EGYPT OIL&GAS NEWSPAPER

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EGYPES
EGYPT ENERGY SHOW
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POWERING THE FUTURE:

EOGC 2024 DRIVES EFFICIENCY AND GROWTH

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EDITOR'S LETTER

Dear Reader,

As we close another remarkable year in the energy sector, we are excited to present the December issue of Egypt Oil & Gas Newspaper, which coincides with one of the most significant events on our calendar: the 10th Egypt Oil & Gas Convention (EOGC 2024).

The EOGC 2024 is not just an event; it's a platform tailored to incubate groundbreaking ideas while exploring the immense potential within our industry. We were honored to have Karim Badawi, Egypt's Minister of Petroleum and Mineral Resources, grace the opening ceremony. His commitment to ramping up production while emphasizing the significance of efficient reservoir management speaks volumes about the direction our industry must take. The Minister's vision for a balanced approach between production and exploration echoes the sentiments of many stakeholders striving for a sustainable future.

In this issue, we will keep you informed about all the details of this exciting event. Our writers will also delve into the sector's remarkable contributions toward shaping the future of energy. They explore the strides made in renewables and examine Egypt's ambitious targets, as well as the high potential that lies ahead. Additionally, our coverage includes insights into the latest trends in energy economics and politics, offering you a comprehensive understanding of the dynamics at play in our industry.

As we move forward, let us embrace the dialogue initiated by EOGC 2024 and continue to explore ways to collaboratively navigate the challenges and opportunities that lie ahead. Together, we can contribute to a more reliable, efficient, and sustainable energy future.

Wishing you an insightful read as we wrap up this year and gear up for new horizons in 2025.

Happy reading!

MANAGING EDITOR

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EGYPES EGYPT ENERGY SHOW

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TOP 5

QatarEnergy Expands in Egypt with 23% Acquisition in North El-Dabaa Offshore Block

QatarEnergy entered into an agreement with Chevron to acquire a 23% working interest in the concession agreement for the North El-Dabaa (H4) Block, in the Mediterranean Sea offshore Egypt.

Pursuant to the agreement, QatarEnergy will acquire a 23% interest, while Chevron (the operator) will retain a 40% interest. The other partners on the block are Woodside with a 27% interest and Tharwa Petroleum Company, an Egyptian state company, with a 10% interest.

The North El-Dabaa (H4) Block lies about 10 kilometers offshore the Egyptian Mediterranean shore at water depths ranging between 100 and 3,000 meters.

Egypt Receives First Oil Tanker as New Energy Agreement with UAE Takes Off

The Ministry of Petroleum and Mineral Resources (MoPMR) and the Government of the Emirate of Fujairah in the United Arab Emirates (UAE) has started implementing the terms of the cooperation agreement signed between them last August, as the Egyptian terminal received the first oil tanker under this agreement.

Minister of Petroleum and Mineral Resources Karim Badawi explained that this cooperation comes within the framework of developing Egypt's status as a regional Hub for energy and oil trading, as well as investing in the distinctive oil & gas infrastructure of the existing terminals as well as facilities and developing them.

The scope of cooperation between the two parties, according to the terms of the agreement, includes transferring the experience of developing the Port of Fujairah and establishing a petroleum logistics zone in the Hamra Port area on the Mediterranean Sea, investing in Egypt's distinguished geographical location and the distinguished infrastructure of the petroleum sector in the Hamra Port and trading petroleum products through the port's facilities. It also includes supplying petroleum products to cover part of the local needs.

MoPMR, Dragon Oil Sign MoU for AI Application in Petroleum Reservoirs

The Egyptian Ministry of Petroleum and Mineral Resources (MoPMR) signed a memorandum of understanding (MoU) with Dragon Oil on using advanced artificial intelligence (AI) applications in the management of petroleum reservoirs in the company's concession areas in the Gulf of Suez, which contributes to improving production efficiency and sustainability.

The MoU signing took place at the conclusion of ADIPEC 2024 conference & Exhibition in Abu Dhabi, in presence of Karim Badawi, Minister of Petroleum and Mineral Resources, and Ali Rashid Al-Jarwan, Managing Director of Exploration & Production and CEO of Dragon Oil.

Badawi stated that signing the MoU with Dragon Oil represents an important step within the framework of the practical implementation of the ministry's work program, which aims to maximize the benefit from modern capabilities of digital transformation and AI in the operations of the oil and gas sector.

Badawi also held a meeting with the CEO of Dragon Oil, where they reviewed the ways of cooperation for increasing oil and gas production rates.

Egypt Signs Four New MoUs to Enhance Oil and Gas Production and Development

Prime Minister Mostafa Madbouly witnessed the signing ceremony of four new memoranda of understanding (MoUs) with the aim of studying and researching the possibility of exploring, producing, and developing oil and natural gas fields.

The signing took place in the presence of Karim Badawi, Minister of Petroleum and Mineral Resources.

Badawi emphasized that the new MoUs aim to boost production from mature fields in the Eastern and Western Deserts and the Gulf of Suez, which will help raise production rates and meet the demands of the local market.

He also underscored the importance of collaboration with private sector companies to strengthen local oil and gas production. The minister noted that revitalizing older fields presents a significant opportunity to achieve a breakthrough in production by leveraging advanced technology in exploration and development operations.

TAQA Arabia / Voltalia Consortium Sign an MoU with the Ministry of Electricity to Repower Zafarana Wind Farm With a New 3.2 GW (Wind / Solar) Project

TAQA Arabia, Egypt's leading private sector energy and utility provider, in partnership with Voltalia, one of the largest international companies in the sector of generating, operating, and supplying all types of renewable energy, has signed a non-binding Memorandum of Understanding (MoU) with the Ministry of Electricity and Renewable Energy.

Represented by the Egyptian Electricity Transmission Company (EETC) and the New and Renewable Energy Authority (NREA), the MoU aims to study and explore the development of a pioneering 3.2 GW (wind/solar) power plant in Suez Governorate repowering Zafarana wind farm.

The signing ceremony was attended by Mostafa Madbouly, Prime Minister; Mahmoud Esmat, Minister of Electricity and Renewable Energy. Originally commissioned by the Government of Egypt two decades ago, the Zafarana 545-megawatt wind farms were the first of their kind in the MENA region and a milestone in Egypt's renewable energy journey.

This strategic partnership between TAQA Arabia and Voltalia entails conducting preliminary technical and environmental measurements and studies to establish a fully integrated green power facility in Zaafrana. The plant will combine 1.1 GW of wind power with 2.1 GW of solar power, making it the first project in Egypt to merge both renewable energy sources.

A BLAST FROM THE PAST

In December 2014, the Ministry of Petroleum signed with Apache and Shell the first contract at an estimated value of $40 million for producing unconventional gas by fracking in the Northeast region of Abul Gharadiq in the Western Desert.

Then Minister of Petroleum and Mineral Resources, Sherif Ismail emphasized the importance of the project to open new horizons for unconventional gas production in the Western Desert, tapping into the extensive and cohesive geological formations that require drilling techniques similar to those employed in shale gas production in the US.

The field, discovered in 1969, is considered the first large hydrocarbon discovery in the Abul Gharadiq Basin, one of Egypt's most productive and promising oil and gas provinces.

In 2021, the Abul Gharadiq field produced around 2,600 barrels of crude oil and 15 million standard cubic feet of gas per day.

Efforts to develop the Egyptian Abul Gharadiq field continue as part of the government's efforts to maximize oil and gas revenues and direct part of local gas production to solve the electricity crisis in the country.

The Abul Gharadiq field has witnessed many developments in recent years, especially with efforts to extend some pipelines to transport gas from it and to complete the seismic data reprocessing program for the entire Abul Gharadiq Basin area.

UNDER THE LIMELIGHT

Added Natural Gas Production in (July - October) 2024

200 mmcf/d

Accelerated Upstream Activities Yield Substantial Results

The Ministry of Petroleum and Mineral Resources' (MoPMR) strategic approach focusing on mitigating challenges and accelerating development, production, and exploration activities has yielded positive outcomes. Production indicates a 39,000 barrels per day (bbl/d) increase in crude oil between July and October. The Ministry's ongoing efforts to incentivize investment and streamline operations have encouraged International Oil Companies (IOCs) to accelerate their upstream activities, fostering a more conducive environment for both domestic and international energy firms.

Combined efforts aim to significantly boost production and meet growing energy demands. For instance, drilling operations at the Zohr gas field will resume, adding two new wells expected to yield an additional 220 million cubic feet per day (mmcf/d). Additionally, the second phase of gas production at the Raven field will be accelerated, commencing in January 2025. To further enhance gas reserves, exploratory drilling on the "Khendjer-1" well in the North Dabaa Marine area is underway, and preparing to add a third well to the production map from the West Delta Deep Marine (WDDM).

PRODUCTION

PMS Completes Major Development of GUPCO's Offshore October Field to Boost Crude Production

Petroleum Marine Services (PMS) Company announced that it successfully completed the development of offshore October field affiliated to Gulf of Suez Petroleum Company (GUPCO).

The company said that it implemented the laying of two 18- diameter offshore pipelines in deep water and connected them to OCTOBER-C, OCTOBER-A, OCTOBER H and OCTOBER -P platforms by using advanced technologies and high technical expertise by the company's giant marine unit, the PMS 12 barge, which specializes in line-laying and offshore platform installation.

The project aims to maximize GUPCO's crude oil production from the offshore October field and reflects PMS's advanced strategy, incorporating the highest standards of quality and safety across all operations.

AGREEMENTS

Enppi, Honeywell Sign Emission Reduction Cooperation MoU

Engineering for the Petroleum & Process Industries (Enppi), signed a memorandum of understanding (MoU) with Honeywell on the sidelines of the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC 2024).

The MoU aims to review opportunities for cooperation between the two companies in the field of reducing carbon emissions and greenhouse gas (GHG) emissions, and to benefit from the modern technologies provided by Honeywell in the same field.

Additionally, the MoU aims to coordinate workshops and training courses to exchange technical expertise and enhance both companies' competitive advantage, aligning with Egypt's petroleum sector strategy for sustainable development and environmental preservation.

The MoU was signed inside Enppi's pavilion at ADIPEC by Wael Lotfy, Chairman and Managing Director of Enppi, and Khaled Hashem, Regional President of Honeywell Middle East and Africa.

EPROM Expands Global Reach with Strategic Partnership with Nigeria's NETCO Limited

Egyptian Projects Operation & Maintenance (EPROM) has signed a cooperation agreement with Nigerian company NETCO Limited, marking a significant milestone in its global expansion strategy.

This partnership aims to strengthen ties between Egypt and Nigeria in the petroleum sector and paves the way for EPROM to establish a strong presence in the Nigerian and broader African markets.

The agreement also aligns with the directives of Minister of Petroleum and Mineral Resources Karim Badawi, supporting the Ministry's strategy to encourage petroleum sector companies to expand their international operations.

The contract was signed on the sideline of the MOC forum, at EBROM's headquarters in the Petroleum Complex in Alexandria.

COOPERATION

Egypt and IFC Explore New Avenues for Cooperation in Energy and Mining

Minister of Petroleum and Mineral Resources Karim Badawi has received a delegation from the International Finance Corporation (IFC), headed by Valerie Levkov, Global Industry Director for Energy, Metals & Mining, and Sustainable Infrastructure where they discussed possible cooperation in the oil, gas and mining sectors.

They also discussed how to boast cooperation in the projects of energy transition and green energy in addition to the promising investment opportunities in the mining sector in the light of the the Ministry of Petroleum and Mineral Resources (MoPMR) plan to increase it contribution in the gross domestic products (GDP) to between 5-6% instead of 1%.

Levkov highlighted that Egypt is one of the African countries offering attractive investment opportunities, noting the close cooperation that has taken place in recent times.

She added that the IFC looks forward to increasing this cooperation during the coming period, whether in the energy sector or the mining sector, pointing out that the Foundation helps in providing markets to attract private sector investments in the field of energy, minerals, mining and consulting related to sustainable infrastructure.

EVENTS

Egypt Backs African Energy Initiatives at 46th APPO Council of Ministers Meeting

Egypt's Minister of Petroleum and Mineral Resources Karim Badawi participated in the 46th session of the African Petroleum Producers' Organization (APPO) Council of Ministers held in Yaoundé in Cameroon. The meeting provided a platform for eight Energy Ministers from APPO member countries to exchange views on critical issues shaping Africa's oil and gas sector.

The ministerial meeting reviewed of the organization's most significant endeavors over the preceding period, with particular emphasis on the advancement of the African Energy Bank. The founding agreement for the bank was executed at the headquarters of the Egyptian Ministry of Petroleum and Mineral Resources in June 2024. Furthermore, Nigeria, designated as the host country for the bank's headquarters, has confirmed that preparations are underway for its inauguration in January 2025, as stipulated by the intergovernmental accord.

The agenda further encompassed the enhancement of regional and continental cooperation, the promotion of sustainable energy development, and the resolution of Africa's energy access and financing challenges in the context of the global energy transition.

Badawi stated that Egypt is committed to supporting African energy development by presenting the capabilities of Egyptian companies across the entire oil and gas value chain, aiming to aid member countries in advancing their sectors. The minister further highlighted strategies to foster African collaboration for optimal and timely resource utilization, benefiting the nations of the continent.

Badawi Higlights Energy Challenges, Opportunities at ADIPEC 2024

Ministry of Petroleum and Mineral Resource Karim Badawi participated as a keynote speaker in the opening ministerial session of the Abu Dhabi International Petroleum Conference (ADIPEC) Exhibition and Conference 2024 under the title "New Global Leaders and the Energy Transition".

The session's panelists included Suhail Al Mazrouei, Minister of Energy and Infrastructure of the UAE; Shri Hardeep Singh Puri, Minister of Petroleum and Natural Gas of India; and Ruth Nankabirwa Ssentamu, Minister of Energy and Mineral Development of Uganda.

The session addressed the challenges of the world's growing population and the resulting increment in demand for energy. It also tackled the energy trilemma, which is to provide energy at affordable prices and in a sustainable manner, along with the challenges and opportunities it entails.

SECTOR'S PROGRESS

Bapetco's Emissions Reduction Project Selected for COP 29 Presentation

The Ministry of Petroleum and Mineral Resources (MoPMR) has announced that the emissions and flare gas reduction project, implemented by Badr El Din Petroleum Company (Bapetco) in the Obaiyed and Badr-3 fields of the Western Desert, has been selected for presentation and discussion at COP 29, scheduled to take place in Azerbaijan from November 13 to 23.

