



EXCLUSIVE INTERVIEW

REDEFINING POSSIBILITIES:

El Molla on Overcoming Challenges and Realizing Economic Growth



EDITOR'S LETTER

Dear Reader,

As the winds of change swirl through the global energy landscape, Egypt's oil and gas sector stands tall, its resilience forged in the crucible of past challenges. This first issue of the new year is a testament to that strength, diving deep into the secrets behind it through an exclusive interview with Minister of Petroleum and Mineral Resources Tarek El Molla. Unmasking the current energy scene, Minister El Molla shares his insights on 2023's remarkable achievements and lays out a strategic roadmap for growth in 2024.

The echoes of COP28 still resonate, its outcomes carrying the potential to be a turning point in the energy transition. Building upon COP27's success, Egypt's unwavering commitment shone brightly. We delve into the impact of COP28's resolutions and provide expert analysis of Egypt's ongoing energy transition journey. Our team of writers and analysts dissect the intricacies of Egypt's remarkable participation at COP28, offering crucial insights for the future.

But the future is not solely built on past successes. Our Research and Analysis team offers a profound examination of the odyssey behind Egypt's energy transition, charting the course ahead. Meanwhile, our political writer casts a discerning eye on the geopolitical hotspots and potential conflicts to watch in 2024, providing invaluable context for navigating the year's complexities.

We hope this issue becomes your indispensable guide to the dynamic world of energy, offering both information and inspiration. We hope that you find reading this issue enriching and that you remain steadfast in your resolutions for a prosperous year ahead.

Ihab Shaarawy

MANAGING EDITOR

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Harbour Energy plc, Shareholders of Wintershall Dea Sign Business Combination Agreement

BASF, LetterOne and Harbour Energy plc (Harbour) signed a business combination agreement to transfer Wintershall Dea's E&P business consisting of its producing and development assets as well as exploration rights in Norway, Argentina, Germany, Mexico, Algeria, Libya (excluding Wintershall AG), Egypt and Denmark (excluding Ravn) as well as Wintershall Dea's carbon capture and storage (CCS) licenses to Harbour.

In exchange, at closing, the shareholders of Wintershall Dea – BASF (72.7%) and LetterOne (27.3%) – will receive total cash consideration of \$2.15 billion (BASF share: \$1.56 billion) and new shares issued by Harbour equating to a total shareholding in the enlarged Harbour of 54.5% (BASF share: 39.6%). The agreed enterprise value for the Wintershall Dea assets amounts to \$11.2 billion. This amount includes the outstanding bonds of Wintershall Dea with a nominal value of around \$4.9 billion that will be transferred to Harbour at closing.

With this transaction, BASF takes a major step towards achieving its announced strategic goal to exit the oil and gas business. After closing, the transaction creates optionality for monetization of BASF's stake in the combined company, as Harbour is listed on the London Stock Exchange. "In addition to the cash component, the shares in Harbour that BASF will receive upon completion of the transaction offer significant potential for value creation and allow for a gradual and optimized exit from the oil and gas business over the next few years," said Dr. Dirk Elvermann, Chief Financial Officer of BASF SE.

Wintershall Dea's headquarters and the related staff are not part of the transaction. This will require further restructuring and ultimately the closure of the headquarters' units in Kassel and Hamburg that currently have around 850 employees. Harbour intends to take on some employees from the current headquarters into the combined company. Further specifics will

be agreed after a more detailed review between signing and closing. Employee representatives will be involved in the process according to respective legal regulations and established practices.

Dana Gas Expands Egyptian Operations with \$43 Million Investment

Minister of Petroleum and Mineral Resources Tarek El Molla met with Dana Gas CEO Richard Hall and the accompanying delegation to review the available investment opportunities in the Egyptian oil and gas sector as well as the company's working plans and programs in Egypt during the coming period.

This came in line with the ambitions of Dana Gas to expand its business in Egypt and pump additional investments especially in the field of oil and gas as well as exploration and production (E&P).

Richard Hall highlighted that his company would pump additional investments estimated at \$43 million in the frame of its readiness to implement its drilling intensive campaign during 2024.

The campaign will include drilling 11 developmental wells and three exploratory wells aiming to increase the production by 30 million cubic feet of natural gas per day (mmcf/d) and compensate the natural reduction for the wells, he explained emphasizing the commitment of Dana Gas to expand its business in Egypt.

ADES Wins Contract to Operate, Enhance Production of SUCO, OSOCO Brownfields in Egypt

ADES Holding Company has announced that it has been awarded a service contract agreement (LOA) with the Egyptian General Petroleum Corporation (EGPC) – as part of a consortium partnership with a leading local exploration and production (E&P) player.

The 10-year contract enables ADES to operate and enhance production in key oil brownfields in Egypt, namely the SUCO

and OSOCO fields. It can be extended for a further 10 years.

According to the company's statement, the consortium will be dedicated to achieving incremental production levels that surpass the current baseline production at the two brownfields.

By adopting an efficient asset-light model, the project minimizes initial capital outflow, with the majority being operational expenditure (OPEX) related.

The consortium will be reimbursed with most of the OPEX incurred during baseline production and is entitled to incremental production returns based on a mutually agreed formula with EGPC. Additionally, ADES will be ideally positioned to capitalize on its extensive fleet operation in Egypt, ensuring economies of scale while maximizing efficiency and returns to shareholders.

Egypt, Saudi Arabia's ACWA Seal \$4B Deal to Develop Green Hydrogen Project

Saudi-listed ACWA Power has announced that it signed the framework agreement, following the MoU that was signed in 7th of December 2022 to outline the development of the first phase of the green hydrogen project in Egypt with a capacity of 600,000 tonnes-per-year of green ammonia, with an investment in excess of \$4bn, with the intention of scaling up to a second phase with a potential capacity of 2 million tonnes-per-year

The agreement was signed between ACWA Power and The Sovereign Fund of Egypt (TSFE), the Suez Canal Economic Zone (SCZone), the Egyptian Electricity Transmission Company (EETC), and the New and Renewable Energy Authority (NREA) in the presence of the Prime Minister Mostafa Madbouly, Saudi Arabia's Ambassador to Egypt, Osama Bin Ahmed Nugali and other officials.

The framework agreement lays out the development of the first phase of a green ammonia project with a capacity of 600,000 tonnes-per-year powered by wind and solar

plants, with the intention of working on a larger green hydrogen project in the country which could have a capacity of up to two million-tonnes-per-year of green hydrogen.

Arab Energy Conference Concludes with Call for Cooperation, Investment

The 12th Arab Energy Conference, which took place under the slogan "Energy and Arab Cooperation", came to a close on December 12th.

The conference discussed several topics related to developments in the energy situation from its many aspects relevant to international developments in energy markets and their repercussions on the Arab energy sector as well as the efforts of Arab countries to confront the challenges of the energy transition,

This is in addition to topics related to Arab and global energy sources, subsequent petroleum industries, energy demand management in Arab countries, as well as technological developments and their implications for the energy sector.

The conference concluded with the adoption of a final statement. The statement highlighted the importance of energy security for Arab countries, the need for a balanced and sustainable energy transition and the importance of Arab cooperation in the energy sector.

The conference also recommended that Arab countries should continue to invest in their oil and gas resources, while also developing renewable energy sources. It also recommended that Arab countries should work together to develop regional energy infrastructure and cooperate to promote energy efficiency and conservation.

Saudi Arabia's proposal to host the 13th Arab Energy Conference in Riyadh in 2027 was welcomed.

A BLAST FROM THE PAST

During the inauguration session of the Observatoire Méditerranéen de l'Energie (OME) Conference organized in Cairo on **January 13, 2020**, Minister of Petroleum and Mineral Resources, Eng. Tarek El Molla highlighted the great opportunities in the Mediterranean Basin region as well as Africa for optimizing the energy market in the region while considering technological aspects and climate changes.

The Observatoire Méditerranéen de l'Energie (OME) serves as a platform for mutual dialogue in the energy domain, aiming to implement best practices in the Mediterranean region. With membership from 30 major operating companies

representing 16 countries, OME focuses on enhancing cooperation and implementing best practices.

El Molla stated that the East Mediterranean region has turned into a focal point in most of the international conferences and forums dealing with the international gas market as a result of the major natural gas discoveries, which qualify it to become an international hub for natural gas trade.

The conference which was held under the title of "Energy Hubs between Technology and Climate: Optimizing Mediterranean and African Energy Markets", was meant to tackle means of

obtaining balance between the growing demand for energy over the next 50 years and the climate considerations.

In this regard, El Molla noted that natural gas will be the largest growing fuel source, providing a quarter of global energy demand by 2040, in addition, Africa's demand for natural gas will double as local supplies increase and economies develop. He added that in confronting climate change and its consequences on the region, natural gas is the optimal way to reduce CO2 emissions, thus, directing the investments, deploying new technologies, and financing the region's transition toward more clean energy.

UNDER THE LIMELIGHT

Zero Flare Projects
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TAKING A STAND FOR A GREENER FUTURE

Joining hands with global efforts, Egypt's oil and gas sector is blazing a trail towards reducing methane emissions. Emphasizing the importance of reducing methane emissions is a powerful step towards combating global warming. Egypt's commitment is evident as it has joined the World Bank initiative to eliminate routine flaring by 2030.

The Egyptian oil and gas sector has been actively implementing measures to curb methane emissions. With around 30 projects dedicated to recovering flare gas, the results are astounding. Not only have these initiatives saved approximately \$200 million annually, but they have also significantly reduced emissions by a staggering 1.4 million tons per year (mmt/y) of carbon dioxide equivalent.

In addition, two comprehensive campaigns were carried out to measure methane gas across more than 30 sites, ensuring accountability and paving the way for a sustainable future, according to Ministry of Petroleum and Mineral Resources (MoPMR).



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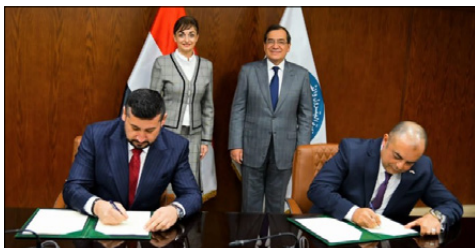
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NATURAL GAS

Town Gas, CIS Gaz Sign Natural Gas Cooperation MoU

Minister of Petroleum and Mineral Resources Tarek El Molla alongside with Olivia Todorean, Ambassador of Romania in Cairo, have witnessed the signature of a memorandum of understanding (MoU) between Town Gas and Romania's CIS Gaz to cooperate and exchange expertise in the field of natural gas.



The MoU was signed between the Chairman of Town Gas Mohamed Fathy and the General Manager of CIS GAZ Horatiu Sebastian Calugar.

According to the agreement, the natural gas delivery company in Romania will collaborate with Town Gas, ensuring that Town Gas will benefit from the company's great experience in this field. This is in addition to cooperation related to manufacturing and collecting the pressure reduction stations in Egypt by using Romanian components.

It also includes the establishment of a special unit for producing home pressure reducing regulators in mutual partnership within the workshops of Town Gas. This will be part of an effort to provide these products inside Egypt instead of importing them, and also looking to export them abroad, possibly for use in joint projects in Romania.

Egypt, Petronas Partner to Enhance Natural Gas Utilization, Reduce Emissions

Minister of Petroleum and Mineral Resources Tarek El Molla met with Abeng Yusof, Vice President of Malaysia's Petronas LNG, and his accompanying delegation to discuss the company's activities in partnership with Shell to develop the tenth phase of the deep-water West Delta fields in the Mediterranean Sea and produce from them. They also discussed preparations to start work on the eleventh phase of the project, in addition to discussing efforts to reduce emissions and maximize the utilization of natural resources.

During the meeting, El Molla affirmed that Decarbonization Day during COP 27 summit has paved the way for joint work on the serious and effective implementation of emissions reduction efforts currently being executed by the oil and gas sectors and emissions-intensive industries around the world.

He noted that the added-value industries based on natural gas is the optimum utilization of natural gas as a natural resource can provide hard currency.

El Molla added that Egypt owns excess capacities at the Idku and Damietta LNG plants and can meet the demand of the East Mediterranean countries. He noted that the country is currently working with its partners to increase production through implementing intensive drilling programs during the coming period to continue to meet the needs of the local market and provide a surplus for exportation and the added-value industries.

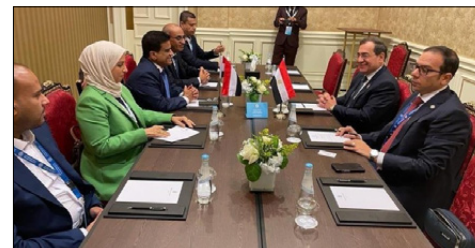
For his part, Abang Yusuf stated that his country is working hard to expand the business of renewable energy and green ammonia production, adding that it directs its production of natural gas towards exportation and added-value industries.

He also said that the coming year will witness the launch of production at the 10th phase of West Delta Deep Fields. He noted that his company is seeking to achieve more discoveries and increase the reserves and production from Egypt and the other countries where it is working.

COOPERATION

Egypt, Yemen Explore Oil & Gas Cooperation

Minister of Petroleum and Mineral Resources Tarek El Molla has expressed the desire of the Egyptian petroleum companies which work in the field of projects and services to cooperate with Yemen.



This came during his meeting with Yemen's Minister of Oil and Minerals Saeed Al-Shamasi, on the sidelines of the 12th Arab Energy Conference held in Qatar. El Molla expressed his support for the cooperation and understanding between the two countries in the fields of oil, gas, and mining industries within the framework of the agreement signed between the two sides.

Furthermore, the two parties explored the potential for contributing to the development of petroleum agreements in Yemen, recognizing it as a crucial area for the country's oil and gas industry. They also discussed Yemen's plan to leverage its strategic location for storing oil and petroleum products, establish refineries, and draw upon Egyptian expertise in the natural gas field, particularly compressed natural gas (CNG) for vehicle fuel. Additionally, they explored cooperation opportunities in the mining industry.

The meeting touched on the Yemen's participation in the Egypt Energy Show (EGYPES) 2024, which will be held in February 2024.

TransGlobe Expresses Interest in Expanding Egyptian Operations

Minister of Petroleum and Mineral Resources Tarek El Molla has met with the CEO of TransGlobe Energy Corporation George Maxwell and Country Manager and Director of TransGlobe Energy Egypt, Craig Robertson to discuss the developments of the company's drilling programs and production at its concession's areas in the Eastern Desert.



During the meeting, El Molla followed up on the company's plan to drill four wells during the upcoming year in the frame of its intensive drilling program targeting to enhance its production which reached recently to about 11,500 barrels of oil equivalent per day (boe/d).

TransGlobe expressed its desire to expand its businesses in the Egyptian oil and gas sector in light of the new opportunities offered through the bid round, which was posted by the Egyptian General Petroleum Corporation on the Egypt Upstream Gateway (EUG) platform.

Additionally, the minister stressed on the importance of the company's steps taken to intensify its activities and pump new investments to continue its success in Egypt. He highlighted the importance of the TransGlobe's drilling program, which will start next year to increase production. He added that using the latest technologies for drilling will maximize the expected returns and capabilities of achieving positive results in the coming period.

