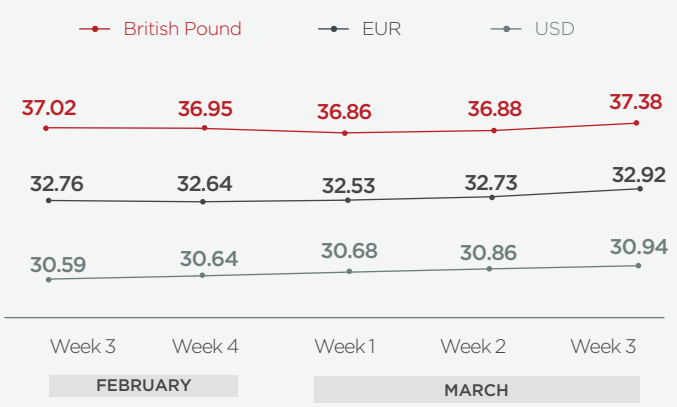
CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	16.64	26.83

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

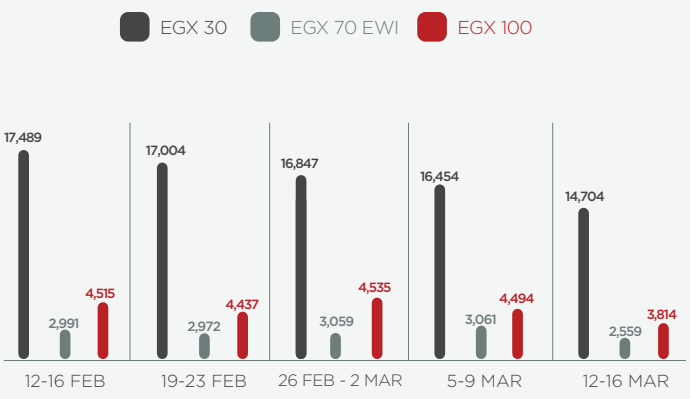
03 MAIN ECONOMIC INDICATORS



04 EXCHANGE RATES



05 CAPITAL MARKET INDICATORS



01 1ST NATURAL GAS DELIVERED FROM NORTH EL AMRIYA & NORTH IDKU OFFSHORE EGYPT*

Company	Well	2P reserves	Expected Net WI Production by 2024	Targeted Wells
Energean	NEA#6	39 mmbbloe	15 – 20 kbbloe/d	3 To be brought online during 2023

*Announced in March, 11

02 ASH-8 WELL TO REACH ITS TOTAL DEPTH*

Company	License	Net Oil Pay	Total Depth
UOG	Abu Sennan	22 meter	3,999 meter

*Announced in February, 28

04 LNG, NATURAL GAS EXPORTS GROWTH IN DECEMBER 2022 (YOY)

47.3%

03 NEW GREEN HYDROGEN PLANT TO BE ESTABLISHED IN EGYPT

Company	Investment Cost	Implementation Date
China Energy	$5.1 million	May 2023

05 EGYPT, SCATEC SIGN AN AGREEMENT FOR GREEN AMMONIA PRODUCTION

Date: February 24

Egyptian Parties: ECHEM & MOPCO

Aim:

Building an integrated complex to produce green ammonia

Securing local needs and increase exports

06 INTERNATIONAL OIL PRICES

	BRENT PRICES ($/BBL)	OPEC BASKET PRICES ($/BBL)	NATURAL GAS PRICES ($/MMBTU)
18 January	84.98	84.62	3.31
27 January	86.66	85.31	3.11
08 February	85.09	81.92	2.4
22 February	80.6	80.52	2.17
06 March	86.18	84.59	2.57
16 March	74.7	73.75	2.51

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improvement in drilling efficiency

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reduction in average dogleg saved