The project is one of the successful national projects in this field and it won the National Initiative Award for Smart Green Projects in September 2024.

The project aims to reduce carbon emissions resulting from flare gases in gas processing plants at Badr El Din Company's fields (El Obaiyed and Badr-3), where approximately 140,000 tons of carbon equivalent

were successfully reduced annually, and it also led to an increase in the production of processing plants by 3.4 million cubic feet of gas per day, (mmcf/d) or approximately 1.241 billion cubic feet (bcf) annually.

Badawi Unveils Key Petroleum Sector Milestones and Ambitious Plans for 2025

Minister of Petroleum and Mineral Resources Karim Badawi announced that the petroleum sector is currently producing 1.4 million barrels of oil equivalent per day (mmboe/d).

He noted that new production was added during the first quarter of the 2024/25 fiscal year, including 30,000 barrels of oil per day (bbl/d) and 133 million cubic feet per day (mmcf/d) of natural gas.

Badawi made this significant announcement during his presentation at the weekly Cabinet press conference, where he provided updates on the petroleum sector's latest developments, the operational results for 2024, and the Ministry of Petroleum and Mineral Resources' (MoPMR) strategy.

Badawi elaborated that the ministry seeks to increase production rates to achieve self-sufficiency and reduce imports bill. He also explained the efforts of the operating companies to return the production to its level.

Badawi noted that the petroleum sector achieved 54 new discoveries in 2024, comprising 40 oil discoveries and 14 natural gas discoveries. He stated that these discoveries have added estimated reserves of 71 million barrels of oil (mmbl) and 680 billion cubic feet of natural gas (bcf).

The minister also highlighted ongoing exploration activities carried out by both foreign partners and national companies. Regarding agreements, he mentioned that the Egyptian petroleum sector signed seven agreements in 2024, with a total signature bonus of $13.5 million, minimum investments of $367.5 million, and a commitment to drill at least 32 wells.

Referring to the most recent bid round, Badawi projected that 15 agreements would be signed in 2025, with a total signature bonus of $20 million and minimum investments of $748.5 million, alongside a commitment to drill at least 46 wells.

Egypt Launches Sustainable Aviation Fuel Company to Drive Green Energy Transition

Minister of Petroleum and Mineral Resources Karim Badawi chaired the founding assembly of the Sustainable Aviation Fuel (ESAF) Company via video conference, joined by Ibrahim Mekki, Chairman of the Egyptian Petrochemicals Holding Company (ECHEM), along with other shareholders.

Badawi stated that ESAF's establishment aligns with global efforts to combat climate change by advancing environmentally friendly and Renewable Energy sources for both the medium and long term.

ESAF's ownership structure comprises an 85% stake held by Egyptian public petroleum sector companies and a 15% stake owned by the private sector.

Mekki outlined the project's scope, with a design capacity of 120,000 tons per year, utilizing locally sourced waste as a primary feedstock, and employing state-of-the-art global technology. The project aims to reduce carbon dioxide emissions by up to 400,000 tons annually, with an estimated investment cost of around $530 million.

Located in Alexandria Governorate, the project complements existing petroleum sector operations in the area, with production expected to begin in the next few years.

Misr Petroleum Launches Unified SAP System

A united system for management of resources and assets (SAP) of the Egyptian General Petroleum Corporation (EGPC) has been recently launched by Misr Petroleum Co., a step that forms a crucial add to the work of the company's affiliated refineries and distribution firms.

SAP provides an extensive range of software solutions that optimize operational workflows, promote data governance, and facilitate informed decision-making across diverse organizational domains.

Mohamed Maged Bakheet, Chairman of the company, credited the project's success to the full efficiency, eagerness, and ability of the working team to face challenges, stating that they met all expectations and presented an outstanding performance.

On the occasion of the project's launch on Thursday, Ahmed Khalifa, EGPC's Deputy Chairman for Planning and Projects, congratulated the team who conducted this project on their achievement, emphasizing that this launch signifies the beginning of a new phase that will validate the decision to invest in such project.

Iman Wafy, Assistant CEO of EGPC for Information Technology & Telecommunications, stated that the SAP system was first applied to the four distributing companies in November 2022 .

On his part, Ayman Abdel Badie, EGPC's Vice Chairman for Transport and Distribution, highlighted the significant role Misr Petroleum is playing especially in the oil transportation and marketing system.

CSR PROJECTS

Midor Inaugurates 2 Health Units in Alexandria Governorate

The Middle East Oil Refinery (Midor) Chairman Salah Gaber Bahansy and First Undersecretary of the Ministry of Health in Alexandria Ghada Nada inaugurated the two health units (El-Wadi and El-Hawarya) in Alexandria Governorate.

Midor has conducted a health needs assessment of the areas and communities surrounding the sector's companies, according to Bahansy.

The development and rehabilitation of the two health units (El Wadi and El Hawarya) was completed with the cooperation and funding of the companies involved in the expansion of the Midor plant. These companies include Technip, the general contractor for the new expansion of the Midor plant; Petrojet, the main implementation contractor for the project; and Enppi, the main contractor. The project was implemented by Petrojet and supervised by Enppi.

BAPETCO Signs 3 CSR Protocols for Projects in Matrouh

Badr Eldin Petroleum Company (BAPETCO) signed a number of cooperation protocols to implement intensive development projects in Matrouh Governorate.

The first protocol aims to establish a groundwater storage wells project (Nasho wells) in Matrouh Governorate and was signed between BAPETCO and the Center for Sustainable Development of Matrouh Resources. BAPETCO has studied and evaluated the necessary needs to improve and raise the quality of life in Matrouh Governorate while preserving the natural resources in the governorate. Accordingly, 18 Nasho wells will be established to store groundwater in Matrouh Governorate.

The second protocol was also signed to support women through economic empowerment and improving their income in the villages of Shabib and Al-Harabi in Matrouh Governorate between the Center for Sustainable Development of Matrouh Resources and in partnership between BAPETCO and South Dabaa Petroleum Company. This is aimed at supporting women by providing them with sources of income to ensure a decent life and improve the standard of living in the Bedouin communities in Matrouh.

The third protocol aims to launch a medical convoy for medical screening of school students in Matrouh Governorate between BAPETCO and Misr El Kheir Foundation. A medical examination was conducted on 500 students in various specializations (pediatrics – cardiology – nose and ear – surgery – dermatology – complete blood count – random sugar – body mass analysis) to ensure the health of students in Matrouh Governorate.

SIDPEC and ELAB Renovate Coptic Hospital in Alexandria

Sidi Kerir Petrochemicals Company (SIDPEC) and the Egyptian Linear Alkyl Benzene (ELAB) opened the Coptic Hospital in Alexandria, one of the hospitals of the therapeutic institution, after its renovation.

The hospital development works included SIDPEC, in cooperation with ELAB, conducting an assessment of the needs that would rehabilitate and develop hospitals that serve a wide segment of the people of the North Delta, with the aim of achieving sustainable development and creating a positive development in the lives of individuals within the Egyptian society, in order to provide the required support.

Accordingly, the project was implemented to include an audiology and balance unit, kidney dialysis machines, an intensive care unit, contribution to an operating room, a complete oxygen network, a recovery room, in addition to a number of air conditioning units.

COMPANY OF THE MONTH

Dana Gas was established in 2005, is an Emirati natural gas company based in Sharjah, UAE, and has a presence across multiple countries, such as Egypt, the UAE, and Iraq.Dana Gas is the first and largest private sector natural gas company in the Middle East and is listed on the Abu Dhabi Securities Exchange.

Dana Gas's Activities in Egypt

Dana Gas has been operating in Egypt since 2007 through its subsidiary, Dana Gas Egypt (DGE). The company is the 5th largest producer in Egypt and is involved in natural gas exploration, production, and processing, holding four onshore concessions in the Nile Delta. Since then, the company has made significant investments, including over $2 billion, and created over $10 billion of value for the Egyptian economy. The company has committed to a $100 million development and exploration program in 2023, including drilling 11 wells, aimed at increasing production and adding 80 billion cubic feet (bcf) of gas reserves and focused on improving its concessions' terms with EGAS for future exploration and development activities.

Source: Dana Gas's Website

DANA GAS'S MAIN ACQUIRED ASSETS IN EGYPT

Concession	Dana Gas's Equity	Location
El Manzala	100%	Nile Delta
West El Manzala		
West El Qantara		
North El Sahiya		

DANA GAS EYES EGYPT GROWTH, SEEKS PAYMENT RELEASE

Dana Gas released its financial results for nine months ending 30 September 2024, reporting a decline in net profit of AED 410 million ($112 m), compared to AED 462 million ($126m) in 9M 2023, due to lower realized prices in condensate and LPG.

Meanwhile, the company focused on driving cost and production optimization, especially in the KRI to offset the financial impact of these challenges.

Thereby, the company's KRI production increased by 3% to 38,200 barrels of oil equivalent per day (boe/d), driven by higher gas volumes supplied to local power plants due to stronger demand.

Additionally, the company's total collections increased to AED 872 million ($238m) in 9M 2024, compared to AED 612 million ($167m) during 9M 2023.

As for Egypt, the company said that the Company's new Concession Agreement, which was ratified by the Egyptian Parliament in June, consolidates existing producing concessions into a unified framework with improved terms. Under this agreement, Dana Gas has committed to a significant development and exploration program, including drilling 11 wells. This work program, with a planned investment of approximately $100 million, is expected to increase production and add 80 billion cubic feet of gas reserves. These efforts will help offset natural declines in production and stabilize output over the coming years. Additionally, the increased gas supply is projected to yield cost savings of over $1 billion for Egypt's economy, reducing reliance on imported LNG and mazut for power generation.

However, for these investments to move forward, Dana Gas has requested that the Egyptian government releases $24 million from the outstanding $59 million receivables balance, which will be fully reinvested in the country.

Dana Gas has fully paid down $70m facility, reducing corporate debt from AED 396 million ($108m) to AED 102 million ($28m).

ARAMCO REPORTS $27.6B NET INCOME FOR Q3, BEATING ESTIMATES

Aramco announced a net income of $27.6 billion for the three months ending September 30, exceeding the company-provided median estimate of $26.9 billion. It also surpassed Citi's forecast of $26.3 billion in a research note issued in October.

Meanwhile, Aramco recorded a 15.4% decline in its third-quarter profit due to lower crude prices and reduced refining margins. Despite this, the company maintained its dividend at $31.1 billion for the quarter.

The dividend includes a performance-linked payout of $10.8 billion, which Aramco introduced last year following record profits in 2022. It combines a base dividend with performance-linked dividends, which is relatively uncommon among listed companies.

Aramco anticipates total dividends of $124.3 billion for 2024, with $43.1 billion expected to be performance-linked dividends.

The Saudi government, which directly holds nearly 81.5% of Aramco, relies heavily on the company's dividends, along with royalties and taxes. The sovereign Public Investment Fund (PIF), which owns an additional 16% of Aramco, also benefits from these dividends.

ADNOC SECURES SALES, PURCHASE AGREEMENT FROM SEFE FOR RUWAIS LNG PROJECT

ADNOC has signed a 15-year Sales and Purchase Agreement (SPA) with SEFE Marketing and Trading Singapore, a subsidiary of Germany's SEFE, for the supply of 1 million tons per annum (mtpa) of liquefied natural gas (LNG) to Europe.

This agreement marks the first long-term contract for the Ruwais LNG project, following a Heads of Agreement signed in March between ADNOC and SEFE.

The LNG will be sourced from the Ruwais LNG project in Al Ruwais Industrial City of Abu Dhabi, with deliveries expected to start in 2028 when commercial operations begin. To date, over 7 mtpa of Ruwais LNG project's production capacity has been committed to international customers through long-term agreements.

QATARENERGY TO SUPPLY 7.5MT OF SULFUR TO OCP NUTRICROPS OVER 10 YEARS

QatarEnergy has signed a 10-year agreement with OCP Nutricrops, a subsidiary of OCP Group, to supply up to 7.5 million tons of sulfur starting in 2024.

OCP Nutricrops is a Morocco-based company responsible for developing soil nutrition solutions to address global challenges in food production and sustainability.

Notably, Qatar produces a total of 3.4 million tons of sulfur per year and plans to increase this capacity along with commissioning new gas production projects in the coming years.

KUWAIT PETROLEUM SIGNS TWO-YEAR CRUDE STORAGE AGREEMENT IN KOREA

Kuwait Petroleum Corporation has signed a two-year agreement with Korea National Oil Corporation (KNOC) for the storage of up to 4 million barrels of crude oil within KNOC's storage facility located in Ulsan.

The company stated that this agreement strengthens energy security, ensuring stability and prosperity for our people all over our continent.

Kuwait Petroleum Corporation is Kuwait's state-owned entity responsible for the country's hydrocarbon interests throughout the world.

PETROFAC SECURES MULTI-MILLION-DOLLAR SERVICES DEAL IN BAHRAIN

Petrofac has been awarded a multi-million-dollar contract by Bapco Upstream, known as Tatweer Petroleum, Bahrain Field Development Company W.L.L. to further enhance its production in Bahrain.

This two-year agreement entails Petrofac to provide well hook-ups, associated pipelines, and tie-ins for new wells within the Bahrain Field to meet the country's gas demands.

TOTALENERGIES DISCOVERS NEW GAS CONDENSATE RESOURCES OFFSHORE HARALD FIELD

TotalEnergies has announced the discovery of additional gas condensate resources in the Harald field in the Danish North Sea.

The company said on Harald East Middle Jurassic nearby exploration well (HEMJ-1X) was drilled in the Eastern part of Harald field and encountered 48 meters of net gas condensate pay in a good quality reservoir.

Located in shallow waters, 250 km off the west coast of Denmark, the HEMJ-1X well will be immediately connected to the Harald platform and is anticipated to start producing by year end through the existing Harald and Tyra facilities.

CHINA'S CNOOC SIGNS OIL, GAS CONTRACT TO DEVELOP IRAQ'S BLOCK 7

China's CNOOC has signed an Exploration, Development & Production Contract (EDPC) with Iraq's state-run Midland Oil Company to explore for oil and gas at the Block 7 field.

CNOOC Africa Holding Limited, will hold 100% interests and act as the operator for the 6,300-square-kilometer Block 7, located in central Iraq's Diwaniyah province.