EVENTS/CONFERENCE

Egypt Participates in OAPEEC Council of Ministers' 111th Meeting in Qatar

The Council of Ministers of the Organization of Arab Petroleum Exporting Countries (OAPEEC) has held its 111th meeting on December 11th in Doha, Qatar, with the participation oil and energy ministers from member states, including Egyptian Minister of Petroleum and Mineral Resources Tarek El Molla

The meeting was chaired by Hayan Abdul Ghani Al-Swad, Deputy Prime Minister for Energy Affairs and Minister of Oil of Iraq, which has the presidency of the session for the year 2023.

Oil and energy ministers from the member states discussed a variety of topics on the agenda of the Ministerial Council related to the work and activity of the organization. This included the organization's draft estimated budget for the year 2024; as well as developing and restructuring the organization's work. Discussions touched on developing its activities and reconsidering the systems and laws that govern its work, in a way that is compatible with the challenges and new developments in the field of energy.

The meeting further reviewed the steps that have been taken regarding developing the infrastructure of information technology systems within the organization. It also followed up on the activation of the distinguished Cabinet Resolution No. (4/107) regarding the Green Middle East Initiative and adopting the application of the concept of the circular carbon economy; and announced the winners of the OAPEEC Prize for Scientific Research, which is awarded every two years and its field for 2022 is "Decarbonization Technologies in the Petroleum Industry and the Circular Economy".



Moreover, the meeting included the report of the Secretary-General on the activities of the General Secretariat, namely the preparation of economic and technical studies, follow-up reports on global petroleum conditions, environmental affairs and climate change, the progress of work in the Information Bank, and the activities organized by the General Secretariat, in which it participated and which it will organize during the year 2024.

DOWNSTREAM**Egypt Achieves a Leap in Delivering Natural Gas to Rural Areas**

The Ministry of Petroleum and Mineral Resources has announced that it has made remarkable achievements in delivering natural gas to the Egyptian country sides as part of Haya Karima ("Decent Life") initiative.

According to the ministry's statement, Town Gas continued its efforts to connect the natural gas to Atfih village located in Giza as part of the Haya Karima initiative. The company has constructed a 30 km long pipeline.

It also established an internal network to supply the apartments, in addition to 32,000 home connections. There are 14,000 clients who have been provided with natural gas.

Copetrole to Establish New Integrated Fuel Stations in Alexandria

Co-operation Petroleum Company (Copetrole) Chairman Nasser Shouman has signed a cooperation protocol with the Governor of Alexandria Mohamed El Sherif to establish and operate new integrated fuel and natural gas stations in Alexandria.

According to the protocol, the governorate will provide land for building the stations, provided that a separate operation and management contract will be concluded for each station, in accordance with the regulations governing this.

In addition, the company will promote the stations to attract distinctive brands to manage their services.

Plans will also be developed for each station, including all the equipment necessary for operation as well as the application of industrial safety requirements.

El Sherif welcomed this cooperation, affirming his commitment to provide all needed support for establishing these stations.

MoPMR CSR Committee Completes Drilling 48 Water Wells in Matrouh

The Supreme Committee for Corporate Social Responsibility (CSR Committee), headed by Minister of Petroleum and Mineral Resources Tarek El Molla, has completed the drilling of 48 water wells and 50 livestock projects were delivered to 50 families in Matrouh.

This was done in cooperation with the executive leadership of the Matrouh Governorate, Capricorn Energy, and civil society organizations in the area.

Moreover, the committee worked on running 12 medical convoys to serve the people of the villages of Galala and Suwani Samalos. These convoys were staffed with medical personnel from all specialties and provided medicines to the residents of the two villages.

Essential services were also given to the people of Al-Qaryatayn from last July to December 2023, made possible with the cooperation of the Egyptian General Petroleum Corporation (EGPC) and Capricorn Energy with the Orman Association. This included the deployment of 12 veterinary convoys with medicines that carried out veterinary examinations and provided other essential medical services.

Vocational training was also delivered covering procedures to maintain the drilled water wells.

The delivery of these essential services to the areas in need was marked by a ceremony attended by many relevant authorities and officials, including the Undersecretary of the Ministry's Technical Office at the Ministry of Petroleum and Mineral Resources Alaa Hagar.

ACHIEVEMENTS**ERC Contributes 74% to Qalaa's Total Revenue in Q3 2023**

The Egyptian Refining Company (ERC), which is a subsidiary of Qalaa Holdings Company, has contributed 74% to Qalaa Holdings' total revenue during Q3 of 2023.

ERC's refining margins decreased during the quarter, reflecting a normalization of oil prices after the noticeable increase that occurred in 2022.

In July 2023, ERC went through a planned 17-day shutdown for implementing overhaul and debottlenecking which boosted production capacity to the tune of 6-7%. A study is also underway to focus on additional debottlenecking in 2029, which is set to boost capacity by another 10%.

Qalaa's consolidated revenue increased by 11% year-on-year (YoY) to reach EGP 26.4 billion in the third quarter of 2023. Meanwhile, recurring EBITDA recorded EGP 3.9 billion, down from EGP 8.8 billion in Q3 2022 due to lower margins at ERC.

"ERC top-line expanded year-on-year despite both the decline in refining margins during the quarter, and the implementation of a planned 17-day production shutdown for the execution of an overhaul and debottlenecking," stated Hisham El-Khazindar, Qalaa Holdings' Co-Founder and Managing Director.

**FOLLOW UP****Petroleum Minister Reviews Latest Updates on Automobile Fuel Conversions to CNG**

Minister of Petroleum Mineral Resources Tarek El Molla has held a meeting to follow up on the latest developments of using compressed natural gas (CNG) as fuel for vehicles and plans for the next period.

During the meeting, it was noted that the number of converted vehicles increased, especially after the initiative launched in October 2023 to extend the conversion cost installment period over two years rather than one year as well as the significant development in total sales of car gas.

For his part, El Molla pointed out that procedures facilitated to the citizens through installing the conversion costs were an incentive, especially in light of the expansion of natural gas supply stations all over Egypt.

The attendees also discussed the latest updates of digitalizing the system for monitoring the transport, trade, and circulation of vehicle gas, and plans to intensify car conversion to run on natural gas and raise their rates until June 2026, in addition to providing the necessary components and financing.

Also, the minister emphasized the economic and environmental potential of converting cars to run on CNG, a move that will save citizens money, cut the costs of using traditional fuel, and reduce emissions from octane burning.

He stressed the importance of the integration and coordination among all concerned agencies participating in the initiative to accelerate the achievement of its goals.

El Molla Reviews Production Development in Western Desert

Minister of Petroleum and Mineral Resources Tarek El Molla has chaired a regular meeting of the Integrated Operations Committee for Petroleum Production.

He followed up on the work of the Integrated Committee in the Western Desert regarding the progress of plans to improve crude oil production at Alamein Petroleum, Marina Petroleum, and Al Waha Petroleum Companies.

During the meeting, El Molla highlighted the importance of continuing efforts to improve and increase production and accelerating the implementation of the action plans approved by the Supreme Production Committee, whether with regard to production, rationalizing expenses, or improving the efficiency of extraction operations. He pointed out that this is in light of the clear commitment of the petroleum and natural gas industry to apply international standards in implementing operations while applying all acceptable HSE standards.

El Molla stressed the ongoing coordination between companies operating in Western Sahara aim to improve production performance in the region, increase spending efficiency, and maximize and integrate the exploitation of existing resources.

The minister highlighted the important role of the private sector and contractors in implementing petroleum plans, especially after the training that the Ministry provided to these sectors in order to serve the achievement of vital goals in the Ministry's strategy.

Meanwhile, Mahmoud Tolba, Director of Operations and Acting President of Alamein Petroleum Company, reviewed the work of the Subcommittee on Integrated Operations at Alamein, Al Waha, and Marina Petroleum Companies.

Tolba explained the efforts to accelerate the drilling of new wells and exploit the close geographical location of the three companies' fields and the facilities and tasks they have in implementing work plans. He pointed out work being done to improve and increase crude oil production in concession areas as well as cost rationalization measures, especially through efforts to exploit flare gas as an alternative to diesel.



ROUNDTABLE

El Molla Takes Center Stage at COP28 Hydrogen Roundtable

Minister of Petroleum and Mineral Resources Tarek El Molla has taken part in a roundtable held as part of the COP28 summit tackling hydrogen in attendance of several decision-makers and international leaders in the energy industry.



During his speech, El Molla introduced Egypt's efforts in localizing the hydrogen production industry as one of the country's progress pillars in adopting clean and renewable energy resources in accordance with its sustainable development vision for 2030.

He pointed out that Egypt is working on establishing infrastructure for hydrogen production locally which will contribute to attracting more global investments, especially having a unique geographical location and this will support Egypt's opportunities to become an important supplier of hydrogen to the world.

He added that Egypt has developed the Low Carbon Hydrogen National Strategy to benefit from the advantages of competitiveness and targets a share of up to 8% of the global tradable hydrogen market by 2040.

The minister also noted the establishment of the National Council for Green Hydrogen and its Derivatives recently, which comes within the framework of the Egyptian government's vision to work through a unified platform to coordinate and promote green hydrogen and its derivatives projects, reflecting the commitment of the country and the government as a whole to attract private sector investments, which represent great importance at this early stage of market growth.

Additionally, the roundtable witnessed the launch of a number of major initiatives aimed at accelerating the pace of hydrogen project implementation, facilitating the transition to net zero emissions, and maximizing the climate, social and economic benefits of cross-border supply chains.

According to the statement of the Ministry of Petroleum and Mineral Resources, the most important of these initiatives are the declaration of intent (DoI) regarding mutual recognition of certification systems for hydrogen and its derivatives, and the launch of the ISO methodology for evaluating greenhouse gas emissions from hydrogen, and the inaugural Public-Private Action Statement on Cross-Border Trade from the International Hydrogen Trade Forum.

GREEN ENERGY

Egypt, Norway Work to Strengthen Green Energy Collaboration at COP28

Minister of Petroleum and Mineral Resources Tarek El Molla has started his participation in COP28 in Dubai, with several working sessions and agreements with Norway to boost joint green energy projects.

Following his attendance of President's Abdel Fattah El Sisi discussion session with the Norway's Prime Minister Jonas Gahr Støre, El Molla participated in a session for announcing the green projects with Scatec.

Additionally, El Molla witnessed signing of several agreements with Scatec which involve supplying ships with green fuel projects in the Suez Canal Economic Zone (SCZONE), in addition to cooperation in solar energy projects and green ammonia and methanol production projects in the petroleum sector.

El Molla emphasized the significance of taking measured strides in line with Egypt's Vision 2030 to materialize the carbon reduction and energy transformation strategy through the ongoing implementation of tangible projects, particularly hydrogen projects and their derivatives in collaboration with Scatec. These projects will contribute to Egypt's transformation into a regional hub for hydrogen and green fuels. The minister also reaffirmed the ongoing cooperation with major companies.

For her part, the Minister of International Cooperation, Rania El Mashat, referred to the Egyptian commitment to achieve leadership in the field of green hydrogen and to determine the projects to be implemented in the reality which reflects the credibility towards energy transition.



Egypt, Greece Hold Talks on Green Energy Production at COP28

Minister of Petroleum and Mineral Resources Tarek El Molla has held a meeting with the Greek Deputy Minister of Environment and Energy Alexandra Sdoukou on the sidelines of COP28.

The two officials exchanged visions about expanding the production of green energy from various sources. They also discussed means to exploit the infrastructure of both countries, with a particular emphasis on Egypt's liquefaction plants for natural gas for its transition to Europe via Greece.

In this same context, El Molla held another meeting with Maria Rita, the CEO of the Greek company DESFA, as they reviewed aspects of cooperation in implementing low-carbon energy projects.

On her part, Rita expressed the company's interest in forming partnerships with Egyptian companies in the gas industry to facilitate the export of liquefied gas from Egypt to Europe through Greece, taking advantage of Egypt's capabilities and Greece's LNG infrastructure for the mutual benefit of the two countries.



Egypt, Australia Discuss Plans for Collaboration in Green Mining

On the sidelines of COP 28, Minister of Petroleum and Mineral Resources Tarek El Molla has entered into talks with the Minister of Environment of Western Australia Reece Whitby to discuss strengthening the cooperation between the two countries in green mining.

Discussions focused on training and building capabilities in petroleum and mining operations. The meeting also touched on challenges faced by the mining industry including artisanal mining and how to deal with it.

Besides that, they discussed how to reduce emissions in mining operations through the expansion in using the renewable sources of energy. Whitby pointed out that there is a center of excellence in the field of small energy networks in Australia, and he expressed his welcome to share their experiences in this regard.

He also referred to the existence of a fund for green technologies to support the expansion of the use of sustainable and environmentally friendly technologies.

Additionally, Whitby expressed his welcome to examining the possibility of providing the necessary financing through the fund for emission reduction projects in Egyptian mining sector.



METHANE REDUCTION

El Molla: Egypt to Finalize Internal Regulations for Methane Reduction by 2024

Minister of Petroleum and Mineral Resources Tarek El Molla has stated that Egypt is working on developing internal regulations related to methane gas emissions in the oil and gas sector by the end of 2024.

He said that during his participation in a panel discussion titled "Accelerating the Emissions Reduction in the Oil and Gas Sector in the Frame of the Global Methane Pledge". The panel was attended by Brazil's Minister of Mines and Energy Alexandre Silveira and Nigerian Minister of State Petroleum Resources (Gas) Ekperikpe Ekpo as part of COP28 held in Dubai.

Also, the minister stressed the importance of reaching facilitated funds through the program of financing methane emissions announced recently to support efforts and projects to combat methane emissions expressing his aspiration to enhance

cooperation within the Global Methane Pledge and with the sector's partners to continue efforts to reduce methane emissions.

Also, El Molla affirmed that methane emissions reduction is one of the fastest ways to eliminate global warming phenomena noting that Egypt has joined the World Bank (WB) initiative to limit the burning routine by 2030. He showcased the efforts of the Egyptian oil and gas sector to reduce methane emissions.

Additionally, the minister pointed to joining Egypt in the Global Methane Pledge in the field of oil and gas in June 2022. He elaborated that Egypt has updated the nationally determined contributions which include targets for reducing greenhouse gas emissions in the oil and gas sector by 65% in 2030 by recovering the accompanying petroleum gas.



**COP28
UAE**

CLIMATE ACTIONS PROGRESS

President Abdel Fattah El-Sisi participated in the activities of the Summit of Heads of State and Government at the 28th Conference of the Parties to the UN Framework Convention on Climate Change (COP28), held from 30 November to 12 December in Dubai, United Arab Emirates (UAE).

President El-Sisi held a number of meetings with presidents and prime ministers of different countries to promote collaborations in the fields of industry, transport, energy, education, tourism, and culture.

During the meetings with other Heads of State, President Sisi discussed ways to advance the outstanding relations between their countries in various areas. They also discussed ways to enhance bilateral cooperation and political coordination.