62%
saved in drilling costs

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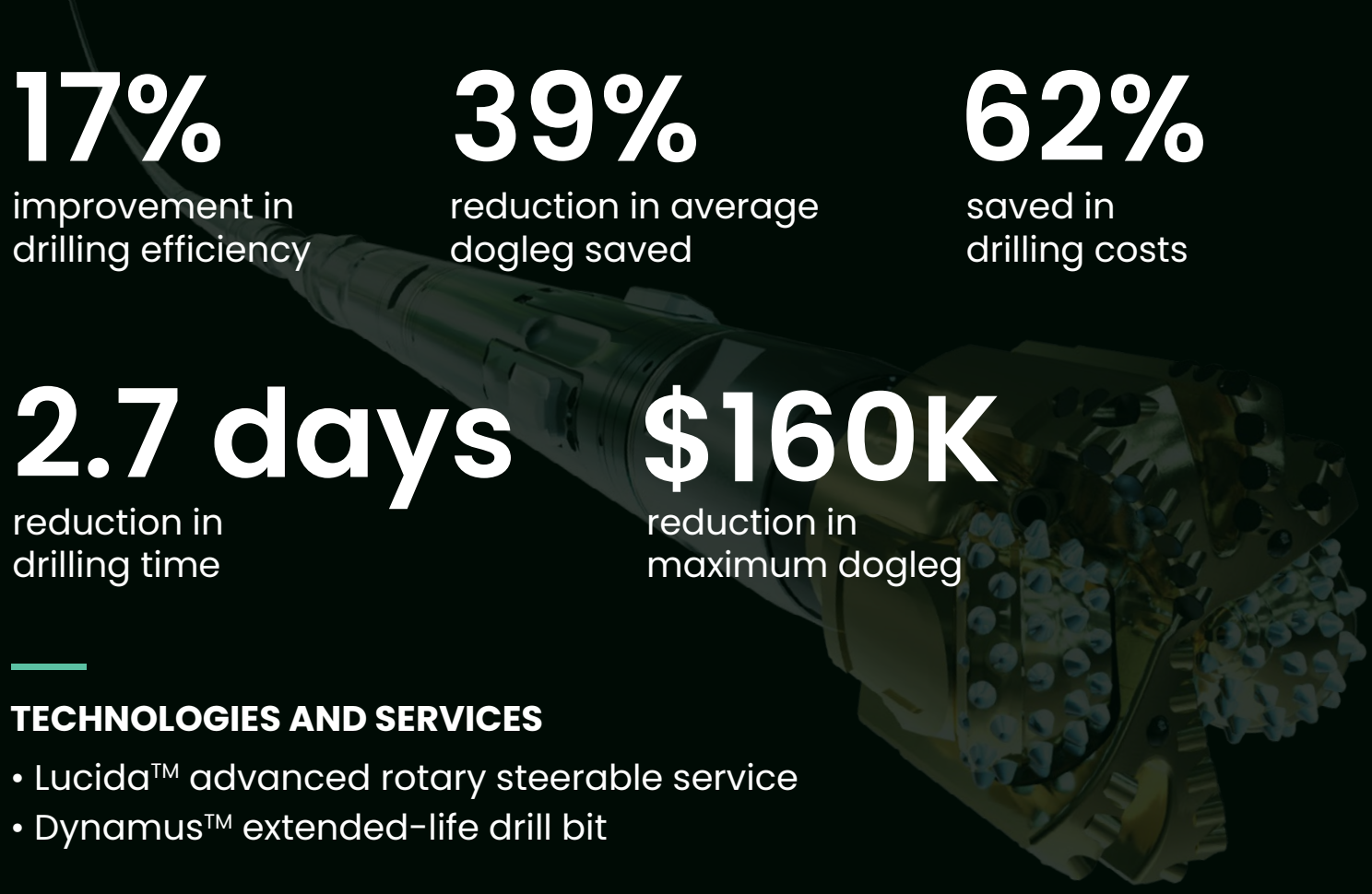
reduction in drilling time

$160K
reduction in maximum dogleg



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Baker Hughes