The deal was part of Iraq's recent licensing round under which Baghdad offered profit-sharing with partners instead of the previous technical service contracts, in a landmark policy shift.

The first stage of the exploration period will last three years, CNOOC said.

CNOOC is one of the main international companies producing oil in Iraq, with activities focused on Maysan field in southeast Iraq.

SAIPEM SECURES $1.9B ENGINEERING CONTRACT FOR GRANMORGU SUBSEA DEVELOPMENT PROJECT IN SURINAME

Saipem has been awarded an Engineering, Procurement, Construction, and Installation (EPCI) contract by TotalEnergies' Subsidiary in Suriname for subsea development of the GranMorgu project, located in Block 58 oil and gas field offshore Suriname.

The GranMorgu project is set to span five years with an anticipated first oil production in 2028, marking the first major subsea development in Suriname, said Saipem.

The project, valued at $1.9 billion, aims to enhance production capabilities in the central area of the block through a network of subsea wells connected to a Floating Production, Storage and Offloading (FPSO) vessel.

Saipem's scope of work includes the EPCI of approximately 100 km of 10 to 12 subsea production flowlines, 90 km of 8 to 12 water and gas injection lines, and the transportation and installation of flexible risers, umbilicals, and associated structures across water depths ranging from 100 to 1,100 meters.

To ensure efficient installation, Saipem will utilize a combination of S-Lay and J-Lay vessels during the offshore campaign, scheduled for 2027 and 2028.

Moreover, Saipem will cooperate with TechnipFMC, which is responsible for the Subsea Production System (SPS) and flexible risers and umbilical equipment packages. This follows their cooperation in 2021 for subsea projects, including integrated SURF-SPS developments.

BAKER HUGHES SECURES CONTRACTS TO SUPPLY PETROBRAS WITH FLEXIBLE PIPE SYSTEMS

The delivery is scheduled to begin in mid-2026, with the equipment set to be utilized across Petrobras' Búzios, Libra, Berbigão, Sururu, and Sépia fields.

These flexible pipe systems are designed to address the critical issue of stress-induced corrosion cracking from CO2 (SCC-CO2), a common challenge in pre-salt fields with high concentrations of the gas.

According to Baker Hughes, the flexible pipes have demonstrated effectiveness in mitigating this issue, which can arise from the reinjection of gas into wells to reduce flaring and enhance oil recovery.

The flexible pipe system will be manufactured at the company's plant in Niteroi, Brazil as Baker Hughes said.

Baker Hughes has been involved in the development of Brazil's offshore oil and gas fields for decades. Throughout 2024, the company has announced several agreements with Petrobras, including additional contracts for 69.1 kilometers of flexible pipe systems and associated services in the third quarter.

Other awards have included integrated well construction services in the Búzios field and integrated solutions for workover and plug and abandonment services across Petrobras' pre-salt and post-salt fields.

SLB LAUNCHES STREAM HIGH-SPEED INTELLIGENT TELEMETRY FOR DRILLING COMPLEX WELLS

SLB has launched Stream™ high-speed intelligent telemetry that increases drilling confidence and performance for complex wells.

This innovative solution integrates proprietary AI algorithms with SLB's TruLink™ dynamic survey-while-drilling service, offering continuous, high-fidelity real-time subsurface measurements without data limitations regardless of depth, in even the most challenging conditions.

Notably, stream has already been deployed in 14 countries, with more than 370 runs and more than 1.5 million feet drilled.

In the Middle East, Stream telemetry helped a major operator overcome difficulty in geosteering operations caused by harsh drilling conditions and poor signal quality. Using Stream, the operator was able to receive high-quality data at depths in excess of 50,000 feet — resulting in one of the longest offshore extended reach wells ever drilled.

ENI AWARDED 'GOLD STANDARD REPORTING' FOR METHANE EMISSIONS ACCOUNTABILITY

Eni has been awarded "Gold Standard Reporting" of the Oil and Gas Methane Partnership 2.0 (OGMP 2.0) for its commitment to reporting emissions at the highest data quality levels.

OGMP 2.0 is an initiative of the United Nations Environment Program's International Methane Emissions Observatory, aimed at setting the global standard for methane accountability and transparency in the oil and gas sector as a necessary step to effectively track and target mitigation with measurement-based data.

In 2020, Eni adhered to OGMP 2.0 and committed to setting reduction targets and in 2023 the company's effort had been recognized under the "Gold Standard Pathway" for significantly improving implementation plans for methane emissions reporting.

MCDERMOTT SECURES MAJOR SERVICES AGREEMENT FOR SAF FACILITIES IN UK

McDermott has been awarded a master services agreement (MSA) by UK Willis Sustainable Fuels Ltd. (WSFL) for sustainable aviation fuel (SAF) facilities in the UK.

Under the scope of the agreement, McDermott will initially do early engineering, procurement and construction (EPC) of a planned SAF facility in Teesside with a production capacity of 50,000 liters per day of SAF.

The project, supported by the UK Government's Advanced Fuels Fund, will include technology deployed by WSFL to produce next generation SAF, either Biogas-to-Liquid (BtL) or Power-to-Liquid (PtL), depending on feedstock.

McDermott will be supported by its construction partner, Bilfinger UK. Together, they will maximize in-house know-how, self-perform delivery and the UK supply chain.

TENTH EOGC'24

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24 November, 2024

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APEX INTERNATIONAL ENERGY

MOMENTUM UNLEASHED:
EOGC 2024 IGNITES OPERATIONAL EFFICIENCY AND COOPERATION

Kicking off to a vibrant start and coming right after COP29, the tenth Egypt Oil & Gas Convention (EOGC 2024) created waves this year, hosting a wide a variety of speeches, panel discussions and workshops, all of which focus on several key themes, mainly operational efficiency, exploration, investment, boosting cooperation, and HSE.

Made to be an incubator for new ideas and a platform for exploring industry potential, the Founder and CEO of the event's organizer Egypt Oil & Gas Group Mohamed Fouad highlighted the importance of cooperation and communication both within the nation's sector and beyond. "In a dynamic industry, such as ours, sharing knowledge, exchanging ideas, and promoting transparency are essential for fostering sustainable development."

Honoring the opening ceremony was Karim Badawi, Egypt's Minister of Petroleum and Mineral Resources, who during his opening remarks vowed to ramp up production. "The focus on production is our number one priority and the focus on exploration is very important to us. I would also like to recognize that it does not mean that production has to be at the expense of proper reservoir management. They both go hand in hand."

During the opening, Greg McDaniel, Egypt Oil & Gas Committee Chairman, Vice President, Egypt Assets and Country Manager of Apache Corporation in Egypt, also said, "Our task force leaders are diligently preparing comprehensive plans for their activities in the next year, focusing on actionable strategies and measurable outcomes to ensure that we meet our goals when delivering a value to all of our stakeholders."

> The focus on production is our number one priority and the focus on exploration is very important to us. I would also like to recognize that it does not mean that production has to be at the expense of proper reservoir management. They both go hand in hand.
>
> **H.E. Eng. Karim Badawi**
> Egyptian Minister of Petroleum and Mineral Resources

Live Interview

EOGC 2024 witnessed a live interview between the Founder and CEO of Egypt Oil & Gas Group Mohamed Fouad and Egypt's Minister of Petroleum and Mineral Resources Karim Badawi. Since this is first time attending the convention as Egypt's new petroleum minister, Badawi outlined his vision for the future of the sector saying, "My short-term targets are very easy. I want to make sure all our partners are paid monthly dues. I want to ensure that we are taking active collaborative steps to increase production and unlock the potential for production; and, hence, enhance exploration."

During this engagement, the minister engaged in a range of other issues, stating "From a capital allocation perspective, I realize that any shareholder today would want to focus first on capital deployment, where there is lower risk, higher return, and also with a sustainable ability to also get their receivables addressed."

Awards Ceremony

EOG took time during the convention to recognize many companies for their efforts and their merits on the field with the annual Operational Excellence Awards. Bapetco won the Operational Excellence Award, operational energy efficiency award for BAPETCO's Green Leap, Enhancing Efficiency, Reducing Carbon; Rashpetco (Shell-JV) won the Outstanding and Impactful HSE Project Award for HSE Culture Harvest; Pharaonic Petroleum Company won the operational energy efficiency award for Operating a Single Medium Voltage Gas Generator instead of Two; Bapetco yet again won the operational energy efficiency award for BAPETCO's Green Leap, Enhancing Efficiency, Reducing Carbon; Apache Corporation was awarded for Excellence in Brownfields Award for the Berenice Field during EOGC 10th edition; Pharaonic Petroleum Company also won the Operational Excellence in Brownfields Award for the Atoll Pipeline Intervention Sustaining Feed Gas Production to the Natural Gas Grid.

Brownfields White Paper Presentation

EOGC 2024 witnessed several interesting presentations given by three season industry professionals including Thomas Maher, President and CEO of Apex International Energy; Tamer Edrees, EGPC Vice Chairman for Production; and Osama ElShenoufy, North East Africa Sales Director Weatherford. All three presenters discussed approaches and ideas regarding the revival and optimum exploitation of Egypt's brownfields. This particular topic has been an essential component of the Ministry's strategy to unlock the hidden potential in these fields to ramp up production and thereby meet local market needs while reducing exports.

DISCUSSION PANELS EMPHASIZE UNITY IN ENERGY

Driving Efficiency and Sustainability: Key Discussions from EOGC 2024

The 10th annual Egypt Oil & Gas Convention (EOGC 2024) commenced with an impactful focus on collaboration and innovation within the oil and gas sector. The event brought together industry leaders to discuss critical issues shaping the future of Egypt's energy sector. Their insights highlighted several key topics including the critical need for collaboration between the private and public sectors as well as the need to empower the workforce and other aspects that lead to boosting operational efficiency and maximizing production in Egypt's rich oil and gas landscape.

Synergistic Success: Forging Collaborative Partnership

The 10th annual Egypt Oil & Gas Convention (EOGC 2024) kicked off with a panel discussion titled 'Synergistic Success: Forging Collaborative Partnerships.' The panel featured Dalia ElGabry, VP & Country Chair of Shell Egypt; Moataz Atef, Undersecretary of the Ministry of Petroleum and Mineral Resources (MoPMR) for the Technical Office and Official Spokesperson; Gustavo Guisolfo, General Manager of ENAP Sipetrol Egypt; and Wail Shaheen, Vice President of bp Egypt.

The session discussed collaboration between the private sector and the public sector in the Egyptian oil and gas industry to enhance operations and yield production. Atef explained that "Although [Egypt has] been in the oil and gas industry for decades, [the country] still has 61 blocks to award. So, the natural resources that [Egypt] has, they are huge and they require a lot of collaboration to get off the ground."

On the other hand, Guisolfo explained that "The key expression in order to work together is integration and systemic analysis in order to go faster with our decision."

Moreover, the distinguished industry leaders highlighted priorities to ensure efficient operations. ElGabry noted that "Once [the company] has the technical standard set-in place, [it] also needs to integrate systems to comply with regulations and keep pace with evolving technology. This is where [it] needs to have a genuine willingness to really collaborate."

Meanwhile, Shaheen stated that "Once [the company] has a common cause to tackle the issues and problems [stakeholders] are all facing, then [the company] can start to think about how [it] can operationalize it."

Beyond Compliance: Cultivating a Culture of Safety and Sustainability

EOGC 2024 further hosted a panel discussion titled 'Beyond Compliance: Cultivating a Culture of Safety and Sustainability.' The panel featured Iman Hill, Country Manager at Vaalco Energy Egypt; Alaa El Batal, First Undersecretary for HSE, Energy Efficiency and Climate at MoPMR; Kamel Al-Sawi, MiM, President at United Energy Egypt; Karim El-Dessouky, General Manager at Bechtel Oil, Gas, & Chemicals Egypt S.A.E. Vice President, Bechtel Overseas Corporation; as well as Mohamed Shindy, Managing Director at Methanex Corporation Egypt.

The panel discussed the importance of health, safety and environment (HSE) and safety practices in the workplace. El Batal explained that "MoPMR is very keen to embed HSE culture in the field and among [its] companies. It is very important because no doubt that HSE is a top priority for everyone."

Additionally, El-Dessouky noted that "There is an ambition that the petroleum sector could lead something that could expand further to standardize safety working practices across Egypt as a whole and not only across the petroleum sector."

The industry leaders further commended safety culture across the oil and gas sector. Hill pointed out that "Compliance is not only about doing things because [people in the industry] have to, but building a safety culture that is sustainable and actually encompasses ownership to the environment."

On the other hand, Al-Sawi stated that "A strong safety culture always begins with the leadership's commitment. Leaders should always talk about safety. They have to walk the talk, not only talking about it. They have to emphasize safety in all their decisions and actions so that their team can feel that they are very strict about safety and that it is part of their day-to-day business activities."

Meanwhile, the panel also highlighted the importance of engagement and supervision to ensure safety. Shindy explained that "Engagement and supervision are critical for success in our culture, especially supervision with contractors that you're not aware of or haven't tried before."

Data-Driven Decisions: Mitigating Risk, Maximizing Returns

The 10th edition of EOGC further featured a dynamic panel discussion titled "Data-Driven Decisions: Mitigating Risk, Maximizing Returns." The panel brought together distinguished industry leaders: Khaled Salah El Din, Chairman Assistant for Information Technology & Digital Transformation at the MoPMR; Ali Rashid Al Jarwan, CEO of Dragon Oil; Greg McDaniel, Vice President of Egypt Assets and Country Manager at Apache Corporation; and Alan Linn, CEO of Cheiron Petroleum Corporation.

The panelists highlighted the importance of trust between partners, as well as sharing and obtaining data to ensure the right decisions are taken to drive success in the oil and gas sector. Al Jarwan stated that "After COVID time, [the company] found it useful to partner with a major service company and [it] trusted this company. [The two companies] became partners, and collaboratively [Dragon Oil] gave them all the reservoir models, geological, geophysical reservoir simulation."

Meanwhile, McDaniel noted that "[Oil and Gas Companies] can find the right answers by properly analyzing the data for [their] stakeholders to make informed decisions."

The panel discussion further delved into the role played by digital tools in the sector. Salah El Din explained that "Edge computing is used to validate data and ensure that all the data has integrity before moving to a central warehouse."