The 28th Conference also witnessed the presence of a number of Egyptian ministers, including Minister of Foreign Affairs Sameh Shoukry, who delivered a speech in his capacity as

President of the 27th session of the United Nations Climate Conference COP27 and handed over Egypt's presidency of the Conference to the sisterly United Arab Emirates.

Meanwhile, Minister of Petroleum and Mineral Resources, Tarek El Molla attended a number of panels, roundtables and discussions on the energy future ambitions. He witnessed the signing of agreements and explored ways to boost investments in Egypt in meetings with senior international officials and heads of international companies.

Minister of Environment, Yasmine Fouad also attended a number of discussions, exploring new financing mechanisms to drive Egypt towards a greener and more sustainable future. Minister of International Cooperation, Rania Al-Mashat, Al-Mashat participated in a high-level discussion session on laying the foundations for expanding the scope of climate action.

Egypt's Petroleum Sector Engagement

Panels and Roundtables Level:

Minister of Petroleum and Mineral Resources Tarek El Molla attended a number of panel discussions and roundtables to review previous successes and pave the way for future ambitions. The panels mainly discussed methane reduction, reducing CO₂ emissions, green hydrogen and decarbonization activities in Egypt.

Number	4 Panels & 1 Roundtable
Panelists included	About 20 Ministers, Government Authorities, Corporates and Chairmen of International Energy Companies

Main Outcomes:

Signing an Agreement for Setting Methane Reduction Roadmap

Framework	Working on implementing the World Bank (WB) initiative's goals by 2030		
Natural Gas Flaring Projects	30	Targeted Reduced Emissions	1.4 mmt/y
Saved Value	\$200 million/y		

Egypt's Pavilion at COP28 Hosts Hydrogen Panel

Topic	Achieving decarbonization goals
Targets by 2040	<ul style="list-style-type: none"> Providing \$18 billion to Egypt's gross domestic product (GDP) Offering 100,000 job opportunities Representing about 8% of the global hydrogen market

Egypt Takes Center Stage at COP28 Hydrogen Roundtable



The role of hydrogen as an energy source
Point of discussion



60 to 80 gt
Co₂ Emissions Reduction



2025
Timeframe

Regional & Global Discussions

Moreover, El Molla held talks with representatives of countries and companies to discuss the latest developments of their projects in Egypt and the East Mediterranean region as well as ways to boost investments in Egypt

Number

 **12**

Panelists included

About 17 Ministers, Government Authorities and Corporates

Main Outcomes:

Partnerships Between the Ministry and Companies:

UAE's Mubadala Eyes Expansion in the Egyptian petroleum sector



Maximizing areas of joint cooperation, investment opportunities and natural gas projects

UAE's DP World to Launch " Logistics Park Project "

Investments

\$80 million

Location

Ain Sokhna

Area

300,000 m²

Bilateral Discussion with Energean



Increasing natural gas production in the Mediterranean region

Pumping more investments to maximize the exploitation of gas resources

DESFA Company Search Implementing Low-carbon Energy Projects



Forming partnerships with Egyptian companies in the natural gas industry to facilitate the export of LNG from Egypt to Europe through Greece

Progress of Baker Hughes Projects in Egypt



Boosting energy investments in Egypt
Maximizing hydrogen production

Setting a carbon reduction plan for oil and gas facilities by a consortium comprising Baker Hughes and local firms

Cooperation with Countries:

Cyprus & Greece Cooperation in Energy Security



Transportation of gas produced from the Aphrodite field to liquefaction plants in

Egypt for re-export to Europe
Enhancing cooperation in the field of energy to ensure energy security

Expanding the production of green energy from various sources

Energy Cooperation with the US



Enhancing cooperation in preparing regulations and laws related to carbon capture, use and storage

Implementing pilot projects specifically using the captured carbon dioxide

Belgium Seeks to Boost Energy Investments



Highlighting the investment opportunities

Highlighting efforts between Egypt and Belgium in the fields of hydrogen production and emissions reduction

Brazil, Nigeria to Develop Bylaws Concerning Methane Gas Emissions by 2024



Accelerating methane emissions reduction and spotted the light on the Global Methane Pledge

Egypt aims to reduce greenhouse gas emissions in the oil and gas sector by 65% in 2030 by recovering the accompanying petroleum gas.

SCZone Agreements

Walid Gamal El-Dien, Chairman of the General Authority of the Suez Canal Economic Zone (SCZone) successfully signed 4 strategic cooperation agreements for the allocation of industrial land for green fuel projects.

Electricity Generation from Solar Energy



Capacity
7 MW

Signed two Agreements with CHINT Global

Establishment a Green Energy Industrial Park

Investments
\$50 million

Location
SCZone

Area
2 million m²

Afterward, Gamal El-Dien also witnessed the signing ceremony by El Sewedy Industrial Development Company, a subsidiary of Elsewedy Electric.

Establishment of an Industrial Complex

Partner	Jushi Company
Investments	\$920 million
Area	60,000 m²
Scope	4 production lines
Production Capacity	350,000 t/y

Establishment of a Factory for Sustainable Agricultural Enhancements

Partner	Futurefert Company
Investments	\$50 million
Area	127,000 m²
Capacity	300,000 t for the first phase

The SCZone also signed a memorandum of understanding on Ship Bunkering. It aims to issue a license for Scatec ASA company to undergo ship bunkering operations using green fuel.



Investments
\$1.1 billion

Location
East Portsaid

Generated By
Wind Energy **317 MW** Solar Energy **140 MW**

Green Methanol Production

Capacity
100,000 t/y

Period
By 2027

The Power Capacity of the Project **180 MW**

KEY OUTCOMES

- Negotiators and nations reached an agreement to fund assistance for those most impacted by climate change (loss and damage) and also to "transition away from fossil fuels in energy systems."
- COP28 saw a landmark agreement to support vulnerable nations facing the worst of climate change's impacts. The first pledges from wealthy nations were made in Dubai to support the fund and currently total over \$650 million.
- Progress was finally made on the new collective quantified goal (NCQG), which builds on the \$100 billion pledged by developed nations to finance climate mitigation and adaptation initiatives in developing nations.
- Transition away from fossil fuels in energy systems, in a just, orderly and equitable manner, accelerating action in this critical decade to achieve net zero by 2050. This signifies both a rapid near-term shift away from fossil fuels and a long-term direction of travel to a zero-carbon future.
- Accelerating and substantially reducing non-carbon-dioxide emissions globally, including in particular methane emissions by 2030.
- Nature was also mentioned directly in the Global Goal on Adaptation, which spoke of "accelerating the use of ecosystem-based adaptation and nature-based solutions."
- Tripling renewable energy capacity globally and doubling the global average annual rate of energy efficiency improvements by 2030.

COMPANY OF THE MONTH



Eni was founded in 1953, as an Italian multinational energy company headquartered in Rome and operates in 62 countries.

ENI'S ACTIVITIES IN EGYPT

Eni has been operating in Egypt since 1954 through its subsidiary, the International Egyptian Oil Company (IEOC) and joint ventures (JVs) Agiba petroleum company (Agiba) & petrobel. Its portfolio is mainly focused on legacy oil producing assets in the Gulf of Suez and in the Mediterranean region.

PRODUCTION HIGHLIGHTS IN Q3 2023

Eni announced its results for the third quarter of 2023, revealing a hydrocarbon production average of 1.64 million barrels of oil equivalent per day (mmbboe/d), liquid production was 758,000 barrels per day (bbl/d), natural gas production was 4,590 million cubic feet per day (mmcf/d).

Eni also delivered strong operating results in Egypt, Crude oil and natural gas production amounted to 313,00p (boe/d), liquids production is 67,000 (bbl/d) and natural gas production amounted to 1,291 (mmcf/d).

Source: Eni's Website

Eni's Main Discoveries in Egypt

Discovery	Zohr	Nooros	Nargis
Discovery Date	2015	2015	2023
Reserves (tcf)	30	2.57	2-2.5
Eni's Share	50%	75%	45%

ENI SECURES €3B SUSTAINABILITY-LINKED CREDIT LINE

Eni announced that it had signed a five-year sustainability-linked revolving credit line worth €3 billion.

This credit line is related to two targets of Eni's Sustainability-Linked Financing Framework, which was last updated in April 2023.

The company's new facility will further strengthen its financial flexibility, complementing a similar €6 billion sustainability-linked credit line signed in 2022.

The margin of the new credit line is linked to the achievement of sustainability targets, which include reducing Eni's net carbon footprint upstream (scopes 1 and 2) and increasing the installed capacity to produce electricity from renewable

sources. This shows Eni's commitment to sustainability and its efforts to reduce its environmental impact.

The credit line has been granted by 26 leading global financial institutions. These include Mediobanca as the global coordinator, documentation, and facility agent; MUFG as the global and sustainability coordinator; and Citi and Natixis as global coordinators.



ARAMCO MAKES ITS FIRST ENTRY INTO PAKISTAN'S FUELS RETAIL MARKET

Aramco, a global leader in energy and chemicals, has announced its plans to acquire a 40% equity stake in Gas & Oil Pakistan, GO.

GO is a well-established company in Pakistan, known for its diversified downstream fuels, lubricants, and convenience stores.

Subject to customary conditions including regulatory approvals, the acquisition marks Aramco's first entry into the Pakistani fuels retail market, in line with its strategy to strengthen its downstream value chain on an international level as Aramco stated in its press release.

By acquiring GO, Aramco will have access to a larger network of outlets for its refined products. Additionally, this acquisition will open up new market opportunities for Valvoline-branded

lubricants, following Aramco's acquisition of Valvoline Inc.'s global products business in February 2023.

Mohammed Y. Al Qahtani, Aramco Downstream President, expressed his excitement about this acquisition, stating that it aligns with the company's downstream expansion strategy.



ENOC LAUNCHES FIRST GREEN HYDROGEN STATION IN DUBAI

ENOC has announced the inauguration of the first green hydrogen station at the Service Station of the Future (SSoF) in Expo City Dubai.

It is considered the only station in the region to provide green hydrogen, hydrocarbon fuels (petrol and diesel), as well as electric charging stations.

This station is a joint venture between ENOC Group and the Dubai Electricity and Water Authority (DEWA).

The UAE aims to achieve low-emission hydrogen production of 1.4 million tons annually by 2031, which is expected to increase to 15 million tons every year by 2050. DEWA currently uses a 1.25 MW PEM electrolyzer to produce green hydrogen at a rate of 20 kg per hour using solar power from DEWA's Mohammed bin Rashid Al Maktoum Solar Park. This station

will be used to fuel approximately 25 cars at a fueling speed of 7 minutes.

ENOC Group is also cooperating with Al-Futtaim Motors/Toyota, the Strategic E-Mobility Partner of COP28. Al-Futtaim Motors/Toyota is providing ENOC Group and DEWA with four hydrogen-powered fuel-cell Toyota Mirai vehicles for testing and use during COP28.



ADNOC, TABREED OPERATE FIRST GEOTHERMAL DISTRICT COOLING PROJECT IN GULF REGION

ADNOC and National Central Cooling Company PJSC Tabreed has announced their joint venture to commence operating G2COOL, the first district cooling project in the Gulf region to utilize geothermal energy. This plant, located in Masdar City, will play a crucial role in decarbonizing the cooling process for buildings while also diversifying the UAE's energy mix in line with the UAE National Energy Strategy 2050.

The G2COOL plant harnesses naturally occurring hot water from two geothermal wells, which is then used in absorption cooling technology to produce chilled water for Tabreed's district cooling activities. This clean energy source will account for 10% of Masdar City's cooling needs.

This project is achieved by ADNOC's initial \$15 billion (AED55 billion) investment in low-carbon solutions, which aligns with their decarbonization plan and net zero by 2045 ambition.

In the UAE, cooling buildings account for up to 70% of electricity consumption. District cooling offers a more sustainable alternative to traditional methods, with a 50% increase in energy efficiency. By incorporating geothermal energy into district cooling operations, the demand for electricity from the grid can be significantly reduced.



BP BEGINS DRILLING FIRST OIL PRODUCTION WELL IN CASPIAN SEA

bp announced the commencement of drilling for the first oil production well from the new Azeri Central East (ACE) platform in the Azeri sector of the Caspian Sea.

This marks a significant milestone in the \$6 billion ACE project, which is the next stage of development for the giant Azeri-Chirag-Gunashli field.

The well, which will be up to 3,188 meters deep, is expected to take approximately three months to complete. The drilling process will be closely monitored and controlled to ensure safety and efficiency.

The company aims to meet their first oil production target for ACE and deliver it in early 2024.

The ACE platform is a new 48-slot production, drilling, and quarters platform located midway between the existing Central Azeri and East Azeri platforms at a water depth of 137 meters.

The ACE platform and facilities are designed to process up to 100,000 bbl/d of oil. The project is expected to produce up to 300 million bbl over its lifetime, as bp said in a press release.



The project, worth \$6 billion, includes new infield pipelines to transfer oil and gas from the ACE platform to the existing ACG Phase 2 oil and gas export pipelines for transportation to the onshore Sangachal terminal.

Notably, bp holds a 30.37% operator interest share in the ACG production agreement, originally signed in 1994 and extended in 2017 to last until 2049.

Other partners in the agreement include Socar/AzACG (25%), Chevron (9.57%), Inpex (9.31%), Equinor (7.27%), ExxonMobil (6.79%), TPAO (5.73%), Itochu (3.65%), and ONGC Videsh Ltd. (OVL) (2.31%).

SHELL AUTHORIZES MANATEE GAS FIELD DEVELOPMENT PROJECT

Shell has given the go-ahead to contractor McDermott International Ltd to begin engineering work on the Manatee gas field development project located off the east coast of Trinidad and Tobago.

This project is crucial for Trinidad, which is the largest exporter of liquefied natural gas (LNG) in Latin America. However, due to a shortage of natural gas, the country's flagship Atlantic

LNG project and petrochemical plants have been operating at reduced capacity.

According to McDermott, they have received approval to proceed with an engineering, procurement, construction, and installation (EPCI) contract, pending an investment decision.

The Manatee gas field is expected to produce 700 million cubic feet per day (mcf/d) by 2028, which will help alleviate the nation's gas shortfall.

This field is part of the Loran-Manatee discovery, which is shared by both Trinidad and Venezuela. The estimated natural gas reserves in the field are around 10 trillion cubic feet (tcf), with 7.3 tcf on Venezuela's side and the remaining 2.7 tcf on Trinidad's side.



WINTERSHALL DEA RECEIVES GOLD STANDARD FOR METHANE EMISSIONS REDUCTION EFFORTS

Wintershall Dea has been awarded the Gold standard for the third consecutive year by the United Nations Environment Program (UNEP) for its engagement and pathway to reducing methane emissions.

Wintershall Dea has been systematically pursuing leak detection and repair (LDAR) efforts since 2021, especially at production facilities in Germany, Egypt, Algeria, and Mexico.

The company is also using drones with sensors to take measurements from the air at production sites, verifying

the data obtained by the LDAR programs on the ground. Additionally, Wintershall Dea is working closely with partners and operators to measure and reduce methane emissions in partner-operated plants, reduce flaring, and boost energy efficiency.

In the company's annual International Methane Emissions Observatory (IMEO) report, the UNEP publishes data and progress of participating companies related to methane emissions in a transparent and comprehensible manner,

in which the data is assessed according to the stringent OGMP 2.0 regulations.

Besides OGMP 2.0, Wintershall Dea is also involved in several voluntary initiatives aimed at reducing emissions. These include the International Petroleum Industry Environmental Conservation Association (IPIECA), the Oil and Gas Climate Initiative's (OGCI) Aiming for Zero Methane Emissions, the World Bank's Zero Routine Flaring initiative, and the Methane Guiding Principles (MGP).



wintershall dea

EXXONMOBIL UPDATES ITS CORPORATE PLANS

ExxonMobil has updated its corporate plan through 2027, showcasing its commitment to providing essential energy products while also lowering emissions.

The plan outlines a focus on capital investments that are projected to generate average returns of approximately 30%, with payback periods of less than 10 years for over 90% of the capital expenditures.

Notably, the company has already achieved \$9 billion in structural cost savings, with an additional \$6 billion expected by 2027.

In line with its commitment to shareholders, ExxonMobil plans to increase the pace of share repurchases to \$20 billion per year from the Pioneer close through 2025, assuming reasonable market conditions.

The company expects oil and gas production in 2024 to be about 3.8 million oil-equivalent barrels per day, rising

to about 4.2 million oil-equivalent barrels per day by 2027, driven by growth in the Permian and Guyana.

The company plans to increase share repurchases and invest in low-carbon solutions to reduce emissions. Low Carbon Solutions will focus on opportunities in lithium, hydrogen, biofuels, and carbon capture and storage (CCS), with a goal to generate returns of approximately 15% and reduce third-party emissions by more than 50 Mta by 2030.



EQUINOR SELLS ITS ENEC TO NIGERIAN CHAPPAL ENERGIES

Equinor has announced the sale of its Nigerian company, ENEC, to Chappal Energies, a Nigerian-owned energy company.

Subject to regulatory approvals, the transaction includes ENEC's 53.85% ownership in oil and gas lease OML 128, which also includes a 20.21% stake in the Agbami oil field operated by Chevron.

Equinor has been operating in Nigeria since 1992 and has played a significant role in the development of the country's largest deep-water field, Agbami. Since its production began in 2008, the Agbami field has produced over 1 billion barrels of oil, creating value for both the partners and Nigerian society.

According to Nina Koch, Equinor's senior vice president for Africa Operations, this transaction is in line with the

company's strategy to optimize its international oil and gas portfolio and focus on core areas.

Chappal Energies is a committed Nigerian-owned energy company with the ambition to develop the assets further, contributing to the Nigerian economy for years to come as Koch added.



TOTALENERGIES ANNOUNCES NEW EXPLORATION LICENSE OFFSHORE SURINAME

TotalEnergies, QatarEnergy, and Petronas have signed a production sharing contract with Staatsolie Maatschappij Suriname (Staatsolie), the state-owned oil company of Suriname in South America, for Block 64.

This block, spanning 6,262 km² and located 250 km from shore, was awarded to the companies in the Bid Round 2022-2023 organized by the Surinamese authorities.

TotalEnergies will hold a 40% interest in the block, while QatarEnergy and Petronas will hold 30% each.

This new block fits well with the company's strategy to focus on the exploration activity for material low cost and low emission resources in core areas for the company as Kevin McLachlan, Senior Vice President Exploration of TotalEnergies said in a press release.



SAIPEM AWARDED TWO OIL, GAS OFFSHORE PROJECTS IN GUYANA, BRAZIL

Italy's Saipem has announced that they have been awarded two offshore contracts worth approximately \$1.9 billion.

The first contract, awarded by ExxonMobil's subsidiary ExxonMobil Guyana Limited, is for the proposed Whiptail oilfield development located in the Stabroek block offshore Guyana.

This project, with a water depth of approximately 2,000 meters, will require Saipem to design, fabricate, and install subsea structures, risers, flowlines, and umbilicals for a large subsea production facility.

To carry out these operations, Saipem will utilize its state-of-the-art vessels, FDS2, Constellation, and Castorone. The company will also establish its Guyana Offshore Construction Facility at the Port of Georgetown, which will enhance sustainable growth in the country and serve as a key fabrication site for the project.

Subject to governmental approvals, Saipem will begin some limited activities, including detailed engineering and procurement.

The second contract, awarded by Equinor, is for the Raia project, which involves the development of a pre-salt gas

and condensate field in the Campos Basin, located about 200 km offshore the state of Rio de Janeiro in Brazil.

Saipem's scope of work for this project includes the offshore transport and installation of a subsea gas export line and associated equipment in water depths of around 2,900 meters. The company will also be responsible for the horizontal drilling activities for the shore approach, in addition to deploying its state-of-the-art pipelaying vessel, Castorone.





EXCLUSIVE INTERVIEW

REDEFINING POSSIBILITIES:

El Molla on Overcoming Challenges and Realizing Economic Growth



Under the wise leadership of His Excellency Minister of Petroleum and Mineral Resources Tarek El Molla, Egypt's oil and gas sector has evolved into a superior economic force that carries significant weight in the East Mediterranean market. We will talk to the mastermind behind Egypt's energy renaissance as the nation sprints towards its goal of becoming a regional energy trading hub, uncovering the sector's key accomplishments of 2023.



As we start this new year, with all that is going on around the world, all that is going on in the region, and where we live right now, what are your expectations for the energy sector in 2024?

It has been very clear to everyone that energy in Egypt is part of the global energy scene, and what is happening elsewhere is affecting what is happening in Egypt. It is one world, and energy is the fuel of the economy. So, we have seen several challenges throughout 2023, whether affecting Egypt directly locally, regionally, or internationally, and I think I can proudly tell you that we were able to overcome them all, in spite of their difficulties and how hard they were.

At the end of the day, we were able to supply all the needs of Egyptians for petroleum products, gasoline, diesel, fuel oil, LPG, and natural gas for domestic consumption; as well as for industrial consumption, for aviation, and for all aspects of the economy. I think we were able to also continue our journey ensuring that we are putting Egypt on the global energy map. To summarize, yes, it was a challenging year, but again proudly, I think that we were successful in navigating and reaching the shores safely.

The Ministry of Petroleum and Mineral Resources has used the huge trust that it has from its partners in overcoming lots of challenges as have seen so many times before. What would be your message to these partners in 2024?

I have to acknowledge that our partners are our backbone. Our partners are our business partners and our success stories. Therefore, they are a top priority and as usual, I tell them that you have been, all the time, part of and an important reason for our success, and I am sure they will continue to be so. Together we will continue to capitalize on our success stories over the years. Yes, I acknowledge that there are challenges, and I think that with challenges we develop the opportunities, and we grab it and we capitalize on it. Egypt is a big

country and has always been a trustworthy partner and we will continue like that. And therefore, together we will grow and together we will succeed, especially in 2024, where we can see that some of the challenges remain. However, we have plenty of new ideas, we have plenty of new plans to overcome the challenges together. Therefore, I am very optimistic by the way, although the challenges are still persistent and will be still there during 2024. We do not see that they will disappear soon. However, I trust my partners and I bet on them, as well as I ask them to trust us as usual. So, I wish them also a Happy New Year. We will always be a destination for their rewarding investments and growth, where they will always be proud of doing business with us.

Your participation in COP28 was remarkable, and you had so many discussions with different players and governments and we saw the outcome of COP28 was very negotiable in the end. How do you see that outcome and its effect on Egypt's energy sector in the future?

I think that we have also been very much successful in identifying and acknowledging the role of our industry globally not only locally, since COP26 in Glasgow, where we saw the danger of not having the oil and gas industry invited and present during the COP event. Therefore, taking advantage of hosting COP27, we saw that this would be a good opportunity for us to represent the oil

and gas industry and to make sure that we highlight and ensure that the oil and gas industry would be and should be invited and would be part of the solution since it has been all the time accused to be part of the problem of global warming. Therefore, building on, the success that we had during COP27, introducing Decarbonization Day as one of the thematic days for the first time ever, and in continuation of that at COP28 in Dubai, we will be able also to continue the narrative of the story, whereby oil and gas is putting solutions on the table.

I think that what we have been able to demonstrate as well is that Egypt is sticking to its commitment to the Global Methane Pledge as well as our emissions and net-zero commitments. We had already been able to put together the roadmaps and plans for implementation, and we were able to showcase what we had done over the last one and half years since Glasgow and then in Sharm El Shiekh, coming to Dubai.

I think that what we are doing currently is to engage more and more stakeholders. We have been able to be vocal and to get into good communications with international partners, helping us with technology, technical support, and capacity building. This is in order to make sure that we use the opportunity of decarbonizing the oil and gas industry to create new business opportunities as well, creating new jobs and creating new industries that would support and enable the oil and gas industry to grow with less emissions and to comply with all the COPs and all the commitments that we have taken. I am very happy with the outcomes of COP28 and I think it was an important milestone where our friends and brothers in the UAE have been able to also take advantage of being an oil and gas producer but at the same time showing that they are committed to transition.

I think we spoke a lot about decarbonization, green hydrogen, renewables, and energy efficiency. All these parameters and pillars that we have endorsed as well in Egypt have been now very clear and we have also created a department at EGAS to take over this responsibility until we have a complete organization that will carry on the transition responsibility and roles. All that with the support of the Technical Office at the Ministry. I think that we are on the right path now and I see that there are a lot of good opportunities because actually we believe that hydrocarbons will still be needed for some decades to come. Therefore, we need to be very cautious, very prudent, very responsible, and very responsive to climate change, to global warming and to reduce emissions.



We have seen several challenges throughout 2023, whether affecting Egypt directly locally, regionally, or globally, and I think I can proudly say that we were able to overcome a lot, in spite of their difficulties and how hard they were.

As Egypt Petroleum Show is becoming Egypt Energy Show in 2024. What is your message for all the participants this year in Egypt Energy Show 2024?

The Egypt Petroleum Show (now the Egypt Energy Show) was able to demonstrate itself as an attractive venue, I would say a destination and a window to talk about what is happening and what has happened and what will happen in the oil and gas industry in Egypt and how business opportunities would be there and what are the opportunities for new investments and so forth. As time goes and evolves, and as we were talking about energy transition, I think that it was needed to really act accordingly.

Therefore, I see that this year's edition of EGPES would reflect the commitment and the seriousness of the Egyptian government towards transition. How would that be? That would be by having under one roof the oil and gas together with the transition parameters.

When we talk about renewable, when we talk about decarbonization, and when we talk about energy efficiency, all these different parameters and elements that are needed to exist under one roof. Therefore, we will see this year more stakeholders, more participants, more industrial companies, more manufacturers, and this would really reflect the commitment of the government. Together with oil and gas, which is the core of the transition, we will see all the supporting industries that will be there to decarbonize, to improve energy efficiency, to complement this transition through renewables, through solar energy, through improving efficiency all that together. Hence, I think this will again show, reflect and showcase the seriousness of Egypt as well as the seriousness of how mature and committed this industry is.



Egypt is a big country and has always been a trustworthy partner and we will continue to be.



I am looking forward to our February edition and it will be completely different compared to the previous years because we are now attracting different components and different segments that were not there before.

As a communication and collaboration partner for the oil and gas sector here in Egypt, what would you ask from Egypt Oil & Gas to do in 2024?

Egypt Oil & Gas I think would need to reflect what we are currently doing because you are part of our communication arms and communication partners. Therefore, if we are together telling the entire world that we are committed and we are really in transition, so we are changing our show, together with everything. Therefore, I think if I would ask you something I would suggest that perhaps at a certain time you might need to change the name, but that does not mean that we would not take this opportunity to thank you for the support you have been giving us over the last few years which is expected to last for several years to come.

From the bottom of my heart, I'd like to thank Egypt Oil & Gas for being with us through every milestone and significant event over the years. Whether it's the Egypt Energy Show, roundtables, or conferences like the COPs, your presence as a professional and powerful communication agency has been invaluable.

Your commitment to raising awareness among our audience, employees, customers, and partners, both within and beyond our industry, is truly commendable. Informing those unfamiliar with our work is crucial, and you consistently contribute to that mission.

So, once again, please accept my sincerest gratitude. We wish you continued success and the very best in everything you do.

How is the Egyptian oil and gas sector performing when it comes to meeting the needs of the local market?

The Egyptian petroleum sector has managed to obtain full stability in the local market in 2023, by securing the local needs of citizens and different state sectors for petroleum products and natural gas. The total domestic consumption of these products reached about 80.8 million tons with an increase of 0.3%, compared to the previous year. The time local consumption of petroleum products recorded a decrease of more than 2% to reach a total of 34.5 million tons, and the local consumption of natural gas recorded a rise of 1% to reach 46.4 million tons, 56% of which was consumed by the electricity sector.

Your Excellency, we understand that a good part of achieving stability in the local market and improving position as an exporter involves boosting exploration. How has the Ministry managed to ramp up exploration activities in 2023?

I am proud to say that we have had many notable accomplishments in 2023 due to the tireless efforts of our sector. This includes:

- Signing 29 agreements to search for oil and gas, with a total investment of a minimum of \$1.2 billion, signature grant of about \$61 million, and drilling 87 new wells.
- Two new bids were offered by the Egyptian General Petroleum Corporation (EGPC) and Ganounb El Wadi Petroleum Holding Company (Ganope) to explore for oil and gas in 23 regions in the Western Desert, the Eastern Desert, the Gulf of Suez, and the Red Sea in September 2023.
- Announcing the results of the international bid rounds for the Egyptian Natural Gas Holding Company (EGAS) to search for natural gas in the Mediterranean Sea and the Nile Delta, through which four new areas to search for natural gas were assigned to international companies with a minimum investment of about \$281 million, drilling a minimum of 12 wells, and a signature grant worth \$7.5 million.
- The first international bidding was launched for brownfields in eight fields in the Gulf of Suez and the Eastern Desert, which was put forward by EGPC last March. The door for receiving bids was closed and they are being evaluated. All of these bids were submitted digitally through the Egypt Upstream Gateway (EUG).



- Achieving 65 new oil and gas discoveries, 51 oil discoveries and 14 gas discoveries, in areas of the Western Desert, the Gulf of Suez, the Nile Delta, and Sinai.

This is in addition to signing 14 contracts to develop fields in the Western Desert and the Nile Delta.

That is quite impressive, Your Excellency. How had oil and gas production in Egypt performed in 2023?

Total oil and gas production in 2023 was about 74 million tons, including about 28 million tons of crude oil and condensates, about 45 million tons of natural gas, and 1 million tons of butane, in addition to the butane produced by refineries.

The production of crude oil and condensates increased by approximately 2% over the previous year as a result of putting some new wells on production, such as the North Geisum (GNN) Field in the Gulf of Suez.

What are some of the new fields that have been put on the production map in Egypt in 2023?

Five projects for crude oil and natural gas fields have been completed on the production map with the aim of producing about 15,000 barrels per day (bbl/d) of crude and condensates, and about 144 million cubic feet of gas per day (mcf/d). The total investment cost of the projects is about \$307 million. The projects included:

Development of the North Idku/North El Amriya field

The field produces quantities of natural gas estimated at approximately 80 to 90 mcf/d, and 1,200 bbl/d of condensate per day by drilling and completing four wells in North Idku and North El Amriya. The investment cost of the project was about \$234 million. Production began in March 2023.