Moreover, Linn stated that "One of the things that [Cheiron is] looking at right now is basically remote sensing on each one of [its] well heads. The reason why [they] want to do that is because [they] want to know every single one of [their] wells, what it's doing at a moment in time so that [they] can target the visits if the well is down or if the well is underperforming."

Driving Efficiency in Field Operations

The third panel of the convention entitled "Driving Efficiency in Field Operations" tackling how the companies along with the Ministry of Petroleum and Mineral Resources (MoPMR) try to deploy the new technology in elevating the efficiency of the operations.

The speakers of the panel session were Joey Deng, CEO, Huawei Digital Power Business Egypt, Ehab Ragaee, First Undersecretary for Production at Ministry of Petroleum and Mineral Resources - Egypt, Ivan Almeida, Upstream Venture Manager at ExxonMobil Egypt (upstream) Unlimited, Saif Baza, CEO Seaharvest Free Zone, and Sun Bao, Country General Manager North Petroleum International Company (NPIC).

Ragaee discussed how MoPMR is encouraging and seeking for applying new technological solutions among the sector especially in light of the decarbonization goals. "Our door is open to any new idea and any new technology. We will feel happy to help each other in meeting our goals, most notably what we need to do decrease CO2 emissions," he said.

Additionally, Baza explained the need of interpreting data inventory as well as the need to be centralized among the international oil companies (IOCs) which enable standardization so everyone can use data anywhere. "The supply chain will just integrate technology and supply chain and the governance behind the supply chain and centralization. So, one of the things that need to be done is interpret the data," Baza stated.

For his part, Deng presented Huawei's progress in providing solutions that benefit the petroleum sector. "As Huawei, we are known as a digital company, so we are trying to combine the digital technology with electronic technology. That is why in Egypt we are focusing on the upstream in order to provide innovative solutions," Deng mentioned.

For his part, Bao highlighted the technology capabilities in the sector and how it can optimize the sector noting "digitalization encourages development and is a key enabler to enhance efficiency for the sector." In addition, Almeida offered interesting insights into effective methods the sector can use to enhance operational efficiency on the fields and at key assets.

Empowering the Workforce: Skills for the Future of Energy

EOGC 10th edition witnessed another fruitful panel discussion touching on "Empowering the Workforce: Skills for the Future of Energy" featuring the industry leaders, Eleanor Rowley, Managing Director Egypt Capricorn Energy PLC, Omar A. Nasser, Managing Director NPC SAZ, Sara Mortada, Engineering General Manager at SMD, and Wei Dong, Chief Representative, Africa Office Sinopec International Petroleum Service Corporation.

Rowley led the stimulating discussion focusing on fueling the sector's human resources potential to perform with excellence in a competitive global economy. Furthermore, Mortada highlighted the crucial role of the technology adoption especially artificial intelligence (AI) which helps growing the businesses. She also noted to the necessary for interpreting the data by the young talents which helps make write decision.

"AI machine learning should be managed by young talents who already have digital transformation mindsets. That's why they are very clever at connecting the dots and I guess the best proof for this is the launch of Energy Lens that was announced today by Egypt Oil & Gas. We've all seen that it was executed by a team of young talents," she elaborated.

Dong shed light on the importance of including a new workforce to align with the developments that occur in the oil companies after adopting the energy transition to their business. He said, "We found with development of renewable energy, we needed to recruit newcomers, such as the people who could add electricity, who could add manufacturing and other uses and storage and the transportation of hydrogen and ammonia, for example."

While Nasser talked about what are the skills that he focused on in his workforce especially his company is one of the small companies. He explained “for a smaller company, it is a bit different, you have less resources, and you need to deliver the same product."

He elaborated that the competencies that they focus on are technical including geosciences, geology, geophysics, reservoir engineering and production optimization to deliver operational excellence. He also said that he has to make sure of having the right skills who are updated with the changes going on in the industry and are able to cope with these changes.

Elevating Service Excellence: Empowering Oil and Gas Service Providers

EOGC 10th edition was concluded with a great panel session titled “Elevating Service Excellence: Empowering Oil and Gas Service Providers” involving the industry leaders, Salah Abdelkerim, CEO of Egyptian General Petroleum Corporation (EGPC), Ahmed Azzam, Country Manager at Baker Hughes, Ismail El Kholy, Chairman at NESR Egypt, Osama ElShenoufy, North East Africa Sales Director at Weatherford, and Sherif Bayoumy, Managing Director Egypt, and East Mediterranean at SLB.

During the session Abdel Kerim emphasized the need for real cooperation between the international services providers and the EGPC, the need for having more investments as well as having research and development centers in Egypt. "We are expecting to have fruitful cooperation, especially with international service providers that have the needed technology and financial resources as well as the ability to transfer these technologies and ideas as they have more exposure," he noted.

On his side, Azzam underlined the need to focus on holding workshops and transparency between the service provider and the operators to help raise the efficiency of the provided services and solutions, explaining "transparency can be realized through an open channel of communication between the service provider and the operators, by holding workshops and setting rules."

Furthermore, ElShenoufy emphasized the importance of adopting AI and machine learning technologies in operations, as they have a positive impact on production that aligns with the focus of the MoPMR. He pointed out that "there is a lot of improvement that we can add to the Egyptian market. Having agnostic software that would help in providing the required support to office teams through interactions with IoT sensors and getting the real-time data monitored by the team in the office. These technologies can provide real-time data analysis and proposed solutions to enhance the production.”

EOGC 2024 not only served as a platform for dialogue among industry stakeholders but also aimed to foster a culture of innovation that aligns with global energy transitions. By bringing together leaders from various sectors, the convention sought to pave the way for a more resilient and efficient future for Egypt's oil and gas industry.

HEALTH, SAFETY, AND ENVIRONMENT
HSE FEATURE

Working Toward Zero Safety Incidents in Oil and Gas Industry

Health, Safety, and Environment (HSE) is the cornerstone of the oil and gas industry, and vital for safeguarding human health and protecting the environment. Besides, fostering HSE practices is essential for having operational efficiency, attracting investment, and ultimately driving sustainable growth within the industry.

"We must ensure that HSE is industrialized across the sector, making it an integral part of what we do every day," said the Minster of Petroleum and Mineral Resources, Karim Badawi during his keynote speech in the HSE Feature that was held on the sidelines of the Egypt Oil and Gas 10th Convention.

"How do we truly advance HSE and collaborate with the team to manifest not only our commitment but also ensure that HSE is integrated across the sector? This thought process led me to consider the structure of the ministry. I was determined to appoint a first undersecretary for HSE, climate actions, and energy efficiency to underscore its significance, not just for me but for the entire sector," said Badawi.

"HSE is not an area where people are competing. We're all in this together. We're all invested in this for the same purpose," he added.

HSE Feature was held on November 24th encompassing three key presentations that focused on HSE's role in the oil and gas industry while showcasing different companies' approaches or rules they apply within their operations to handle hazards and ensure process safety.

"Our petroleum sector is a high-risk sector, and this is why we are keen to sponsor today's activity and to share our experience and learn from yours," said Dalia El-Gabry, VP and Country Chair for Shell Egypt in her keynote speech during the HSE Feature.

El-Gabry highlighted Shell's commitment to HSE through initiatives like Shell Goal Zero, and the implementation of the company's life-saving rules in 2009.

"While adjusting to new rules might seem straightforward, the opportunity lies in cultivating a learner mindset. A mindset characterized by curiosity, openness, and willingness to share and learn from one another," El-Gabry said.

"It involves fostering an environment where individuals feel safe to speak up, admit mistakes, and collaborate to overcome challenges. It's about caring for each other and accordingly achieving the best outcome," she added.

In the same respect, Yasser Hassan, Egypt Asset HSE Manager at Shell Egypt pointed out that creating an environment where people can express their doubts and seek help is crucial. He delivered a presentation on "Safety as A Universal Language- Capitalizing on Industry Life-Saving Rules" during which he emphasized the health, safety, and environment (HSE) as an essential pillar for the oil and gas industry while showcasing the company's application to the life-saving rules since 2009.

"In 1988, if you remember, there was the Piper Alpha disaster which led to the death of some 167 workers. Unfortunately, the industry and the whole world woke up after this incident and there was a direct change in HSE rules, requirements, and also in some regulations," said Hassan.

The Piper Alpha disaster, which included the explosion and sinking of the Piper Alpha oil platform in the North Sea, is considered the world's deadliest-ever oil rig accident.

Based on the International Association of Oil & Gas Producers (IOGP) statistics from 2000-2010, more than 381 employees and contractors died worldwide in work-related incidents mainly due to the failure to comply with the safety rules, stated Hassan affirming that: "This was one of the turning points for a company like Shell, to implement something called Goal Zero."

In 2007, Shell launched Shell Goal Zero with its vision, of no injuries and no leaks, with the belief that every incident can be prevented. Since then, the company's safety performance has seen remarkable improvement, and following Shell Goal Zero, the company introduced the life-saving rules in 2009, which provided additional momentum.

"If we stick to the rules, we will reduce the number of accidents and protect our employees. We will also reduce injuries and ultimately death. It was important for us to see what each person in the company can do. This was part of the three principles that we started to implement in Shell. First, is the learner mindset. Second is the human performance and third, is the psychological safety," said Hassan.

While Hassan's presentation focused on personnel safety, Mohamed Sabry, the Executive General Manager of Risk Management & Loss Prevention Studies at GASCO, Egypt, talked about the process safety challenges and implementation mechanisms.

In his presentation, Sabry emphasized the importance of establishing a robust Process Safety Management (PSM) system to enhance safety and mitigate risks associated with hazardous materials. "If I want to take the first step in my company so that I can create a process safety management system, I have to start from the beginning with the process of safety knowledge."

Sabry outlined a simple mechanism for implementing a PSM system, which includes leadership commitment, assigning responsibilities, establishing a culture of change, and managing process safety performance.

Additionally, he referred to the significance of the Center of Chemical Process Safety (CCPS) framework in guiding organizations toward effective process safety management. This framework provides a structured approach to managing risks, ensuring that organizations can prioritize their safety efforts effectively.

Emad Morsy, Egypt HSE and Regulator Manager at Chevron has given the final presentation in the HSE Feature where he explained the nine life-saving rules applied to provide the workers within the oil and gas operations with actions to take and protect themselves and their colleagues as well.

The nine life-saving rules were implemented by the IOGP including bypassing safety controls, confined space, driving, energy isolation, hot work, line of fire, safe mechanical lifting, work authorization, and working at heights.

"There is a very important principle that says, there is time to do it right. If you don't have the time to do the job properly, don't do it. If you can't do the job properly, also don't do it. Because in the end, there are many hidden costs as a result of accidents," said Morsy.

Morsy delved into the step by step for implementing the rules starting from having toolbox talks and safety meetings, doing pre-job planning and last-minute risk assessment doing post-job reviews, observations walkabouts, and intervening if a rule is not being implemented.

In the end, Morsy underscored the importance of Stop Work Authority (STA) stating that: "Anyone of us can, if he or she sees something wrong, work on it. And we should always remember that we have time to do our work in a simple way. Because if we don't do it in a simple way, it won't affect us alone, but it will affect the whole team that we work with. It will affect the reputation of the company. It will affect the number of accidents."

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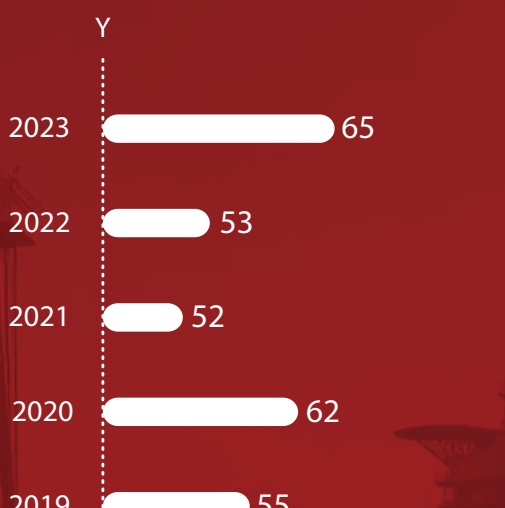
Egypt's Major Fields:

Exploring the Oil and Gas Landscape

BY MARIAM AHMED & MAHMOUD YASSER

Key Takeaways

Petroleum Discoveries



Discoveries (January-October 2024) **54**

WND Project's Phases

Phase	Fields	Wells
1st	Taurus & Libra	9
2nd	Giza & Fayoum	8
3rd	Raven	8
Later Phases	Maadi, Viper, Ruby, Polaris & Hodoa Discoveries	

Egypt is a geographically significant hydrocarbon producer. The Egyptian petroleum industry is committed to attracting investment in upstream activities to bridge the gap between supply and demand. In this regard, the sector recently experienced significant exploration activities, reflecting the considerable effort to finalize numerous petroleum agreements and enhance reserves growth.

There are 57 international companies currently engaged in Egypt's petroleum exploration and exploitation in various regions such as the Mediterranean Sea, Nile Delta, Western Desert, Eastern Desert, Sinai, and Upper Egypt. All activities are running under the supervision of the Ministry of Petroleum and Mineral Resources (MoPMR) and its affiliated companies.

Between 2019 and 2023, Egypt successfully signed a total of 66 exploration and production agreements with international oil companies (IOCs) to accelerate discoveries and boost production. The report highlights trends in petroleum discoveries in Egypt, showcasing the largest oil and gas fields as well as the ongoing development projects.

PETROLEUM DISCOVERIES

Egypt's petroleum sector achieved a total of 287 natural gas and oil discoveries from 2019 to 2023. Despite some fluctuations, including a significant drop in 2021, the overall trend remains positive.

In 2019, there were 55 petroleum discoveries, which increased by 12.7% in 2020 to reach 62, mainly due to more oil finds. Notable milestones include the BOLT-150 discovery in the Western Desert.

In 2021, the number of discoveries dropped slightly to 52, primarily due to disruptions caused by the COVID-19 pandemic, which delayed drilling operations and reduced foreign investments in exploration. Despite this, exploration activities persisted in key regions like the Western Desert and the Gulf of Suez.

Several wells like Sidri-36 continued to contribute significantly to reserve additions, demonstrating resilience amid challenging circumstances.