Together we will embrace growth and achieve success, even amidst the ongoing challenges of 2024. With a wealth of new ideas and plans, we stand ready to overcome obstacles together and pave the path to an even brighter future.

29 Signed Oil & Gas Agreements

\$1.2 billion
Minimum Investment

\$61 million
Signature Bonus

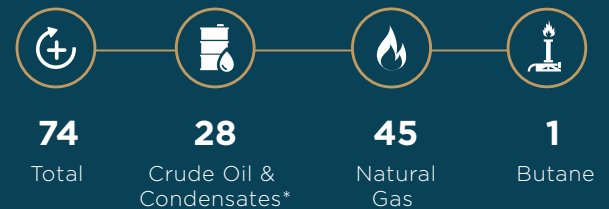
87
New Drilled Wells

New Oil & Gas Discoveries

65 Total | **51** Crude Oil | **14** Natural Gas

Location | The Western Desert, Gulf of Suez, Nile Delta, & Sinai

Oil & Gas Production (mmt)



*Increased by 2% over the previous year due to putting some new wells on production, such as the North Geisum (GNN) Field in the Gulf of Suez.

Delivering Natural Gas to Households

14.5 million Residential Units | **>62 million Citizens** Urban Natural Gas Services Beneficiaries

Newly Connected Areas in 2023 **50**

Natural Gas Delivery to Commercial Units & Factories

1,316 Commercial | **58** Factories



I place my trust in our partners, and I wholeheartedly invest in them. Likewise, I kindly request their unwavering trust in us, just as they have done in the past.

Development of the Teen field, North of Matrouh

The field produces about 4 mcf/d of gas and 1,500 bbl/d of condensate by drilling two wells. The investment cost of the project is around \$12 million. The project was completed in September 2023.

Development of the Maliha Field (Phase 1)

It produces quantities of natural gas amounting to about 40 mcf/d by linking the Arcadia and Framed wells complex of Agiba Petroleum Company in integration with the facilities of the Shams Complex to exploit the surplus capacity in the Salam facilities of the Khalda Petroleum Company in the Western Desert. The investment cost of the project was approximately \$26 million, and the first phase was completed in September 2023.

Development of the East Damanhour Field

It produces 10 mcf/d of gas from the East Damanhour field, and the well was connected to the Desouq facilities at an investment cost of about \$12 million. Production began in September 2023.

Phase 1 of the development of the North Geisum Fields (GNN)

The project produces 12,000 bbl/d of crude oil by drilling three wells and constructing a pipeline with a diameter of 10 inches and a length of 5.3 km, at an investment cost of about \$23 million. Production began in March 2023.

The Completion of Phase 1 of Linking Gases from Raven Field

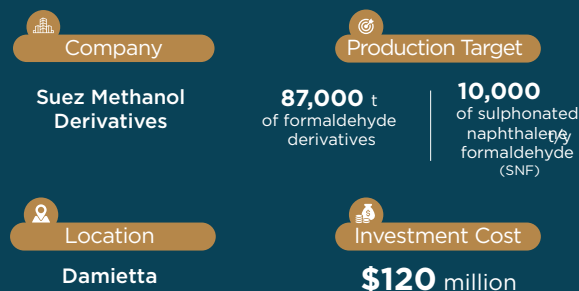
The opening of full operation of the first phase of linking the gases of the Raven field, one of the fields in the concession area north of Alexandria, which is being developed by bp, to the gas complex in the Western Desert, which is operated by the Egyptian Natural Gas Company (GASCO).



Completed Refinery Projects



Methanol Derivatives Production Project



Co₂ Annual Emissions Reduction

Co ₂ (mmt)	Through
0.9	Delivering Natural Gas to about 14.5 million Residential Units
+2	Converting about 534,000 cars to run on CNG*
1.4	Zero Flare Projects
50,000 t	Renewable Energy Projects in Administrative Buildings in Sector Companies

*Since Starting the Activity

Energy Conservation Projects



Inauguration of the 1st Digital Gateway for Mining

Aim Promoting bid rounds
Marketing investment opportunities and exploitation flexibly and rapidly

Mining and Raw Materials Production in 2023



Could you elaborate on Egypt's first locally manufactured oil rig?

Yes, this is an accomplishment we're all very proud of. This year marked the completion of the first locally manufactured oil rig (Made in Egypt) at the factory of the Egyptian-Chinese company for drilling rigs in Ain Sokhna with an investment of \$6.5 million. It has been delivered to the Egyptian Rig Company (ERC) to operate as part of its fleet in implementing drilling and prospecting programs in onshore areas.

This accomplishment is a new and essential step that enables the oil and gas sector to optimize the exploitation of its potential and accelerate well-drilling plans for increasing the production of petroleum and gas resources, especially at a time when the demand for rigs is growing due to increased petroleum activities with high petroleum prices globally. Rig manufacturing is a new successful step on the way of local manufacturing for the requirements of oil and gas projects, and increases the local compound pursued by the MoPMR in its strategy which helps in reducing imports and saving expenditure in foreign currency. It also promises to work on the manufacturing of rigs to contribute to the needs of the local market and then exports.

Turning our attention to sustainability, Your Excellency, we are impressed by Egypt's emergence as a global leader in the energy transition. What specific initiatives did the petroleum sector undertake in 2023 to significantly advance decarbonization, energy transition, and climate action?

Egypt's oil and gas sector strategy has adopted a clear vision and action plan for the energy transition and reducing emissions in all crude oil and natural gas activities through working in several main areas, including production improvement, expanding the use of natural gas as a low-carbon transitional fuel, enhancing energy efficiency and decarbonization, and increasing new energy production and developing petrochemical

projects which contribute to environmental preservation and producing low-carbon hydrogen and ammonia.

The oil and gas sector has managed to take several steps and measures in the field of energy transition and reducing emissions, and the following are the most significant achievements in this regard until December 2023:

- » Achieving an annual reduction of about 900,000 t of carbon dioxide by delivering natural gas to about 14.5 million residential units.
- » Achieving an annual reduction exceeding 2 mmt of carbon dioxide by converting about 534,000 cars to run on compressed natural gas (CNG) since starting the activity.
- » Achieving an annual reduction in emissions of about 1.4 mmt of carbon dioxide through flare gases recovery projects and their exploitation in sector companies.
- » Achieving annual savings in energy consumption amounting to \$115 million through implementing energy conservation measures and projects with low investments. The annual reduction resulting from these projects was estimated at 900,000 t of carbon dioxide.
- » Reducing electricity consumption from the national grid and reducing emissions by about 50,000 t of carbon dioxide through renewable energy projects in administrative buildings in sector companies.
- » Completing the implementation of the sector's energy efficiency strategy (2022-2035).
- » Completing the final stages of the decarbonisation strategy in the sector.



» Completing work on the Sharm El-Sheikh Oil and Gas Methane Reduction Roadmap in the oil and gas industry, which was announced during Decarbonisation Day at COP27.

» Inaugurating the trial operation of the smart treatment station for industrial wastewater at the Amal Petroleum Company (AMAPETCO) production site, which is the first of its kind in Egypt and the Middle East. It serves oil production operations, preserves the environment in the Gulf of Suez, and achieves the outcomes of the COP27.

» Continuing efforts to implement the wooden board production complex project from rice straw by Wood Technology Co. (WOTECH), as an important step to reduce emissions resulting from burning rice straw by using it as an input for manufacturing the Wooden Board.

» Signing a joint development agreement between ANRPC and Norwegian Scatec to begin implementing the green methanol production project, to be the first of its kind in Egypt and the Middle East. It is a new move that reflects the progress of the oil and gas sector on the path of implementing green energy projects and low and zero-emission fuels, which would contribute to putting Egypt on the global map of countries producing this green fuel for bunkering.

» Signing several agreements with Scatec on the sidelines of COP28 regarding cooperation in implementing bunkering projects and green ammonia and green methanol production projects in the sector.

How has Egypt worked to integrate digital solutions into its energy sector in 2023?

Modern technologies in recent years have succeeded as tools for tightening control as well as providing accurate and real-time nonstop monitoring of the movement,



Building upon the resounding success we achieved during COP27, where we proudly introduced Decarbonization Day as one of the groundbreaking thematic days, we are excited to carry forward this momentum into COP28 in Dubai. Our aim is to further advance the narrative and showcase how the oil and gas industry is actively bringing forth viable solutions to the table, propelling the global journey towards a sustainable future..

distribution, and circulation of petroleum products from shipping warehouses to stations, commercial facilities and industrial customers. This is in addition to measuring and determining the size of the actual fuel stocks in warehouses and stations. These technologies are represented in activating the GPS Automated Tracking System, the Automatic Tank Gauging (ATG) system at the stations, and the Radar Tank Gauge (RTG) system. This is in addition to activating the mobile application "Mop Stations" to identify the locations and vehicle fuel stations with various fuel types, and the application allows its users to locate the nearest stations that offer the same service they need.

The fourth quarter (Q4) of 2023 witnessed the inauguration of the main room for the petroleum products trading system in the Ministry's building in the government district in the New Administrative Capital and linking it to the system's main rooms in the Egyptian General Petroleum Corporation (EGPC), the Cooperation Petroleum Company (Copetrole), Misr Petroleum Company, and Nile Petroleum.

. Actions take place to complete connecting the rooms of the petroleum geographic areas to the system and the main rooms of marketing companies, the EGPC, and the Ministry. Accurate real-time monitoring of the system and stocks in warehouses and stations provides detailed data on consumption patterns of petroleum products and helps ensure the provision of the required needs in each geographical area according to the actual needs therein and at the appropriate times, especially during seasonal consumption periods in some petroleum geographical areas.

This is besides inaugurating the first electronic system to manage and follow up on the operations of trading and distributing butane locally in all stages to control the system and preserve the product. This is within the framework of implementing management and follow-up digital transformation projects of the butane trading system. As well as inaugurating the room of control and automatic follow-up of refinery operations, which involves several advanced digital systems, such as linear programming systems that help in reaching the highest return from operation, and systems specialized in close following-up on operations and following-up on warehouses and laboratories of refineries.

The Ministry follows a strategy to continuously implement projects to develop and modernize the information technology infrastructure and data centres through:

- » Establishing an ERP resource planning and management system that is based on collecting and analysing data and developing information systems in sector



COP28 proved to be a noteworthy milestone, with the UAE exemplifying the unique ability to balance their role as oil and gas producers while showcasing a steadfast commitment to sustainability. Their success in demonstrating this dual commitment serves as an inspiration for others, emphasizing the possibility of achieving economic prosperity alongside environmental stewardship.

companies and taking into account integration among existing industrial control systems for the various activities of the oil and gas industry.

- » Developing and improving procedures and exchanging data and information electronically to improve the efficiency of operations performance and support decision-making.
- » Implementing an ERP in EGPC and all holding companies affiliated with the Ministry, and their subsidiaries are being linked.
- » Completing the implementation of a planning and development system project of the refineries and marketing companies affiliated with the EGPC, and starting implementing it in the distribution companies affiliated with EGPC.
- » Start implementing a control and monitor project of crude oil and petroleum products by establishing a main control centre (SCADA) for the pipelines of the Egyptian Petroleum Pipeline Company (PPC) to control and monitor the movement of circulation and transportation of crude oil and petroleum products.
- » Completing the unified platform project for geographic information systems (GIS).
- » Using software in the sector's activities to control the industrial system and analyse production data to raise performance efficiency and provide services for dealing with citizens and investor databases electronically.

The Egyptian oil and gas sector is capable of continuing the journey of digital transformation, achieving sustainability, and preserving the main principles of the sector, which are safety, innovation, transparency, efficiency, and achieving added



We need to be very cautious, very prudent, very responsible, and very responsive to climate change, to global warming and to reduce emissions.

value from the data collected from the sector, in a way that maximizes achievements in the ongoing work journey.

How has the oil and gas sector contributed to promoting and implementing new petrochemical projects?

Within the persistent role of the oil and gas sector to promote and implement a large package of new petrochemical projects, the year witnessed commencing projects to increase value-added products and support local production of various raw materials and products. These products will be used in different fields, contributing to reducing imports and providing quantities for export to raise the dollar surplus.

For instance, projects' procedures to maximize added value in the New Alamein and Damietta regions were initiated. The projects included metal silicon and sodium carbonate (soda ash) production complexes in New Alamein, and the green ammonia and green methanol projects in Damietta, with a total investment of more than \$2 billion. This is in addition to continuing various implementation stages of Medium Density Fiberboard (MDF) production projects from rice straw, the production of methanol derivatives, and the production of bioethanol from molasses, with a total investment of about \$630 million.

What specific strategies or frameworks is the oil and gas sector using to identify and implement innovative CSR approaches in Egypt?

In cooperation with its partners, the oil and gas sector seeks to achieve sustainable development within the framework of Egypt's Vision 2030, including its economic, environmental, and social aspects. This will be achieved through implementing a new strategy for CSR which aims to enhance the living conditions of the neediest communities.

The strategy pillars include education, training, economic development, health, gender equality, and environmental protection projects. In addition to participating in presidential initiatives such as the Haya Karima ("Decent Life") initiative.

Under the leadership of the Minister of Petroleum and Mineral Resources, a higher committee for CSR was formed. With this regard, working groups of the MoPMR, the EGPC, and the holding companies were formed to follow up on the implementation of CSR plans and projects. In each oil and gas sector company, a department has also been allocated to the role of CSR.

The oil and gas sector has valuable and effective contributions in various work areas in collaboration between the sector's companies and its partners.



In addition to its profuse energy resources, Egypt also enjoys rich mineral resources and precious metals. How has digitalization played a role in attracting investments in those valuable assets?

During 2023, work was done to establish the first-of-its-kind digital gateway for investment in the mining sector, as a paradigm shift forward to attract investments to this sector and implement digital transformation. This gateway aims at marketing investment opportunities in the field of mining exploration and exploitation flexibly and rapidly. It will inform investors from all over the world digitally about investment opportunities and submit investment offers in Egyptian mining areas through the special bids put on the digital gateway after its launch to facilitate and speed up the decision-making process, following similar models that have been used by global mining leaders, such as Australia and Canada.

To what extent has the development and modernization program contributed to the increased production of mining products and raw materials in 2023?

In 2023, the development and modernization program for the Egyptian mining sector has taken remarkable steps to achieve its objectives by creating an attractive environment for mining investments, supporting the digitalization of the sector and investing in human cadres. All efforts aim at releasing the capabilities of the mining sector and making the best use of Egypt's mining resources. Thanks to these efforts, milestone results were achieved. About 13 mmt of mining products and raw materials were produced during the year, and the exports of mining raw materials reached about 2.3 mmt. The total revenues generated from production-sharing contracts were about EGP 336 million, compared to about EGP 114 million in 2022.



I wholeheartedly express my deepest gratitude to Egypt Oil & Gas for their unwavering support and presence throughout our journey, spanning numerous milestones and significant events. From the impactful Egypt Energy Show to the enlightening roundtables and conferences such as the COPs, their role as a professional and influential communication arm has been truly invaluable.

DRIVING THE FUTURE

Egypt's Energy Transition Journey Unveiled

BY JOLLY MONSEF, MARIAM AHMED & ABDULLAH MOSTAFA

Key Takeaways

Energy Strategy

Egypt's NDCs were Updated to advance the goal of increasing the percentage of renewable energy in the energy mix in 2030 instead of 2035.



42%

The renewable energy share in the energy mix by 2030



60%

Boosting Renewable Energy Capacity Targets by 2040

Energy Efficiency Strategy Phases

Saving Energy Consumption



10%

First (2022-2027)



18%

Second (2025-2035)

The world is in a state of constant gradual energy transition. This transition is already well underway with significant progress achieved in past years. Notably, the total global renewable generation capacity grew by 9.6% in 2022 from 2021, according to the International Renewable Energy Agency (IRENA).

Egypt aims to achieve energy transition by raising low-carbon and renewable energy

utilization rates. The Egyptian government developed a comprehensive strategy built on three main pillars; establishing a strong political framework, strengthening the collaborative ecosystem, and investing in infrastructure and human capital.

Egypt is actively encouraging foreign and local investment in renewable energy projects. Egypt's renewable energy capacity is seen to increase by 65% by 2027 and provide more

than 25% of total renewable energy capacity in the Middle East and North Africa (MENA) region as expected by the International Energy Agency (IEA).

This report covers the significant progress of Egypt towards energy transition and its initiatives, as well as the major external and internal challenges that slow down Egypt's transformation process.

Updated Egypt's 2030 Vision

Egypt Launched its first version of the National Strategy for Sustainable Development, named Egypt Vision 2030, in 2016. It is a cornerstone for a comprehensive developmental process that achieves sustainable development.

In light of the challenges witnessed through the past years on the global, regional, and national levels, the vision was updated in November 2023 to identify four guiding

principles. These principles represent the main pillars that direct the implementation of the six strategic goals while utilizing seven enablers that serve as tools to accelerate the achievement of sustainable development in Egypt, according to the Ministry of Planning and Economic Development (MPED).

The fifth target of the updated Egypt Vision 2030 is "Development Infrastructure" which includes "Promoting

Sustainable Energy sources and Systems" as one of the main goals of the fifth target. This target copes with the sixth, seventh, and eleventh targets of the Sustainable Development Goals (SDGs). Moreover, this target is linked to the first and second ambitions of the Africa Agenda 2063, as stated in the Updated Version of Egypt Vision 2023.

Energy Strategy

Egypt has updated its nationally determined contributions (NDCs) to advance the goal of increasing the percentage of renewable energy in the energy mix to 42% in 2030 instead of 2035.

The Energy strategy is being updated until 2040 in light of global developments related to renewable energy, the development of energy storage technologies, and the new trend towards green hydrogen,

according to the Ministry of Electricity and Renewable Energy (MoEE). Moreover, Egypt aims to increase its renewable energy capacity to 60% by 2040, according to the Egyptian Cabinet.

Egypt's Initiatives & Actions

Despite the development challenges that Egypt faces, it was still able to embark on

a broad range of policies and projects that serve its energy transition and climate change

goals, through working on several energy transition pillars.

Egypt's NDC Implemented Actions since 2015

Key Actions



- Applying Comprehensive Energy Policy Reforms
- Encouraging Renewable Energy investments
- Improving Energy Efficiency & Using Low Carbon Fuels in the Petroleum Sector
- Applying Energy Efficiency in the Electricity Sector
- Applying Energy Efficiency on the Demand Side
- Shifting to Low Carbon Mass Transport
- Adopting Policy Reforms & Conducting Investments in Solid Waste Management
- Mobilizing National & International Green Finance
- Conducting Climate Adaptation Action Projects

Oil & Gas Sector's Efforts

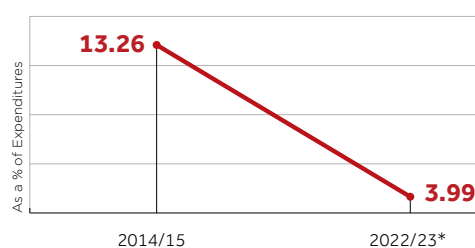
Energy Transition & Emissions Reduction Program

Egypt's oil and gas sector has made great progress in the field of energy transition and enhancing energy efficiency. It has adopted an action plan which includes goals for improving energy efficiency and decarbonization, through working on six main pillars. The following part will highlight the most significant pillars related to achieving energy transition.

1. Energy Policy Reforms

The Government has launched a comprehensive subsidies reform program. The program comprised energy subsidy phase-out and comprehensive reforms for electricity and oil and gas sectors that were initiated in July 2014 and expected to be completed in fiscal year (FY) 2024/25.

Energy Subsidies



*Projected

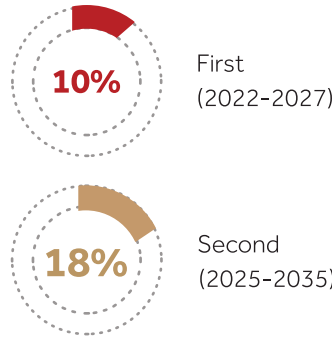
Source: The Ministry of Finance (MoF)

2. Energy Efficiency Improvement Activities

Egypt's oil and gas sector launched in 2016 Egypt's Oil and Gas Sector Modernization Project where its fourth pillar focuses on improving the energy efficiency within the sector. Further, the sector announced the Energy Efficiency Strategy (2022-2035) during COP27, to improve the energy efficiency activities in the sector and contribute to supporting energy security and reducing emissions, according to the Ministry of Petroleum and Mineral Resources (MoPMR).

Energy Efficiency Strategy Phases

Saving Energy Consumption



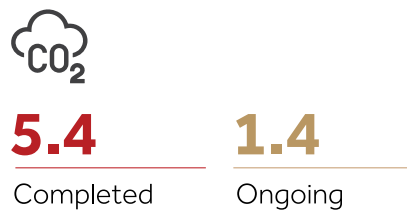
3. Expanding the Use of Natural Gas

In line with Egypt's vision to diversify its energy mix, and enhance the transition towards green fuels, the oil and gas sector works continuously on sustaining the use of gas as a substitute for diesel in electricity generation, vehicles, houses, and industries. In this regard, Egypt's consumption of natural gas expanded by around 257% from FY 1999/2000 to 2022/23, according to the NDC Document. Meanwhile, 14 million households are now connected to natural gas, and around 480,000 cars were converted to compressed natural gas (CNG), according to the MoPMR.

4. Supporting Carbon Emissions Reduction Projects

From its side, the government spares no effort to reduce the oil and gas sector's emissions by 65% as well as controlling the routine flaring by 2030. This is in addition to developing the internal regulations for methane emissions in the sector by the end of 2024.

Reducing Carbon Emissions Projects (MM TPA CO₂)



Implemented Zero Flare Projects



\$200 million

Annual Savings

1.4 mmt equivalent

Annual CO₂ Emissions Reduction

Methane Emissions

Preparing a Detailed Roadmap



Reducing

30% in 2030 compared to 2020 levels

5. Renewable Energy and Green Petrochemicals Projects Expansion

Implemented Renewables Projects



~ \$1 million

Annual Savings

50,000 tons equivalent

Annual CO₂ Emissions Reduction

Green Petrochemicals Projects



~ \$1.2 billion

Investment Cost

2.1 MMPTA

Annual CO₂ Emissions Reduction

Major Partnerships & Agreements

On the sidelines of EGYPS 2022, Egypt signed 4 memorandum of understanding (MoUs) for various decarbonization projects. They were signed by the Egyptian Natural Gas Holding Company (EGAS), and several international companies like Shell, Schlumberger, DNV, and Worley, according to the MoPMR.

Additionally, during EGYPS 2023, the MoPMR signed 5 MoUs with major national and global energy and technology companies in the fields of reducing carbon emissions, digital transformation, supporting sustainability, and crude oil marketing, according to the MoPMR.

Consequently, during COP27, the European Union (EU) and Egypt signed an MoU to boost energy transition, establish a strategic partnership on renewable hydrogen, and prepare the ground for a just energy transition in Egypt. The partners also signed a Joint Statement with the European Bank for Reconstruction and Development (EBRD), to contribute about €35 million in support of Egypt's Energy Wealth Initiative, according to the EU.

Egypt's Rankings in 2023

Overall Rank	Overall Score
ETI	52.4%
79th (out of 120)	
RECAI	56.5%
31st (out of 40)	
CP	59.4%
20th	

Main Challenges

Global Challenges

Egypt's energy transition faces significant global challenges that can impact its shift towards renewable energy sources. These challenges include:

Overcoming Economic Uncertainties for Energy Transition Progress

Navigating Access and Affordability for Energy Transition Technologies

Addressing Price Fluctuations and Geopolitical Risks in the Energy Transition

Climate Change Impacts

National Challenges

In addition to these global challenges, Egypt faces national challenges in its energy transition, which can be categorized into three main areas:

- Economic Challenges**
 - Balancing Energy Allocations for Transition and Sectoral Development
 - Limited Fiscal Space
 - Unemployment and Poverty

- Challenges Specific to the Energy Sector**
 - Reliance on Fossil Fuels
 - Surplus Power Generation Capacity
 - Infrastructure Upgrades

- Environmental Challenges**
 - Water Scarcity and Nile Dependence
 - Rising Sea levels and Coastal Zones
 - Air Pollution and Waste Management



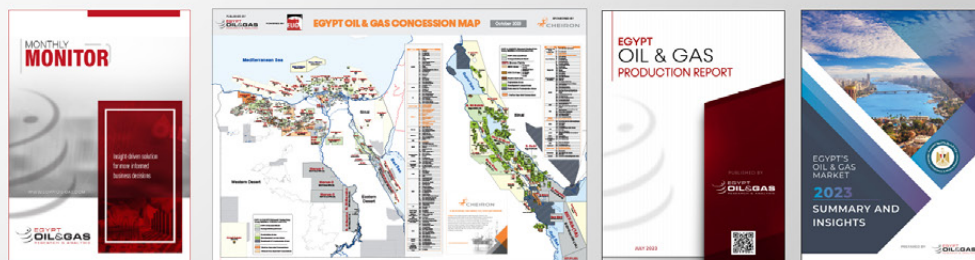
Addressing these economic, energy sector-specific, and environmental challenges is crucial for Egypt's successful energy transition. It requires implementing effective policies, investing in renewable energy infrastructure, improving water management, enhancing waste management systems, and fostering sustainable economic growth, according to the IRENA 2023 report.

Egypt has promising potential and capability to become a major energy hub in the MENA region. Further, Egypt

is experiencing substantial growth, increased interest, and the formation of invaluable partnerships in the field of energy transition in a way that accelerates this ascendancy. Despite this, there are many challenges that Egypt faces on the way to achieving energy transition that needs further serious efforts. It is crucial to expand and stabilize Egypt's renewable energy resources, build even more strong partnerships with proven clean energy and supply partners, and apply appropriate legislation, policies, security, and incentives to achieve carbon reduction targets.

EGYPT OIL & GAS RESEARCH & ANALYSIS

Egypt Oil & Gas (EOG) launched its Research & Analysis (R&A) division with the aim of providing oil & gas industry stakeholders with the most reliable and updated information about this promising and rapidly developing sector. These reports are based on industry facts and figures from reputable, credible and official sources. The R&A division's main focus is to transform raw data into valuable, original research and analysis.



MONTHLY MONITOR

CONCESSION MAPS

MONTHLY REPORTS

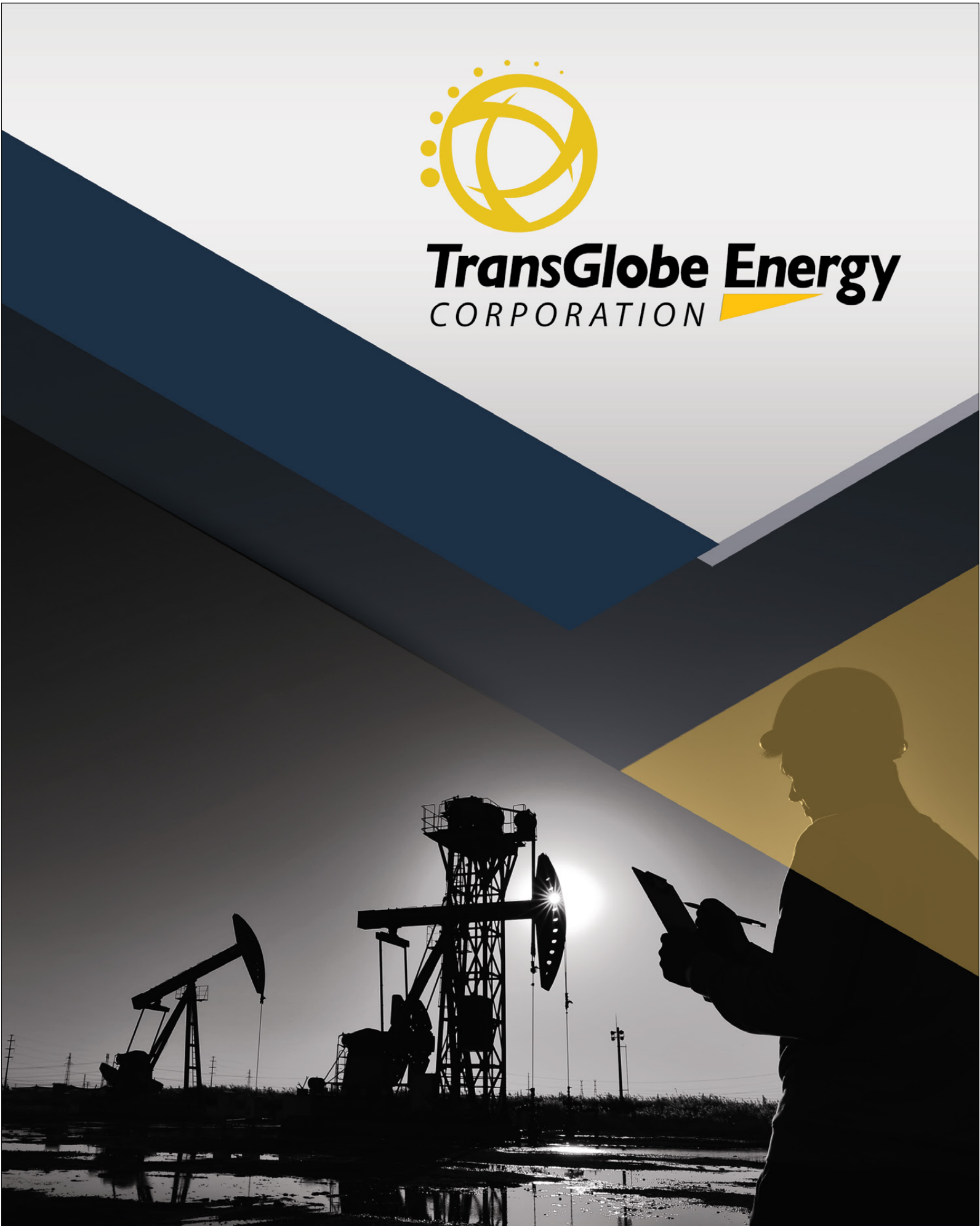
PREMIUM REPORTS

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TransGlobe Energy

CORPORATION



GROWTH WITH ENERGY

BUILDING ON COP27 SUCCESS

COP28 CONTINUES GLOBAL EFFORTS TO CURB METHANE EMISSIONS

BY SARAH SAMIR

The UN Climate Summit (COP27) has paved the way for the hydrocarbon industries to be part of the climate action talks in COP 28. The COP 27 Decarbonization Day was focused on implementing the Global Methane Pledge, a voluntary agreement to reduce global methane emissions by at least 30% from 2020 levels by 2030. This comes as COP27 featured discussions on the urgent need to curb methane emissions and the implementation of the pledge. Despite the progress, some have expressed the view that the efforts under the pledge may not be sufficient, emphasizing the need for more ambitious action to effectively reduce methane emissions. The significance of the Global Methane Pledge and its subsequent developments in COP28 demonstrate the growing international recognition of the importance of addressing methane emissions in the fight against climate change.