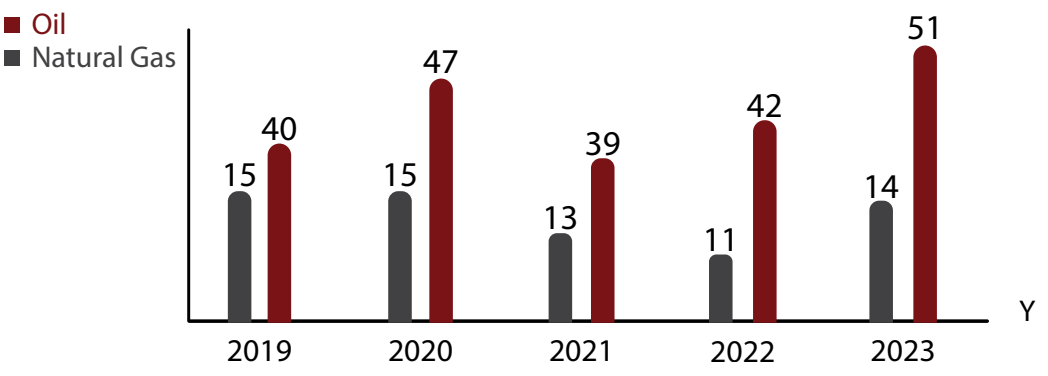
In 2022, Egypt's discoveries slightly increased to 53, including the oil discovery in the northeastern region of Ramadan, as one of the largest regional finds in decades in the Gulf of Suez. The first expected oil stock for this discovery is about 100 million barrels (mmbbl). Additionally, a new gas discovery at the exploration well SD-5X, in the South Disouq development concession was announced.

In 2023, Egypt's petroleum sector achieved a record 65 discoveries, a 22.6% increase from 2022, reflecting the success of advanced exploration strategies and intensified searching activities.

2023 witnessed notable discoveries, including the NSG-3 well at the East Damanhour Block in June. This is in addition to discovering ED-2X well in the Abu Madi Reservoir in January.

During the first ten months of 2024, Egypt recorded 54 new petroleum discoveries, adding approximately 71 million barrels (mmbbl) of crude oil and 680 billion cubic feet (bcf) of natural gas to reserves. These discoveries underscore the effectiveness of ongoing exploration strategies across key producing regions. For instance, a new significant discovery in the West Fewebs-1 area in the Western Desert was reported, according to the MoPMR.

Petroleum Discoveries



GIANT NATURAL GAS FIELDS

Egypt's vast natural gas fields and hydrocarbon resources have allowed it to play a key role in the global energy landscape. It has achieved significant discoveries over the past decade, including the landmark Zohr gas field.

The country's extensive reserves, located primarily in the Nile Delta and the Mediterranean Sea, are complemented by a growing infrastructure that supports exploration and production.

Petroleum Discoveries in the First Ten Months of 2024

Zohr

Super-giant Zohr gas field was discovered in the Mediterranean deep waters by Eni. Zohr field is one of the largest gas discoveries ever made in the Mediterranean Sea with conservative estimated reserves of 30 trillion cubic feet (tcf) of natural gas when discovered.

Zohr 1X NFW well was discovered and drilled at 4,757 feet (ft) of water depth (1,450 meters) in the Shorouk Block, 190 kilometers (km) north of Port Said. Eni holds 50% of the development, 30% belongs to Rosneft, 10% to Mubadala Petroleum, and bp owns 10%, as explained on Eni's website.

December 2017 marked the start of production from the Zohr field, a record time for this type of deepwater field of less than two and half years. The first production unit added 800 million cubic feet per day (mmcf/d).

In April 2018, the second production unit contributed 1.1 billion cubic feet per day (bcf/d), and then in May of the same year, the field's production slightly increased to reach 1.2 bcf/d, following the addition of the third production unit, according to Eni's website.

The sixth and seventh production units were introduced during the first quarter of 2019, leading to a production milestone of 2.7 bcf/d in August 2019. In FY 2022/23, the field's production rates have declined to 2.4 bcf/d of natural Gas and 3,700 barrels per day (bbl/d) of condensates.

The Egyptian Cabinet announced in July 2023 that the total investment in the offshore gas field is targeted to reach $15 billion in three years.

There are plans to develop the Zohr gas field including the drilling and completion of 20 wells. This is in addition to investing over $677 million in the field in fiscal year (FY) 2023/24, with plans to drill two new wells in Q1 2025. These plans aim to boost the field's production rates, which amounted to about 2 bcf/d of gas, as announced by the MoPMR in October 2024.

Eni's Investments in Zohr Field Development*

*Announced in July 2023

WND Project

The West Nile Delta (WND) Project includes a total of five natural gas fields across the North Alexandria and West Mediterranean Deep Water offshore concessions in the Mediterranean Sea, approximately 65 to 85 km off the coast of Alexandria.

It is planned to deliver the project in three stages. This $9 billion project contains around 5 tcf of gas resources, as stated on bp's website.

WND project's first phase was developed to deliver an annual average of more than 600 million standard cubic feet of gas a day (mmscf/d) to the Egyptian national gas grid. The second stage's peak production was set to reach about 700 mmcf/d of gad.

The third stage of the project has the potential to produce 900 mmscf/d of gas and 30,000 bbl/d of condensates, according to bp's website.

This is set to be achieved through drilling 8 new offshore wells and establishing onshore treatment facilities, according to the Offshore Technology website.

The three stages combined production was estimated to reach 1.4 bcf/d, representing a considerable share of Egypt's current natural gas production, which will be fed into the natural gas grid, as explained on bp's website.

WND Project's Phases

First Phase	
Fields	Taurus & Libra
Wells	9
Production Start	May 2017

Second Phase	
Fields	Giza & Fayoum
Wells	8
Production Start	February 2019

Third Phase	
Fields	Raven
Wells	8
Production Start	April 2021

Later Phases
Maadi, Viper, Ruby, Polaris & Hodoa Discoveries

bp is the project's operator and has an 82.75% stake in the WND development, with Wintershall Dea holding the remaining 17.25% interest, according to a bp press release.

It should be noted that there is ongoing work in drilling two new wells to produce natural gas from the Raven Field, with investments of $700 million, to produce 200 mmcf/d, as part of the work to develop natural gas resources in the producing field in the Mediterranean Sea, according to the MoPMR.

Nooros

Nooros discovery is located in the Abu Madi West license in the Nile Delta, 120 km northeast of Alexandria, which was brought on stream two months later. In the meantime, the preliminary estimates of the discovery accounted for a potential of 15 billion cubic meters (bcm) of gas in place with upside, plus associated condensates, according to Eni's website.

Nooros Development Project

Investments **$290** million

Wells **15**

In May 2017, a new milestone was achieved. Nooros field production exceeded 1.1 bcf/d for the first time in the history of the Nile Delta region after finishing the drilling and completing the development well Nidco (West-4). The natural gas produced from the field's operational wells is sent to Abu Madi, located 25 km from the discovery, to be treated and then added to the national grid.

The new development well Nidoco north-west 7 was brought online in May 2018, with a production rate of about 180 million cubic feet (mmcf) of gas and 1,500 barrels (bbl) of condensates per day, according to the MoPMR.

It is worth noting that in September 2020, Eni made a new natural gas discovery at Nooros with Nidoco NW-1 well, located at 16 meters of water depth, 4 km north of the Nooros field. The discovery brought the field's estimated reservoir to more than 4 tcf of gas, according to Eni's statement.

Atoll

The Atoll Field was discovered in the North Damietta Offshore Concession in the East Nile Delta, offshore Egypt, and commenced production in 2018. The Atoll discovery is 100% owned by bp and is operated by the Pharaonic Petroleum Company (PhPC), bp's joint venture with the Egyptian Natural Gas Holding Company (EGAS) and Eni. Atoll is a significant natural gas discovery, with a reservoir estimated to contain 1.5 tcf of gas.

The field's initial production phase began production in February 2018, producing 350 mmscf/d, according to the bp website.

First Phase Details

Investments **$1** billion

Involved Operations

- Recompleting the original exploration as well as a producing well
- Drilling 2 additional production wells

In November 2020, bp commenced production from the Atoll-4 well which reached 105 mmcf/d of natural gas and 3,500 bbl of condensates. The Atoll-4 well was connected to the existing Atoll facilities, sustaining the field's production capacity at approximately 360 mmscf/d.

All produced gas is supplied to the Egyptian national grid, according to bp.

In 2022, PhPC expanded Atoll's processing facilities with a $43 million investment, aimed at recovering 5 million metric tons per year (mmt/y) of burnt gasses.

The field is expected to continue producing until it reaches its economic limit in 2050. In 2023, the field produced around 325 mmcf/d, accounting for approximately 3% of Egypt's daily natural gas output.

Nargis

Chevron announced a major discovery in the Nargis Offshore Area Concession, in the Eastern Mediterranean Sea, with an estimated natural gas reservoir of about 3.5 tcf. The Nargis Offshore Area Concession spans 445,000 acres, according to the MoPMR.

In January 2023, Eni reported another significant gas discovery at the Nargis-1 exploration well. This well, situated within the Nargis Offshore Area Concession, encountered approximately 200 ft (61 meters) of gas-bearing sandstones from the Miocene and Oligocene formations. The well was drilled by the Stena Forth drillship at a water depth of 1,014 ft, as stated on Eni's website.

Chevron operates the field with a 45% interest, while the International Egyptian Oil Company (IEOC), a subsidiary of Eni, also holds a 45% stake. Tharwa Petroleum Company has the remaining 10% interest. This partnership marks a significant step in unlocking Egypt's offshore gas potential, as stated on Eni's website.

PROMINENT OIL FIELDS

Meleiha

Meleiha is a collection of 16 oil and gas fields in the Western Desert. The major phases of exploration occurred in the 1980s. Development was initiated in 1986 by Eni under its joint venture company with the Egyptian General Petroleum Corporation (EGPC), Agiba Petroleum Company. Since then, a large number of discoveries have been developed and an extensive drilling campaign has been undertaken.

Field	Location	Operator
Meleiha	Western Desert	Agiba Petroleum Company
Alamein/Yidma Development Lease	Western Desert	IPR Energy Group
Abu Rudeis	Gulf of Suez	Petrobel

The prominent discoveries are the Emry Deep exploration prospect and Zarif-1X well, as stated by Wood Mackenzie.

Eni announced in 2020 the successful drilling of the SWM-A-6X well, in the South-West Meleiha development and exploration concession with daily production of 5,000 bbl/d of crude oil. It should be noted that the production from South West Meleiha Concession began in July 2019 and in just one year ramped up to 12,000 bbl/d thanks to the contribution of discoveries, according to Eni's press release.

In June 2021, Eni agreed with EGPC and Lukoil about the merger of the concessions of Meleiha and Meleiha Deep that there would be an extension to 2036, with the possibility of reaching further to 2041. In this regard, the Meleiha concession is operated by Agiba, and Eni through its subsidiary IEOC which holds a 76% interest, while Lukoil holds a 24% interest.

In October 2021, three discoveries in the Meleiha and South West Meleiha concessions were announced through the Jasmine W-1X and MWD-21 wells, while in the South West Meleiha exploration concession, the discovery was made through the SWM-4X well. The discoveries added more than 6,000 barrels of equivalent oil per day (bbloe/d) to the production.

Eni announced in April 2022 new oil and gas discoveries in the Meleiha concessions for approximately 8,500 bbloe/d through drilling Nada E Deep 1X well, Meleiha SE Deep 1X well, and Emry Deep 21 well, as stated on Eni's website.

Alamein/Yidma Development Lease

The Alamein/Yidma Block is located in the Western Desert and consists of three active fields: Alamein, Yidma, and Zain. Phillips Petroleum discovered Alamein in 1966 and commenced production two years later, while Yidma was found in 1971 and began producing in the same year. Zain was discovered in November 2008 and started production one month later.

In August 1993, the Improved Petroleum Recovery (IPR) Group of Companies acquired the block from Phillips Petroleum, and the WEPCO joint venture (EGPC 50%, IPR 50%) was set up to operate the fields, according to Wood Mackenzie.

IPR Energy Group has announced a major discovery in the Alamein/Yidma Concession in August 2023. The Alamein 48-K well was drilled to a depth of 8,960 f utilizing the IPR-1 750 HP Drilling Rig, at a total cost of $1.55 million, with an average production rate of 3,300 barrels of oil per day, as announced in the IPR press release.

In January 2024, IPR announced the discovery of exploration well West AY-1X and the successful testing and production from a new formation (Kharita) in Alamein-44, adding an incremental 2,850 bbl/d of oil to the Yidma-Alamein Western Desert Development Lease. West AY-1X was drilled to a depth of 13,166 ft, utilizing a 1500 HP drilling rig, as stated in the IPR press release.

Abu Rudeis

The Abu Rudeis Sidri field is located on the eastern coast of the Gulf of Suez. Exploration started in the Abu Rudeis region in the late 1940s, drilling a total of 35 wells in the Abu Rudeis/Sidri development lease. Significant recent discoveries include the Sidri-23 well and the Sidri-36 in 2019, operated by Petrobel, a company equally owned by Eni and EGPC.

In July 2019, Eni announced the discovery of Sidri-23 in the Sidri area. The discovery nearly holds up to 200 mmbbl of oil in place. The well has been completed and brought on stream. The Sidri-23 discovery was a key addition for Petrobel, strengthening the Gulf of Suez as an oil-producing region, according to Eni's website.

Sidri-36 appraisal well emerged as a significant oil discovery in the Gulf of Suez in October 2019, with an initial flow rate of about 5,000 bbl/d, according to Eni's statement.

Egypt's strategic geographic location and substantial hydrocarbon reserves have positioned the nation as a significant player in the global energy landscape. The exploration and development of major natural gas fields, such as Zohr and the WND project, have significantly bolstered the country's gas production and export capabilities.

Simultaneously, the continued exploration and development of oil fields, including Meleiha and Alamein/Yidma, have ensured a steady supply of crude oil.

The Egyptian government's proactive approach to attracting foreign investment, streamlining regulatory frameworks, and fostering a conducive business environment has been instrumental in driving this growth. As Egypt solidifies its position as a regional energy hub, the petroleum sector is poised to play a pivotal role in shaping the nation's economic future.

Dive into the full report - scan the QR code to read it all

EGYPT POWERS UP RENEWABLE FUTURE

BY SARAH SAMIR

As the world grapples with the pressing challenges of climate change and the need for sustainable energy solutions, Egypt stands at a pivotal crossroads in its energy landscape. With an abundance of natural resources, particularly solar and wind, the country is poised to emerge as a leader in renewable energy production in the region. The Egyptian government has recognized the importance of transitioning to a greener energy economy, implementing policies and incentives designed to attract both domestic and foreign investments.