COP27: Paving the Path to Low-Carbon Future

During COP27 Decarbonization Day, several key agreements and outcomes were reached, which contributed to the global efforts to combat climate change. Some of the most significant outcomes include the breakthrough agreement on a new Loss and Damage Fund for developing countries to support the most vulnerable nations affected by climate disasters, such as floods and droughts. This agreement was widely lauded as a historic decision.

COP27 further included the Glasgow Pact pledges (from the previous COP event), which aimed to increase the ambition of countries' climate commitments. However, the final draft of the COP27 cover text did not include these pledges, and the timeline for their inclusion was extended to 2024 or 2030. Moreover, the conference made progress on the Mitigation Work Program, addressing the operational details of carbon markets and other climate initiatives.

Accordingly, COP27 paved the way for COP28 to build on the results reached in the Decarbonization Day. During COP28 UAE Energy Day panel discussions key remarks, Egyptian Minister of Petroleum and Mineral Resources, Tarek El Molla, stated: "Today, I am certain we will be building upon the successes, breakthroughs, and achievements of COP27 - UN Climate Change Conference as COP28 UAE is targeting to be inclusive, transparent, pragmatic, and result-oriented."

COP28: Opening New Horizons

COP28 continued the momentum of decarbonization initiatives from COP27 by achieving several key outcomes. The 52 signatories of the Oil and Gas Decarbonization Charter committed to net-zero operations by 2050 at the latest and ending routine flaring. The Industrial Transition Accelerator, with the endorsement of 35 companies, will catalyze

decarbonization across heavy-emitting sectors, including energy, industry, and transportation, according to the United Nations (UN)'s Summary of COP28.

"Decarbonization was not previously a consideration, but it is now an essential component of any updates. We are incorporating this crucial parameter into the equation, along with all of the efforts being made to decarbonize our entire value chain from upstream to midstream to downstream with the support of our partners. Our partners are the major oil and gas companies operating in Egypt, and we have already made significant progress in this area," El Molla stated in his key remarks during COP28 UAE Energy Day panel discussions, which took place at the Blue Zone, Egyptian Pavilion.

The COP28 Presidency led the launch of initiatives focused on collaboration towards reducing sectoral emissions, with both Parties and non-Party stakeholders. The Global Cooling Pledge for COP28 includes 66 national government signatories committed to working together with the private sector and civil society. The challenges faced in the first week of COP28 are a reminder of the complexity inherent in addressing climate change, but the global community eagerly anticipates further developments, hoping for more consensus, ambitious commitments, and tangible steps toward a sustainable and resilient future.

The Significance of the Methane Pledge

COP28 resulted in a global agreement to transition away from fossil fuels, which commits countries to reduce global methane emissions by at least 30% by 2030. The pledge was launched at COP26 by the European Union and the United States and now has over 150 country participants, representing a little over 50% of global anthropogenic methane emissions. The Global Methane Pledge aims to catalyze global action and strengthen support for existing international methane emission

reduction initiatives to advance technical and policy work that will serve to underpin Participants' domestic actions."

Since COP27, over \$1 billion in new grant funding for methane action has been mobilized, more than triple current levels, which will mobilize billions in investment to reduce methane. At the Global Methane Pledge Ministerial Meeting hosted by Clean Air, Ministers celebrated progress and showcased national actions and catalytic grant funding to deliver on the goal to cut methane. The meeting explored successes and challenges faced since COP27 in country resource mobilization and project execution, and focused on how to turn these learnings into measurable actions that cut methane emissions.

Today, controlling methane emissions has become easier, and the future is promising in terms of having less emissions. "We are in a moment where the technology is evolving so fast that companies and regulators in different countries struggle to keep up, and with that innovation is coming cost reductions. So, actually, methane mitigation is getting cheaper and cheaper, especially in the oil and gas sector," Brad Crabtree, Assistant Secretary U.S. Department of Energy (DOE) stated during the panel discussion 'Advancement of Decarbonization & Energy Transition' on the second day of COP28 UAE Energy Day.

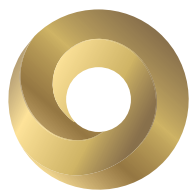
Hence, COP 28 has built on what has been decided and achieved in COP 27. This comes as both editions highlighted decarbonization efforts and the Methane Pledge. Accordingly, COP 28 witnessed a global agreement empowering transition from fossil fuels and aiming to reducing methane emissions.

The significance of the Global Methane Pledge and its subsequent developments in COP28 demonstrate the growing international recognition of the importance of addressing methane emissions in the fight against climate change.





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DECARBONIZATION GOALS

NEW YEAR'S OUTLOOK INTO A GREENER FUTURE

BY RANA AL KADY

The 28th United Nations Climate Change Conference, better known as COP28, convened in Dubai, United Arab Emirates, from November 30 to December 12, 2023. This global gathering served as a crucial platform for nearly all nations to unite in confronting the escalating climate crisis.

At its core, COP28 focused on achieving the essential goal of limiting long-term global temperature increases to 1.5°C, a target established at the landmark 2015 COP21 conference in Paris and deemed critical by the Intergovernmental Panel on Climate Change (IPCC) to avoid the most catastrophic consequences of climate change. However, prior to the final COP28 agreement, concerns loomed, as current trajectories indicated Earth was headed for a worrying 2.7°C warming by 2100.

General Overview

Within the oil and gas industry, the Oil and Gas Decarbonization Charter (OGDC) marks a pivotal moment, signaling a newfound commitment to addressing climate concerns. Representing over 40% of global oil production, the charter boasts a staggering level of endorsement, with National Oil Companies (NOCs) comprising over 60% of signatories. This unprecedented engagement by NOCs signifies a sea

change in decarbonization ambitions within the sector.

This widespread involvement indicates a hitherto unheard-of degree of NOC dedication to a decarbonization program. The sector's goal of reaching net-zero carbon emissions by 2050, getting rid of methane emissions, and doing away with regular flaring by 2030 is in line with the COP28 President Dr. Sultan Al Jaber's vision, which is reflected in the sector's charter.

As suggested by Mohamed El Shafie, BD Director for Water and Renewable Energy, INCOME - IGI, "Decarbonization is an essential step in the path to creating a more sustainable and environmentally friendly oil and gas industry, especially when there is a lot of pressure on oil and gas companies to lower carbon emissions. COP28 is a great stepping stone to a greener future."

Furthermore, the OGDC signatories have committed to acting decisively to lessen their carbon impact. Among the main pledges are to cease regular flaring by 2030, achieve net-zero operations by 2050, and significantly lower upstream methane emissions. Besides these goals, the charter promotes funding for negative emissions technology, low-carbon fuels, and renewable energy sources. Boosting measurement, tracking, reporting, and verification by third parties of greenhouse gas emissions is a critical component of improving transparency. These firms aim to reduce emission intensity by 2030 by implementing existing best practices, which are in line with larger sector standards.

With that, the goal of the OGDC is to change the way the industry operates, going beyond just lowering emissions. Engaging in low-carbon and renewable energy sources allows you to lead the energy innovation curve rather than merely complying with regulations. Businesses are encouraged under the charter to look beyond their conventional business models and investigate fresh approaches to long-term, sustainable growth. In addition, the OGDC offers proof of the effectiveness of teamwork in tackling global issues. It serves as a model for other businesses, showing how coordinated effort and thoughtful planning can have a big positive influence on the environment. It is anticipated that this program will have an impact on consumer behavior, investment choices, and regulatory frameworks, resulting in a more widespread transition to a low-carbon economy.

Oil and Gas Organisations' Pledges

The signatories pledged to achieve near-zero upstream methane emissions, net-zero operations by 2050 at the latest, and the cessation of regular flaring by 2030. They concur to keep pursuing industry best practices for reducing emissions and to take other important steps, such as financing technologies that will

enable zero emissions, low-carbon fuels, and renewable energy sources in the energy system of the future. This is also in addition to boosting measuring, tracking, reporting, and independent verification of greenhouse gas emissions, as well as their effectiveness and advancement in emission reduction, in order to increase transparency. Moreover, another goal is increasing adherence to more general industry best practices in order to hasten the decarbonization of operations and aim to put present-day standards into effect by 2030 in order to lower emission intensity as a whole. Finally, organizations have agreed to lowering the energy level of poverty and provide safe, reasonably priced energy to promote the growth of all economies.

Thus, the Oil and Gas Decarbonization Charter is more than just an industry accord; it offers a ray of optimism for the worldwide endeavour to tackle climate change. A more robust and sustainable energy sector is facilitated by the OGDC's formulation of high goals and promotion of cooperation. Achieving the global climate targets and guaranteeing habitable earth for later generations will depend heavily on its achievement.

WITHIN THE OIL AND GAS INDUSTRY, THE OIL AND GAS DECARBONIZATION CHARTER (OGDC) MARKS A PIVOTAL MOMENT, SIGNALING A NEWFOUND COMMITMENT TO ADDRESSING CLIMATE CONCERNS.

THE OIL AND GAS DECARBONIZATION CHARTER IS MORE THAN JUST AN INDUSTRY ACCORD; IT OFFERS A RAY OF OPTIMISM FOR THE WORLDWIDE ENDEAVOR TO TACKLE CLIMATE CHANGE.



COP 28

NO MAGIC WAND, BUT POWERFUL TOOLS REVEALED TO COMBAT CLIMATE CHANGE

BY FATMA AHMED

Decarbonization hinges on revolutionary new technologies. To meet aggressive climate goals, substantial investments are urgently needed from both governments and the private sector. COP 28 offered a crucial platform for global innovators and investors to showcase their potential and forge alliances that drive tangible decarbonization advancements across all industries, including the critical challenge of transitioning the oil and gas sector.

A Hub for Innovation

At COP 28, the Technology and Innovation hub shone as a beacon of progress. It brought together global technology providers and experts, fostering a vibrant exchange of expertise and showcasing cutting-edge innovations in fields like AI and quantum computing, all driving urgent climate action. Beyond introductions, the hub hosted dynamic discussions on building robust climate-tech ecosystems, empowering players to thrive. Panels explored how incentives and policies can propel energy innovation, rewarding successful research that paves the way for a future powered by cleaner, more affordable technologies. The summit's unwavering focus: accelerating development and cutting costs, ensuring these promising solutions reach their full potential in the fight against climate change.

Technological Participations and Discussions

In the "Innovation Zone" companies such as Emerson, Trane Technologies, Siemens Energy, Tencent, and others had the chance to introduce some of their latest innovative solutions for decarbonization. This is in addition to the participation of about 100 technological startups in the "Green Zone" to showcase their innovations that aim to support the decarbonization process within the different industries.

During COP 28's "New Climate Solutions: A Conversation with Innovators" panel, led by David Livingston (Senior Advisor and Managing Director for Energy, U.S. Special Presidential Envoy for Climate), a crucial point emerged: the International Energy Agency (IEA) estimates that 35% of the emissions reductions required for net zero will hinge on breakthroughs in new technologies.

Livingston highlighted the need to commercialize the new technologies. "Goldenman Sachs says that the inflation reduction act alone is going to lead to \$4 trillion in clean tech investment mobilized

and that it is the single largest boost to the global clean energy transition in world history," he said.

David Vili, the Founder and CEO of Solar Space, explained that his company's technologies are using optical mirrors/telescopes to concentrate the solar light, which reaches over thousand degrees Celsius then this is collected by another technology, then converted into sound waves, which can be converted into electrical power for cooling at high efficiencies. He added that this technology enables them to evaporate the freezing water without leaving brine, using chemicals, or using filters noting that it is three times cheaper than any other technology.

For his part Douglas McDonald, Vice President of New Nuclear Power, General Electric, highlighted that his company's technology, the boiling water reactor (BWRx-300), is used for generating nuclear power at low cost and free of carbon.

A session titled "Addressing Emissions in Oil and Gas: A Net Zero Imperative New" addressed the critical challenge of decarbonizing the oil and gas industry, a crucial step in the world's fight against climate change. Lorenzo Simonelli, Chief Executive Officer of Baker Hughes, took center stage, emphasizing the immense

potential of technology in guiding oil and gas operations towards a lower-carbon future. He aptly stated: "We [Baker Hughes] enable through technology the roadmap towards a lower carbon economy."

COP 28 included the Sustainable Innovative Forum which presented several panels. During, one of the sessions entitled "Accelerating industry decarbonization through the adoption of sustainable infrastructure mechanisms", Rana Ghoneim, Chief Energy Systems and Decarbonization at UNIDO, stated that there are technologies that need to be commercialized. "Technology that we have there are really more in sort of pre-commercial stages [like] hydrogen, CCUS, and others [which] really need quite a big push now to move to full commercialization and at the same time we need to bring in new innovative technologies that could help with the decarbonization post 2030."

Also, Takajiro Ishikawa, President & CEO of Mitsubishi Heavy Industries America, talked about the challenges that face the technologies' implementation including the needed regulations for carbon emissions and financing issues, highlighting the need for increasing carbon capture and hydrogen adoption at low costs.

A session entitled "The Future is Green: Innovations making low-carbon hydrogen competitive" as part of the Hydrogen Transition Summit 2023 was held during COP 28, where Mani Sarathy, Professor at King Abdullah University of Science and Technology, emphasized the need to use the available technologies to support the electrolyzes industries such as applications of the latest technologies for diagnostics, imaging, measurements, sensing, AI, and high performance of computing.

Furthermore, Dr. Harpeet Gulati, SVP, Head of PI System & Green Software of AVEVA underlined the crucial role of the digital twin technology in connecting the demand of technologies with the supply and anticipate any changes very quickly. He said that we need to focus on all the technologies and scale them quickly by looking at the entire value chain as well as expect any problems, noting that this can be done by the digital twin.

COP 28 wasn't just another climate conference; it was a catalyst for unlocking new pathways to a decarbonized future. The focus on technology stood out, with discussions and innovations paving the way for commercializing solutions and propelling the fight against climate change.