Egypt's Renewable Energy Transformation

The current energy landscape in Egypt is characterized by a significant transformation aimed at enhancing energy security, promoting renewable energy, and achieving decarbonization. This comes as the country's energy strategy until 2040 aims to boost renewables contribution in its energy mix to become 60%, according to a report submitted to Mahmoud Ismat, Minister of Electricity and Renewable Energy, on November 1st, 2024.

Egypt's renewable energy drive has attracted significant investment, especially in solar and wind power. The Egyptian government has implemented a comprehensive incentive framework to accelerate the adoption of renewable energy. These incentives encompass tax benefits, exemptions from customs duties, and favorable feed-in tariffs. By alleviating the financial burden on developers, these measures significantly improve the economic feasibility of renewable energy projects.

In addition to domestic endeavors, Egypt has actively pursued international collaborations and agreements to advance its renewable energy sector. These partnerships provide access to cutting-edge technology, financial resources, and global best practices, significantly enhancing the scope and impact of Egypt's renewable energy initiatives.

Accordingly, the Egyptian energy sector is developing a number of solar, wind, and hydropower generation projects. One of the major renewable projects in Egypt is the Benban project, Africa's largest solar park. The project consists of forty solar power stations, each producing 50 megawatts, with a total production of 2,000 megawatts. These stations produce approximately 90% of the High Dam's production, according to previous statements by Hani Mostafa, general coordinator of the solar energy project in Benban.

The 580 MW Gabal El Zeit Wind Farm is another significant project. The first phase, comprising 120 turbines with a 240 MW capacity, has been partially connected to the grid. The second phase, with 110 turbines and a 220 MW capacity, is also under development, according to the Egyptian Presidency website.

Egypt's Green Hydrogen Ambitions

Egypt has an ambitious plan to become a leading producer and exporter of green hydrogen. This target aligns with the global shift towards decarbonization and the increasing demand for renewable energy solutions. By leveraging its abundant solar and wind resources, Egypt aims to utilize green hydrogen to significantly reduce carbon emissions in transportation, industry, and power generation, thereby contributing to its 2040 renewable energy targets.

Rania Al-Mashat, Minister of Planning, Economic Development, and International Cooperation, emphasized the transformation of the Suez Canal area into a leading hub for green hydrogen production. By 2050, Egypt aims to supply 10% of the global hydrogen demand, positioning the country at the forefront of the low-carbon energy economy. Al-Mashat's statement came during her participation in a panel discussion at the COP29 Climate Summit held in Azerbaijan from November 11-22, 2024.

As Egypt embarks on its ambitious journey towards a sustainable energy future, the country's commitment to renewable energy and green hydrogen initiatives positions it as a key player in the global energy transition.

Despite the significant potential of Egypt's hydrogen sector, several challenges hinder investment. High financing costs, driven by factors like external debt, and inflation, pose a significant barrier, particularly for capital-intensive hydrogen projects. Additionally, the substantial upfront investment required for renewable energy infrastructure exacerbates the financial burden, according to the British Egyptian Business Association (BEBA). The International Energy Agency (IEA) revealed that a mere 9% increase in the cost of capital can lead to a substantial 70% rise in green hydrogen production costs. To mitigate these risks and attract investment, the Egyptian government is actively partnering with international organizations such as the European Bank for Reconstruction and Development (EBRD) to develop innovative financing solutions that combine public and private funding.

As Egypt embarks on its ambitious journey towards a sustainable energy future, the country's commitment to renewable energy and green hydrogen initiatives positions it as a key player in the global energy transition. By harnessing its abundant solar and wind resources, Egypt can not only reduce its reliance on fossil fuels, but also contribute significantly to global efforts to combat climate change. Despite funding challenges, strategic partnerships along with innovative financing mechanisms and continued policy support can help Egypt unlock its full potential and solidify its place as a leading renewable energy hub.

THE CENTURIAL TRIFECTA: SUN, WIND AND…GAS?

BY RANA AL KADY

In Egypt, organizations are increasingly promoting the use of renewable energy sources, including solar panels, wind turbines, and hydro technologies. However, the energy sector remains heavily reliant on natural gas, a fossil fuel that emits greenhouse gases. This reliance is likely to persist as a cornerstone of the electrical system for years, if not decades, despite the growing integration of renewable energy sources.

General Overview

One take on this topic is that because the wind and the sun are too unpredictable, the oil and gas industry insist that they must continue to utilize natural gas. Additionally, they are hesitant to make energy storage investments, claiming that purchasing batteries that can power the system in the absence of sufficient wind or sunshine would be too expensive.

Equally, another point of view emphasises the importance of limiting – if not, diminishing – natural gas altogether; to combat pollution and climate change, liberal lawmakers and environmental activists battled for years to compel the industry to cut back on their usage of carbon-emitting sources of fuel. The front lines of battle are quickly moving as coal use declines, pitting supporters of a carbon-free system opposite individuals who support natural gas, a plentiful fuel that emits roughly half as many greenhouse gases as burning coal.

Pressure: Cracking the Surface

In fact, as the global spotlight turns more and more to the effects of human activity on the environment, greater numbers of individuals are starting to worry about where they acquire their power and how effective and environmentally friendly it is.

Primarily, there are environmental effects associated with natural gas extraction. Methane, a greenhouse gas that is thirty times more effective than CO2 in trapping heat, can seep from wells and pipelines during natural gas extraction. Then there is fracking, which is another method of obtaining natural gas that involves pumping millions of gallons of water, sand, and chemicals into exposed rock located far below the surface of the earth. This releases any trapped natural gas. Fracking is an uncontrolled practice that has the potential to contaminate subterranean water sources. To generate power, natural gas must be burned after it has been extracted. The environmental impact of burning natural gas to operate a house or even a car on a daily basis can be significant, but to what extent?

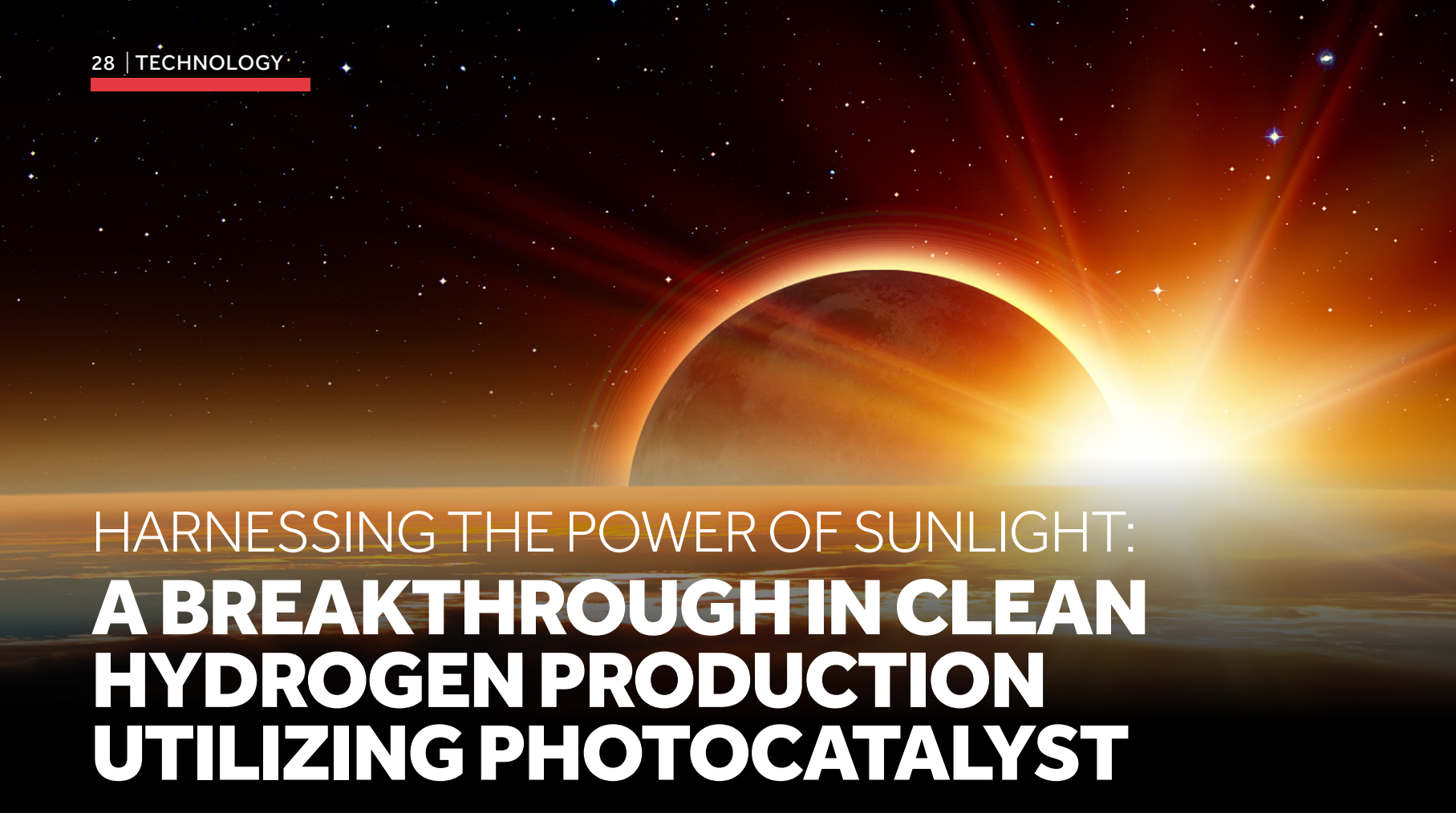
The Battle Between Natural and Renewable

Natural gas is the greenest fossil fuel available. Natural gas is the gas alternative with the lowest emissions, producing 50% as much carbon dioxide as coal and roughly 30% less than oil when compared to other non-renewable electricity resources. It also generates less harmful compounds like sulfur dioxide and nitrogen oxides. In Egypt, natural gas use and exports have increased as a result of its clean-burning characteristics.

Nevertheless, it is crucial to keep in mind that not all energy sources are [yet] compatible with modern technologies. For instance, shipping and aircraft, as well as some so-called hard-to-abate industrial sectors like iron smelting, still rely heavily on fossil fuels. Although there is still a long way to go before renewable energy can completely replace fossil fuels, a lot of studies and improvements are already underway and much more is required in areas like storage. Wind and solar energy will become more significant as the world becomes more electrified, especially in areas with abundant renewable energy supplies. As suggested by a Renewable Energy Specialist, "It is absolutely essential to remember that [the world] is just in the staring phase of an energy transition that is beyond any other endeavour in history in terms of both complexity and pace. There is so much more left to do and improve and every transition requires time and effort. The plant for now: [the world] should act now."

In conclusion, there are advantages and disadvantages regarding the implementation and usage of both renewable energy technologies and natural gas. Although natural gas is superior to coal, it nevertheless contributes to climate change and greenhouse gas emissions. In contrast, renewable energy technologies are a clean source that improve public health and lowers carbon emissions. The advantages of renewable energy technologies are becoming increasingly clear as we move onwards. Solar power is poised to lead due to declining costs, increasing efficiency, and strong public and policymaker support. We can significantly improve the environment and move towards a sustainable future by switching to solar power.

Natural gas is the greenest fossil fuel available. Natural gas is the gas alternative with the lowest emissions, producing 50% as much carbon dioxide as coal and roughly 30% less than oil when compared to other non-renewable electricity resources. It also generates less harmful compounds like sulfur dioxide and nitrogen oxides. In Egypt, natural gas use and exports have increased as a result of its clean-burning characteristics.



HARNESSING THE POWER OF SUNLIGHT: A BREAKTHROUGH IN CLEAN HYDROGEN PRODUCTION UTILIZING PHOTOCATALYST

BY DOAA ASHRAF

Hydrogen stands out as a promising alternative to fossil fuels, offering a clean, efficient, and sustainable energy carrier for power generation and transportation. Despite its many advantages, the use of hydrogen as a fuel source still poses many challenges, including high production, storage, and transportation costs.

Most conventional hydrogen production methods, such as steam reforming of methane, are reliant on fossil fuels, which fail to meet sustainability criteria. While electrolysis is a cleaner alternative, producing only 4% of the world's energy demand, it remains an energy-intensive process accompanied by economic challenges.

In recent years, significant progress has been made in the development of renewable energy technologies that can be used to produce hydrogen in a sustainable and carbon-free manner.

Researchers at Oregon State University (OSU), USA, have developed a new photocatalyst material that efficiently converts sunlight and water into clean hydrogen energy. This innovation, led by researcher Kyriakos Stylianou, utilizes metal-organic frameworks (MOFs) to create a catalyst that significantly enhances hydrogen production rates.

The team created a metal oxide heterojunction, referred to as RTTA, combining ruthenium oxide and titanium oxide doped with sulfur and nitrogen. The most effective variant, RTTA-1, produced over 10,700 micromoles of hydrogen in one hour with a quantum yield of 10%.

"Among various RTTA materials, RTTA-1, with the lowest ruthenium oxide content, exhibited the fastest hydrogen production rate and a high quantum yield," said Stylianou.

According to Stylianou, the performance of RTTA-1 is attributed to the synergistic effects of the metal oxides' properties and surface properties from the parent MOF that enhance electron transfer.

> Photocatalysis is a promising technology for hydrogen production because it allows the conversion of solar energy into chemical energy through radiation-induced processes.

"This study highlights the potential of MOF-derived metal oxide heterojunctions as photocatalysts for practical hydrogen production, contributing to the development of sustainable and efficient energy solutions," he said.

Photocatalytic Hydrogen Production

Photocatalysis is a promising technology for hydrogen production because it allows the conversion of solar energy into chemical energy through radiation-induced processes. Honda and Fujishima discovered the photo-assisted electrochemical splitting of water into H2 and O2 in 1972. Since then, many approaches and photocatalysts have been developed to drive the catalytic production of hydrogen under solar radiation.

Current catalytic processes for producing hydrogen from water involve electrocatalysis – running electricity through the catalyst. The sustainability of electrocatalysis depends on using renewable energy, and to be competitive in the market, the energy has to be inexpensive.

"Water is an abundant source of hydrogen, and photocatalysis offers a method to harness the Earth's abundant solar energy for hydrogen production," Stylianou said. "Ruthenium oxide is not cheap, but the amount used in our photocatalyst is minimal. For industrial applications, if a catalyst shows good stability and reproducibility, the cost of this small amount of ruthenium oxide becomes less important."

Its applications

The hydrogen produced can be utilized in fuel cells for vehicles, providing a clean energy source that reduces greenhouse gas emissions.

Moreover, hydrogen could be utilized to produce various chemicals, including ammonia, which is essential for fertilizers, refining metals, and in making plastics.

Besides, this technology can be integrated into broader renewable energy strategies, enhancing the efficiency of solar energy utilization.

Photocatalytic hydrogen production represents a promising avenue for sustainable energy, leveraging sunlight to create clean fuel. The research at OSU highlights the potential of MOF-derived materials in enhancing the efficiency of this process, contributing to the development of renewable energy solutions.

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BIOGAS CREATES NEW ECONOMIC REALITIES

BY NADER RAMADAN

Biogas is a "dirty" business because it has everything and anything to do with waste management. In other words, it turns biomass and organic matter, including dung and other types of waste that come from biological sources, into a sustainable source of energy. Dirty, yet lucrative, according to the latest economic studies, biogas is said to become a new frontier of economic progress for the sustainable energy industry.

According to a report from the World Biogas Association (WBA), biogas is growing at breakneck speed. The biogas industry grew at a pace of 19% over the last six years (2017–2022), reaching 445 terawatt hours (TWh) in 2022. Close to half of production came from Europe, and Germany alone accounted for 20%.

There are even more promising signs with the IEA's Net Zero Scenario predicting a robust growth rate of 32% between 2023 and 2028 for the near future. This forecast is in line with the level of attraction to the industry globally, particularly in biomethane.

"This is a huge milestone for our industry. Not only does the IEA recognize the role our industry can play as a solution to the world's current economic and environmental crises, but it also anticipates the sector growth rate to accelerate from 19% in 2017-2022 to 32% in 2023-2028," Charlotte Morton OBE, WBA Chief Executive, said. "The Anaerobic Digestion (AD) sector is particularly well placed to help meet the Global Methane Pledge commitments made by over 150 countries since its launch in 2021. Our research has shown that fully deployed, the biogas and biomethane sector could deliver 50% of the pledge. The IEA's forecasts and growing commitment from governments indicate that we are on the right path. The sector, however, requires strong policy support to realize multifaceted benefits of AD."

From an emissions point of view, biogas can boost both rural economic development, since it relies on agricultural biomass for feedstock, and reduces emissions, particularly methane. "The industry celebrates the recognition being given to the biogas sector for its contribution towards a sustainable future and circular economies. Our research shows that when fully deployed Biogas could deliver 50% of the Global Methane Pledge. The role of anaerobic digestion in mitigating methane emissions from agriculture and livestock management, food waste management, and landfills and its impact on 9 of the 17 Sustainable Development Goals are increasingly being recognized. This is putting the sector in a strong position to rapidly produce a net cooling effect, as the world continues long-term CO2 reduction. However, extensive capital mobilization, both in terms of infrastructure and financial incentives and supporting policies is imperative to achieve the growth forecasts made and realize the full potential of the anaerobic digestion industry," the report by World Biogas Association said.

The World Biogas Association further suggested in the report titled "IEA Forecasts 32% Growth in Coming Years for Biogas Sector" that a key enabler of the growing biogas industry is government policies that support its unlimited potential and yet it will take time for various countries to adapt to using biogas as one of the primary sources of energy. "Due to the diverse nature of the biogas and characteristics of energy systems, countries have significant variations in terms of usage. A large proportion in Europe and the USA are dedicated to heat and electricity closely followed by injection into natural gas grid and road transportation respectively. In comparison India and China see more use in residential, commercial, and public service."

Job creation has witnessed a significant boost since the rise of the burgeoning biogas industry with the European Biogas Association forecasting production in southern Italy for example to reach 3.1 billion cubic meters of biomethane by 2030, and potential economic impacts estimated at €18-27 billion, possibly creating up to 8,000 new jobs in the sector.

An official report from the International Labour Organization "The economics of biogas" pointed out that on a wider global scale, this industry has the potential for even more job creation as it begins to diversify "The potential of biogas electricity from commercial dung is estimated at 5,000 MW, which could lead to the creation of 950,000 jobs. However, there will be repercussions on the labor market if changes are made to the current low productive use of dung cake making toward higher valued goods, such as electricity."

Biogas is not only creating amazing opportunities in the energy sector by securing the needs of local markets with relatively simple technology. It has also demonstrated unlimited potential in waste management, a field that the entire developing world needs to focus on to create cleaner and safer urban environments for the next generation.

Biogas is not only creating amazing opportunities in the energy sector by securing the needs of local markets with relatively simple technology. It has also demonstrated unlimited potential in waste management, a field that the entire developing world needs to focus on to create cleaner and safer urban environments for the next generation.

THE REVOLUTION IN PETROLEUM RECYCLING:

TURNING WASTE INTO VALUABLE PRODUCTS

The world is embarking on a massive revolution to transform petroleum into final products that people need in their daily lives instead of burning it as fuel for cars.

Plastic is one of the popular petroleum industries that is growing at lightning speed. The only obstacle to its growth is plastic waste, which threatens the existence of wildlife in the oceans. Therefore, recycling plastic and finding a technology to get rid of its waste (by making it biodegradable) are necessary to solve the waste problem. Then the giant genie (plastic) will emerge from its bottle and enter as a material in the manufacture of various final products, invading the markets, streets, and homes of consumers all over the globe.

Petroleum companies are now trying to develop the plastic recycling process by partnering with industries related to its composition.

The motivation for the rush to use plastic is the advantages it has over all competing materials (such as iron, glass, and paper) in their uses (such as its light weight, small size, ease of formation, adaptation to climate and spatial changes, preservation of safety, and lack of waste of preserved things). These are just some. The advantages related to packaging, but its industrial uses are endless, as it is included in the formulations of everything, we see around us or use in our daily lives.

Estimates say that recycling plastic waste in the world leads to energy savings equivalent to 3.5 billion barrels of oil per year. This leads us to the question: Does recycling reduce the demand for oil?

Petroleum products, such as plastics, are recycled through a process called pyrolysis. In this process, materials are heated at a high temperature in the absence of oxygen, breaking down complex hydrocarbon chains into simpler molecules. These simpler molecules can then be rearranged and reprocessed into new materials, reducing the need for new raw materials and reducing waste.

On average, each ton of recycled plastic saves 130 million kilojoules (123 million Btu), which is equal to the energy released by consuming 22 barrels of oil. Recycled polymer material is less expensive than new material, with financial savings resulting from energy savings, which usually range between 40-90% depending on the type of polymer.

Plastic prices reflect an annual average of weekly price data and their correlation with oil prices. Polyethylene terephthalate, high-density polyethylene, low-density polyethylene, polyvinyl chloride, low-density polyethylene, polypropylene, and polystyrene.

One of the most prominent products that can be recycled is used motor oil. The oil used in car engines contains dangerous substances that pollute the environment. Therefore, it must not be thrown away or disposed of randomly, and since this oil has changed its specifications, it cannot be reused again unless it is recycled. Recycled motor oil can be combusted as fuel, usually in plant boilers, space heaters, or industrial heating applications such as blast furnaces and cement kilns. When used motor oil is burned as fuel it must be burned at high temperatures to avoid gaseous pollution. Alternatively, waste motor oil can be distilled into diesel fuel or marine fuel in a process similar to oil re-refining, but without the final hydrotreating process.

The process of recycling used oil takes place in three steps: It is filtration using a Buchener funnel, then extracting the oil using a mixture of (toluene and methanol) as an organic solvent, followed by an adsorption process - using aluminum oxide -, and this oil is called recovered oil.

Metal recycling: Metals used in the oil and gas industry are collected and converted into other materials such as steel and aluminum. High value metals that can be recycled over and over again without deteriorating their properties. Scrap metals also have a value that attracts people to collect them for sale and recycling. In addition to the great financial incentive, there is also an urgent environmental necessity.

We can recycle metals by conserving natural resources as they require less processing energy to manufacture new products using raw materials. Metals can be classified into ferrous and non-ferrous. Ferrous metals are a mixture of iron and carbon, and some common ferrous metals include carbon, steel and alloys, wrought iron, and cast iron. On the other hand, non-ferrous metals include aluminum, copper, lead, zinc, and tin. Non-ferrous precious metals include gold, platinum, silver, iridium, and platinum.

Industrial wastewater used in the oil and gas industry is collected and treated for reuse in production processes. Using nanotechnology to filter this produced water, a specific type of nanoparticles with the ability to be attracted to magnets was used, and when these particles are added to water contaminated with oil, the nanoparticles stick to the oil droplets present in the water, and this makes separating the oil droplets possible using only magnets.

Special technologies are used to reuse the energy used in production processes.

Improving energy efficiency:

1. Improving the management of electrical and thermal loads.
2. Improving operational performance with minimal energy consumption.
3. Eliminate waste and recycling.

Flame gas recovery:

1. Egypt joined the initiative to stop routine burning in 2017.
2. Exploiting these gases in operation as an alternative to diesel.

Recycling and refining petroleum products for new use is essential to conserve natural resources and reduce the use of crude oil. Refining can have many environmental and economic benefits, including: -

1. Reducing dependence on crude oil extracted from the ground, which reduces pressure on the environment and reduces costs.
2. Reducing the volume of solid waste produced, which reduces environmental pollution and the need for a place to store this waste.
3. Any number of recycled petroleum products can be reused in many applications, improving sustainability and reducing high consumption.
4. Reducing carbon emissions and greenhouse gases, which limits the effects of global warming change.
5. Recycled refining products can be used as alternative energy sources, reducing dependence on fossil fuels and improving the green economy.

Overall, from a legal point of view, policies that encourage recycling petroleum products has positive environmental and economic impacts that cannot be ignored, promoting sustainability and improving quality of life in the long term.

Eng. Mohamed Abdelraouf
Southern Area Gen Mgr
Khalda Petroleum co

TRUMP'S ENERGY AGENDA: A STEP BACKWARD FOR CLIMATE POLICY?

BY IHAB SHAARAWY

As the political landscape in the United States is shifting with the resurgence of Donald Trump for a second presidential term, significant concerns are high among climate scientists, environmental activists, and energy market analysts. Many experts predict a rollback of climate policy, a renewed emphasis on the interests of fossil fuel companies, and a pivot away from renewable energy initiatives that gained momentum during the previous administration of Joe Biden. However, this expected trajectory might not be as straightforward, as counteracting forces—such as the European Union's climate policies and a growing energy transition movement—could mitigate some of the expected consequences of a Trump presidency on energy and climate efforts.

A Reversal of Climate Gains

As Trump is retaking the office, the U.S. might witness a retreat in its climate ambitions. During his first term, Trump implemented an "America First" energy agenda that favored fossil fuel production over renewable energy. Experts anticipate that a second term would be characterized by aggressive dismantling of the regulations and policies established under previous administrations. Measures such as clean energy tax breaks, pollution controls, and commitments to international climate agreements like the Paris Accord may lie in the crosshairs of the Trump administration.

A significant component of Trump's platform involves increasing oil and gas extraction across federally owned lands and waters, which includes the controversial Arctic National Wildlife Refuge. His appointee for the Interior Department, which oversees vast areas ripe for energy exploitation, has indicated intentions to halt the Biden administration's limitations on fossil fuel development. This push for extraction could exacerbate climate change by releasing more greenhouse gases into the atmosphere, particularly methane—a potent climate pollutant linked to natural gas extraction and transport.

Trump's administration is likely to encourage the expansion of liquefied natural gas (LNG) infrastructure, leading to an increased production of fossil fuels. This action not only poses an immediate threat to domestic climate initiatives but risks establishing the U.S. as the world's largest LNG exporter, potentially locking in harmful emissions for decades. Additionally, initiatives intended to target disadvantaged communities, such as the Biden administration's Justice40 initiative, may face elimination, further compromising social equity in climate action.

Internal Pushback and Resilience

Despite Trump's expected policy shifts, evidence suggests that the clean energy transition in the U.S. may not be halted entirely. The costs of renewable technologies continue to fall, and there is increasing pressure from consumers and investors for companies to prioritize sustainability. This private sector drive for clean energy could create a significant counterbalance to the Trump administration's pro-fossil fuel agenda.

Local and state-level initiatives on clean energy may persist regardless of federal policy direction. Leaders across the political spectrum recognize the economic opportunities inherent in clean energy development. During Trump's previous term, investments ballooned in wind and solar sectors, demonstrating that economic growth and climate action can coexist. Dan Lashof of the World Resources Institute noted that state and local leaders remain dedicated to advancing climate solutions, independent of federal restrictions. This grassroots momentum can continue to drive innovation and investments in clean technology even in a less supportive federal environment.

The European Union's Role

The geopolitical landscape also plays a crucial role in the future climate dynamics under Trump. If the U.S. retracts from its international climate commitments under Trump, the EU will become an essential player in global climate diplomacy. The potential backtracking of U.S. climate policy coinciding with the expected commitment to ambitious climate targets by the EU could lead to an even wider gap between the two regions on climate issues.

The EU has already announced plans to accelerate its own decarbonization goals and strengthen international alliances to promote ambitious emissions reduction pledges. While the U.S. may falter in its climate leadership, the EU could position itself as a pioneer in climate efforts, creating economic opportunities through green technologies. This leadership emphasizes that the transition towards clean energy is not solely dependent on U.S. policy; rather, it is a global imperative that various actors are pursuing with increasing urgency.

The Economic Landscape

An important aspect of Trump's energy policy shift is the economic implications for the U.S. and global energy markets. If the U.S. succeeds in drastically increasing fossil fuel production as Trump intends, energy prices may see a notable decrease. This pricing adjustment could widen the energy gap between the U.S. and the EU, posing challenges to European industrial competitiveness, especially as the EU pushes for decarbonization.

However, such a scenario could also spur European nations to double down on their green transitions. The move towards clean energy not only addresses climate concerns but also presents an economic opportunity for the EU in the clean-tech export market. Accelerating this transition may ultimately become the only structural solution to high energy prices faced in Europe, as reliance on fossil fuels continues to become less viable from an economic and environmental standpoint.

Trump's return to the presidency is likely to stall the U.S. climate efforts, but it will not stop the broader shift towards sustainable energy sources. Market dynamics, state-level actions, and international commitment to addressing climate change can provide resilience against the potential setbacks caused by federal policies aimed at bolstering fossil fuel production. The ongoing global transition towards a sustainable energy future is an intricate process that may continue to unfold, despite political challenges at the top levels of the U.S. government.

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OIL AND GAS: FUELING THE PULSE OF EVERYDAY LIFE

Oil and gas are more than just the world's primary energy sources—they are integral to modern life, shaping industries, enabling technological advancements, and supporting daily necessities. Despite the growing emphasis on renewable energy, their indispensable contributions to society remain critical.

Petroleum fuels global mobility, powering over 1.4 billion vehicles and enabling the aviation industry, which transports more than 4.5 billion passengers annually. These fuels sustain global trade, ensuring the seamless functioning of economies. Beyond transportation, oil-derived asphalt underpins roads and highways, which are essential for modern infrastructure. Construction materials like PVC pipes and insulation further highlight their significance.

Globally, natural gas is a primary heating source for 42% of households, while liquefied petroleum gas (LPG) provides energy for cooking, heating, and lighting to over 3 billion people, especially in rural areas. These resources bridge energy gaps, supporting modern living standards in regions with limited access to alternative energy sources. This highlights the ongoing reliance on oil and gas to meet fundamental needs.

Petrochemicals, derived from oil and gas, form the foundation of many everyday products. Plastics, used in packaging, medical devices, and electronics, are integral to numerous industries. Petroleum byproducts are critical for cosmetics and pharmaceuticals, forming the basis of life-saving medicines and skincare products. Fertilizers, which rely on petrochemicals, play a key role in global agriculture, supporting food security for a growing population.

Oil and gas are pivotal to the technology sector. Petrochemical derivatives are essential in manufacturing components for smartphones, laptops, and televisions, contributing to a $1 trillion global electronics market. Synthetic fibers such as polyester and nylon, derived from petroleum, dominate global fiber production, showcasing their versatility in industries ranging from fashion to industrial applications.

Healthcare advancements owe much to oil and gas. Disposable medical supplies, including syringes, gloves, and IV tubing, rely on petrochemicals. Advanced medical technologies like MRI machines and prosthetics also depend on these materials. In agriculture, oil-based fuels power machinery like tractors, while petroleum-derived pesticides and herbicides enhance crop yields, safeguarding food security amid rising global challenges.

Contrary to what some may think, oil and gas also support the clean energy transition. Natural gas, a cleaner-burning fossil fuel, accounts for nearly a quarter of global electricity generation, serving as a bridge to renewable energy. Additionally, renewable technologies such as wind turbines and solar panels incorporate oil-derived materials, illustrating their role in driving sustainability.

The cosmetics industry, valued at $380 billion, relies heavily on petroleum derivatives for products like moisturizers and perfumes. Everyday staples like petroleum jelly underscore their relevance to daily life.

Oil and gas are the backbone of modern civilization. From enabling global mobility to driving technological progress and sustaining essential industries, their contributions are vast and irreplaceable. As the world transitions toward renewable energy, their pivotal role in shaping modern life cannot be overlooked. They remain, undeniably, the pulse of our everyday existence.

Mohamed Atia

Process Engineer, Egyptian Refining Company

BILL GATES SUPPORTS SOLAR DIMMING PROJECT: IS IT A CONSPIRACY OR THE ONLY SOLUTION?

Our planet is at a breaking point. Rapid climate change is destabilizing ecosystems, and greenhouse gas emissions and global temperatures are still rising. Despite the urgent calls for action from scientists and activists, significant political and corporate resistance remains, especially from fossil fuel interests.

Yet, the situation is not hopeless. Climate scientists are developing new energy solutions, working to slow warming. One proposed solution is solar geoengineering, specifically "solar dimming," aimed at reducing the Earth's temperature by reflecting some sunlight back into space. While this idea is controversial, some scientists argue that it could be a necessary temporary measure as we work toward a sustainable future.

Many experts argue that even if countries reduced emissions to zero by 2050, the planet would still face severe climate events. Greenhouse gas emissions are projected to reach 80 billion tons annually by 2030, and this level of pollution will worsen hurricanes, droughts, rising sea levels, and extreme weather. In parallel, scientists suggest enhancing natural carbon capture, such as planting trees, while also employing carbon capture technology. A study found that planting half a trillion trees could absorb about 205 billion tons of carbon, but this would require an area the size of the U.S. and decades to take effect. Meanwhile, carbon capture technology remains costly, and current methods are insufficient for global needs.

Due to the urgent nature of climate change, some scientists advocate solar dimming as a faster option. Harvard University has proposed reflecting sunlight by releasing particles into the atmosphere, similar to the effects of volcanic eruptions, which naturally cool the Earth. For instance, the 1991 eruption of Mount Pinatubo released sulfur compounds, forming a cloud layer that cooled the planet by about 0.6°C. Harvard scientists suggest simulating this effect by releasing a small amount of sulfur, potentially lowering global temperatures. They estimate that this could cost about $2.5 million annually—a fraction of the economic impact of climate change.

Critics worry that this intervention might disrupt global weather patterns, leading to floods in some regions and droughts in others. Africa, for example, already faces extreme weather, with both drought and flooding affecting millions. There is also concern that if solar dimming proves effective, some nations or corporations could use it as an excuse to avoid reducing emissions. Harvard has assured that it does not accept funding from fossil fuel companies, but the long-term effects of this technology remain uncertain.

Ultimately, this approach, if pursued, would require careful control and a gradual phase-out to prevent sudden climate shifts. The debate over solar dimming highlights the urgency of finding a viable path to reduce temperatures and protect our planet, as humanity cannot afford to delay action any longer.

Dr. Manal Metwally

Head of the Environment Committee of the Egyptian Engineers Syndicate

EGYPT OIL&GAS RESEARCH & ANALYSIS

QUARTERLY INDICATORS

Unemployment Rate

6.5%
Q2 2024

6.7%
Q3 2024

Unemployment Breakdown

Gender — Males 4.2% — Females 18.2%

Areas — Rural 4% — Urban 10.1%

Egypt's unemployment rate rose in the third quarter (Q3) of 2024 by 3%, compared to the second quarter (Q2) of 2024. Egypt's total labor force increased by 2.5% to 32.22 million from 31.42 million. The urban labor force recorded a total of 14.19 million individuals, while the rural labor force totaled 18.03 million. As for the gender level, the male labor force accounted for 26.43 million individuals, and the female labor force accounted for 5.79 million individuals.

EGX HIGHLIGHTS

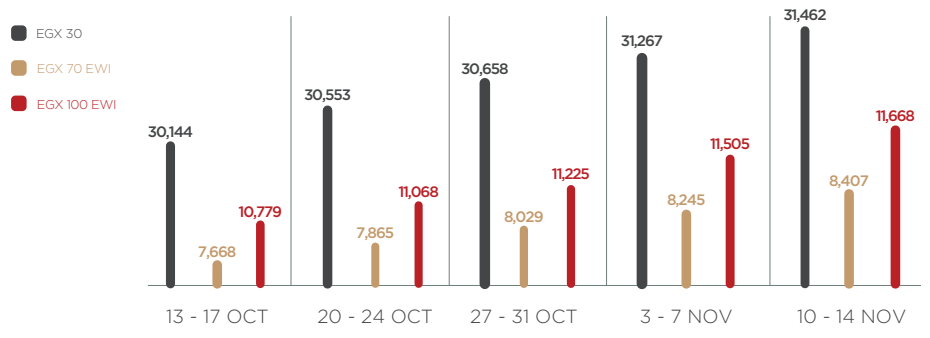
Performance of Listed Petroleum Companies
October 2024

TAQA	NDC	AMOC
Close Price EGP 13.3	Close Price -	Close Price EGP 7.76
YTD Price Change 1.12%	YTD Price Change 0%	YTD Price Change 21.3%
P/E* 28.04	P/E* 2.01	P/E* 5.68

Egypt Gas	ADIB
Close Price EGP 43	Close Price EGP 21
YTD Price Change 7.5%	YTD Price Change 27.76%
P/E* 36.35	P/E* 7.75

*Price-Earnings Raito (P/E): the ratio of a company's share price to the company's earnings per share.

Capital Market Indicators



MONTHLY INDICATORS

Annual Inflation Headline
CPI (%)

September 2024	October 2024
26	26.3

The national consumer price index registered a 1.5% monthly inflation rate in October 2024, a decrease from the 2.3% growth seen in September. This deceleration in monthly inflation was attributed to price drops in various sectors, including a 2.1% decrease in fruit prices, a 0.4% decline in vegetable costs, and a 0.4% reduction in hotel services. Nevertheless, certain categories saw price hikes. Electricity, gas, and fuel prices surged by 7.2%. Meat and poultry costs went up by 3.3%, while fish and seafood prices increased by 2.1%. Additionally, dairy products, cheese, and eggs saw a 2% rise, with coffee, tea, and cocoa prices climbing by 1.2%. It should be noted that the October 2024 inflation record is notably lower than the 38.5% recorded in October 2023.

Net International Reserves
($ billion)

September 2024	October 2024
46.737	46.942

Egypt's net international reserves recorded $46.94 billion at the close of October 2024, with an increase of about $200 million, compared to September. It is worth noting that the fourth review of Egypt's loan program is currently undergone by the International Monetary Fund (IMF) representatives in Cairo. Upon completion, the IMF will release a $1.3 billion tranche, which represents the largest of the various tranches, giving a push to the Egyptian reserves.

Non-Oil Private Sector
PMI (Point)

September 2024	October 2024
48.8	49

Egypt Purchasing Managers' Index™ (PMI) recorded 49 in October 2024, falling below the 50 neutral threshold for the second month running. This comes after a brief expansion in August which was the first in three years. The non-oil private sector witnessed a decrease in business activity and new orders. Sales were often impacted by weak market conditions, as well as the additional challenge of rising prices. However, Egypt's non-oil economy is not too far from growing again, and a lessening of cost pressures in the latest month provides some hope that economic headwinds could ease.

EGYPT OIL&GAS RESEARCH & ANALYSIS

Signing a New Acquisition Agreement for Offshore Concession

QatarEnergy entered into an agreement with Chevron to acquire working interest in the concession agreement for the North El-Dabaa (H4) Block. QatarEnergy looks forward to the drilling of the first exploration well in this block for a successful and promising outcome.

Date	Location
November 12	Mediterranean Sea

Water Depths	Block
100 - 3,000 m	North El-Dabaa (H4)

Stakeholder Shares

QatarEnergy	23%
Chevron (operator)	40%
Woodside	27%
Tharwa Petroleum Co.	10%

Egypt's Oil & Gas Infrastructure Development

Egypt's strategic location and robust infrastructure in petrochemicals, refining, and liquefied natural gas (LNG) position the country to play a significant role in the region.

The Egyptian oil and gas sector aims to bolster its position by increasing natural gas production, not only for the country but also for the Mediterranean Sea region. Additionally, the sector is keen on providing raw materials for the petrochemicals industries to drive value-added and stimulate economic growth.

12 mmt/y	LNG Export Capacity
40 mmt/y	Refining Capacity
>10	Petrochemical Complexes

Electricity Status During Summer 2024

Electricity Demand 39 GW

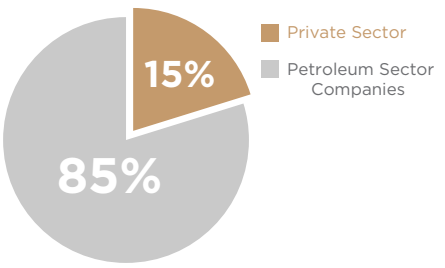
Natural Gas Share of Electricity Generation 60%

Establishing a New Company to Produce Sustainable Aviation Fuel (SAF)

The Ministry of Petroleum and Mineral Resources (MoPMR) announced the foundation of the Sustainable Aviation Fuel (ESAF) Company, with production expected to begin in the next upcoming years.

The ESAF's establishment aligns with Egypt's strategy for a gradual shift toward a greener economy, enhancing investment opportunities in sustainable energy, promoting the localization of advanced technologies, and generating economic returns for the country.

ESAF's Partnership



ESAF's Details

Location	Capacity	Emission Reduction	Investment
Alexandria	120,000 t/y	400,000 t/y	$530 million

Egypt's Commitment to International Laws

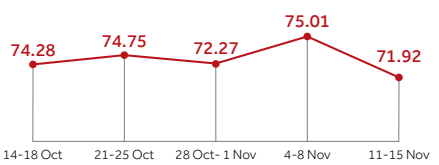
Starting 2% in 2025

Reaching 70% in 2050

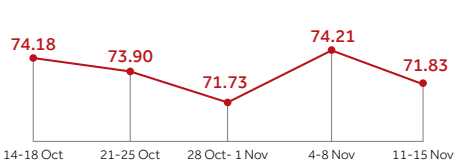
PRICING HIGHLIGHTS

Average International Oil & Gas Prices

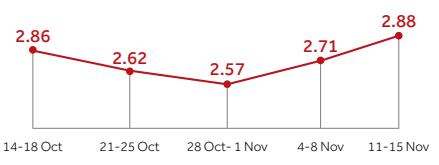
BRENT ($/BBL)



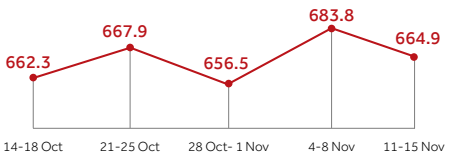
OPEC BASKET ($/BBL)



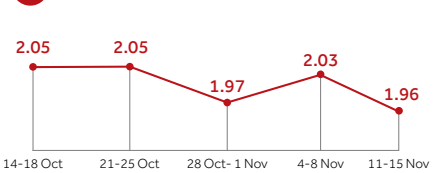
NATURAL GAS ($/MMBTU)



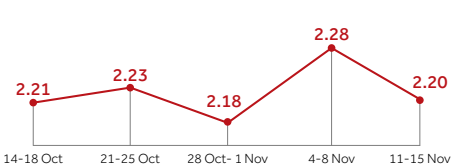
GAS OIL (Nymex) ($/MT)



RBOB GASOLINE (Nymex) ($/GAL)



HEATING OIL (Nymex) ($/GAL)



We take energy forward

We're committed to making energy safer, cleaner, and more efficient for people and the planet. By combining industry-leading technologies and services with operations in over 120 countries, we're collaborating with customers to transform the future of energy – everywhere.

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