ENERGY MANAGEMENT, TECHNICAL AND LEGAL VISION

Energy is vital for the sustainable development of any nation, be it social, economic, or environmental, as it is linked to industrial production, agricultural output, community, quality of life, health, access to water, education, etc. In the past few decades, energy demand and consumption have increased exponentially globally, due to an increase in population and industrialization. A worldwide spotlight shines on energy management, with a chorus of voices calling for resource conservation, clean energy adoption, and emission reduction to preserve our planet and combat the looming threat of climate change. International oil & gas organizations' commitment to sustainable development through the management of Energy is highlighted in its "Energy Management Policy" and adopted in HSSE Procedures, Standards, design, operation, and maintenance.

Energy sources are categorized into two types; Non-renewables, fossil fuels (like coal, gas, and oil), nuclear, biofuel & waste, and renewables - which will not deplete if we use them like solar, wind, hydropower, wave, tide, and geo-thermal energy. Fossil fuel-based electricity generation is associated with air pollution/emissions like CO₂ (greenhouse gas, which contributes to global warming/ climate change), Ozone, SO₂, NO_x, and particulate matter which affect the environment negatively.

In the face of pressing climate concerns, adopting renewable energy is no longer a choice, but a necessity. To ensure a sustainable future, all countries must collectively strive for the ambitious goal of sourcing at least 25% of their electricity from renewable resources by 2030. To achieve this, a multifaceted approach is essential. The Ministry of Electricity & Energy in those countries has to introduce guidelines on energy conservation, advising adjusting the high electricity consumption equipment with efficiency not less than 95%, Building Automation, Daylight and occupancy sensors and programmable thermostats, and replacing lighting systems with LED bulbs.

On the way to achieve the objective of overall energy efficiency, the official organizations should introduce many initiatives, including presenting energy audits, energy monitoring, reliable solar energy projects, green building design, building automation systems, changing to LED bulb models, developing energy conservation code, awareness campaigns, etc. Moreover, it has to set up an Energy Management System Authority and determine its commitments and responsibilities clearly. This authority is responsible for developing an Energy Management Policy with its overall intention(s), direction(s), and commitment(s) related to its energy performance based on guidance and support by its top management.

An Energy Management System (EnMS) is not just a bunch of technical jargon. It's a powerful tool that empowers organizations to take control of their energy use, reduce costs, and contribute to a more sustainable future. Think of it as a roadmap for optimizing your energy efficiency, with a clear destination and specific steps to get you there.

The above figure shows the Energy Management cycle to be followed as a referral procedure.

Companies in the industrialization, service and transport infrastructure sectors will play a vital role in the sustainable transition of the energy system, implementing innovative technologies at full industrial scale. However, developing long-term investment plans is a challenging task complicated by the volatility of energy markets and the uncertainties induced in the policy landscape by the recent energy crises. In this respect, mathematical models can support the transition of industrial systems, steering the planning process.

Significant energy uses (SEUs) are identified by the organization as having major energy consumption and/or considerable opportunity for improvement. It is essential to identify your organization's significant uses of energy through determined criteria for significance. As it is identified, the current energy performance of significant uses of energy has to be determined. The performance of the significant energy uses is dependent on factors that affect its operation. Identifying these factors or relevant variables will help to determine their current energy performance. Once the performance is determined, processes should be executed to continually monitor that performance. Collecting, analyzing, and tracking data on significant energy use performance system can discover opportunities for improvement.

The Energy Performance Indicator (EnPI) is a measure of energy intensity used to gauge the effectiveness of your energy

management efforts. It is used to track annual improvements, energy savings, and Superior Energy Performance (SEP). This tool is designed to help many different types of organizations monitor their energy consumption, and it is used to communicate across the uses of the different manufacturing and non-manufacturing facilities.

An energy audit system is set up to conduct auditing, inspection survey and analysis of energy flows for energy conservation in a building or establishment. It may include a process or system to reduce the required amount of energy input into the energy system without any negative impact affecting the system output. In commercial and industrial buildings/establishments, an energy audit is the first step for determining the available chances to reduce energy consumption, expense, and carbon footprint.

One of the most important challenges of energy management is energy efficiency improvement, so we have to reduce emissions with an energy management plan learn how to monitor energy usage in our business, and discover ways to reduce wasted energy, including heat controllers, insulation, and LED lights. Setting up an energy management plan for your business is crucial to reducing your carbon footprint as part of the world's transition to net zero by 2050. The latest energy reports found that 36% of small businesses have a plan to combat climate change and 67% of small businesses have taken steps to address their energy usage, some of which include; Installing a smart meter (22%), Installing energy-efficient appliances (37%), Switching to a renewable energy provider/tariff (26%),

Investing in microgeneration (18%), Installing solar panels (14%), Installing a heat pump (4%).

We have to have an energy management plan that involves monitoring how much energy we use in order to work out how much energy we are wasting. We can then take steps to improve our energy efficiency. Having an energy management plan in place allows us to comply with international standards and shows any company or organization that is committed to going green.

Finally, we must realize the importance of energy management through planning & efficiency improvement for preserving the environment and combatting climate change, then reach zero carbon emission and get a green life target earliest. Therefore, we have to have legislation and laws that cover and support development activities and guide the process of energy management and efficiency improvement through a set of incentives for the best energy preservation application and some applicable penalties for the others who can contribute to more carbon emission, energy-wasting, and environment pollution. I believe that these legislations must take place in two parallel lines, one by updating and amending old laws & legislation to be in line with the current changes worldwide, and the second by creating and devising new legislation & laws that are essential to support energy wasting elimination & zero-carbon emission objectives.

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



THE LOSS AND DAMAGE FUND

A GLOBAL EFFORT TO FINANCE A JUST ENERGY TRANSITION

BY NADER RAMADAN

As an idea that was born in Egypt at COP27, the Loss and Damage Fund was officially launched at COP28 in Dubai. It was received with overwhelming support from many, particularly in the developing world. The initiative is also bold enough to raise a few eyebrows and yet ambitious enough to fully realize the vision of a just energy transition that so many in the developing world have been pushing for. The Loss and Damage Fund has come as the financial savior, saving many of the world's less fortunate nations from fiscal ruin due to the damages created by unforeseen natural disasters with climate change being the primary culprit. Within the realm of the oil and gas industry, the scenario is somewhat more complicated, but the initiative is more positive for the petroleum sector than some may perceive.

Though it may be looked upon as a hardship for oil and gas companies, many say that the Loss and Damage is a way for the petroleum industry to get involved in the energy transition in a positive manner, both as a corporate social responsibility initiative and as a tool to evolve with the transition to maintain or possibly even gain market share. Experts indicate that the energy industry can in fact contribute and remain profitable while working to decarbonize their operations and help the surrounding communities adapt to the new climate reality that the world lives in, something which the global petroleum sector has already been actively involved in even before the Fund was ever discussed.

With this in mind, generally reactions to the historic foundation of the Fund have still been mixed. The Fund is agreed upon in principle, but the fine details of the Fund are still being sorted out and need further discussions to be implemented in a fair and just manner.

"While the historic decision was welcomed, this is but the first step and success will depend on how quickly this fund gets off the ground. Representatives from 24 countries will work together over the next year to decide what form the fund should take, which countries should contribute, and where and how the money should be distributed," it said in a report titled "What you need to know about the COP27 Loss and Damage Fund," published by the UN Environment Programme. "But for the fund to be effective, the root cause of climate change must be tackled – and that involves reducing emissions. Unless emissions are drastically reduced, more and more countries will face the devastating effects of climate change. The world urgently needs to find more resources for mitigation, adaptation, and

loss and damage so that climate change will not erode humanity's chances to deliver on the Sustainable Development Goals."

Nonetheless, ideas of forcing contributions or the use of coercion have generally been rejected. The Loss and Damage Fund by no means should be perceived to be a form of climate taxation for the more economically prosperous nations to give to the poor. Rather, the fund itself is designed to empower a collective global effort to ensure nations that are less economically successful do not bear too much of the brunt when the effects of climate change are truly felt. Almost half a billion dollars have been pledged and there could be a lot more on the way for years to come. "Rich nations attempted to broaden the pool of donors expected to contribute but made limited headway. The text 'urges' developed countries to provide financial resources to the fund, while other nations are only 'encouraged' to do so 'on a voluntary basis,'" it said in a report titled "Countries pledge \$400m to set up loss and damage fund" from Climate Home News.

Some of the most well-known oil and gas producers within the Arab world have demonstrated a willingness to contribute to the Fund and its extensive effort to create a symbiotic relationship between climate justice and the fossil fuel sector.

"The UAE's contribution of \$100 million is welcome, both for its solid cash and for the pressure it puts on the world's biggest polluters to also step up and recognize their responsibility for decades of pollution," ActionAid International Climate Justice Campaigner Teresa Anderson was quoted as saying in the same report.

Though the Loss and Damage has been the center of controversy regarding legal accountability for climate change in countries around the world, it is in fact an opportunity to realize a just energy transition, an effort that many companies in the oil and gas industry are willing and have already contributed to. While being a great initiative in the general sense, the Loss and Damage Fund is a global effort that needs to be inclusive and accommodate all perspectives. It should not be used as a tool for financial finger-pointing but rather as a cause that can unite the global economy to fund the protection of vulnerable communities worldwide while ensuring energy security for all through creating a diverse energy mix.

THE LOSS AND DAMAGE FUND HAS COME AS THE FINANCIAL SAVIOR, SAVING MANY OF THE WORLD'S LESS FORTUNATE NATIONS FROM FISCAL RUIN DUE TO THE DAMAGES CREATED BY UNFORESEEN NATURAL DISASTERS WITH CLIMATE CHANGE BEING THE PRIMARY CULPRIT.



FROM UKRAINE'S ASHES TO GAZA'S INFERNO:

2023'S CONFLICTS BURN BRIGHT, CASTING SHADOWS ON GLOBAL SECURITY

BY IHAB SHAARAWY

The year 2023 may go down in history as a period shrouded in the darkness of conflict and chaos, where senseless wars ravaged nations, claiming the lives of innocent civilians and devastating societies. Throughout this tumultuous year, the world witnessed a wave of state-sanctioned conflicts that not only intensified existing tensions but also brought about catastrophic consequences that could have been prevented. Unfortunately, such consequences spread out of its locations affecting everyone on the planet.

From the relentless clashes between Israel and Hamas in Gaza to the brutal civil war in Myanmar and the ongoing Russian offensive in Ukraine, these conflicts served as stark reminders of humanity's failure to find peaceful resolutions to complex disputes.

According to the United Nations Global Humanitarian Overview 2024, Armed conflicts, the climate emergency, and collapsing economies are taking a devastating toll on the most vulnerable communities on all continents, resulting in catastrophic hunger, massive displacement, and disease outbreaks. The report reveals that one child in every five lives in, or has fled from, conflict zones in 2023. Some 258 million people face acute hunger. One in 73 people worldwide is displaced – a doubling in 10 years. And disease outbreaks are causing preventable deaths in all corners of the world.

As we stand on the precipice of 2024, the shadows of these conflicts loom large, a chilling reminder of the fragility of peace and the devastating cost of war.

Gaza in Crisis: A Daunting Future Looms as 2024 Begins

As the clock struck midnight on December 31, 2023, the war-torn region of Gaza faced a daunting future. The Israeli Prime Minister, Benjamin Netanyahu, had relentlessly pursued the destruction of Hamas, but as 2024 approached, it seemed that these objectives were far from attainable. The consequence of this prolonged conflict is the inevitable continuation of devastation

and an unyielding Israeli occupation. Weeks of relentless bombardment have left much of the Hamas-ruled strip in ruins, resulting in an alarming number of casualties, displacements, and a grim forecast for the year ahead. The toll on Gaza's population has been catastrophic.

Despite the uncertain outcome of the conflict, Israel's army chief predicts that the war will persist for several more months into 2024. Even if the war concludes early in the year, the likelihood of a continuing military occupation is high. This prospect draws criticism from international allies who question the humanitarian implications for the Palestinians trapped in tent cities along the border with Egypt. The prolonged occupation of Gaza only perpetuates the cycle of violence, making long-term peace and stability seem even more elusive.

Furthermore, neighboring countries, already burdened with their own challenges, may face spillover effects, including increased refugee inflows and security concerns.

Russia-Ukraine Conflict in 2024: Shifting Dynamics and Uncertain Future

As the Russia-Ukraine conflict approaches its third year, the stagnant front lines raise questions about the prospects for any meaningful change in the course of the war in 2024. President Volodymyr Zelensky's admission that Ukraine's spring offensive did not meet expectations reflects the challenges faced by the country. Furthermore, with fading Western support and expected

declines in financial and logistical aid, Ukraine finds itself in a precarious position as it aims to regain control over the territories currently under Russian control.

Assessing the prospects of the Russia-Ukraine conflict in 2024 remains inherently unpredictable. Both sides are aware of the need for a breakthrough, but the geopolitical complexity and military stalemate make achieving a definitive resolution highly challenging. The conflict has already caused significant humanitarian and economic costs for Ukraine, as well as strained diplomatic relations between Russia and the West.

Moreover, economic sanctions, dwindling manpower, and growing domestic discontent simmer beneath the surface in Russia. The international dimension also holds the potential for significant shifts. The upcoming US Presidential election in November 2024 could alter the calculus of American commitment to Ukraine. Additionally, the global security landscape remains volatile, with conflicts and crises in other regions vying for attention and resources.

Assessing the prospects of the Russia-Ukraine conflict in 2024 remains inherently unpredictable. Both sides are aware of the need for a breakthrough, but the geopolitical complexity and military stalemate make achieving a definitive resolution highly challenging.

Sudan's Shadowy Conflict: A Bleak Outlook for 2024

As the sun sets on 2023, Sudan's horizon remains shrouded in the dark clouds of conflict. The April 2023 clash between the country's two military factions, the Sudan Armed Forces (SAF) and the Rapid Support Forces (RSF), has plunged the nation into a brutal civil war. Internationally brokered peace talks in Saudi Arabia have yielded no tangible results, leaving many to fear a bleak and uncertain future for 2024.

The conflict has rapidly escalated beyond localized skirmishes, evolving into "large-scale urban warfare," according to the International Rescue Committee (IRC). This brutal reality, however, has garnered "minimal" international

attention, pushing Sudan's tragedy further into the shadows of the global stage.

The consequences of this neglect are devastating. The IRC estimates that 25 million Sudanese currently face urgent humanitarian needs, with a staggering 6 million displaced from their homes. The humanitarian crisis is particularly acute in Darfur, where the RSF, led by the controversial Gen. Mohammed Hamdan Dagalo (aka Hemedti), has launched a multipronged offensive. Reports of atrocities and human rights abuses have emerged from the region, painting a grim picture of suffering and displacement.

Beyond the immediate humanitarian crisis, the Sudanese conflict poses a serious threat of regional spillover. South Sudan, already grappling with its own internal challenges, is particularly vulnerable to the flames of instability seeping across the border. The potential for wider regional intervention adds another layer of complexity and risk to the already volatile situation.

Without a drastic shift in international attention and a renewed commitment to finding a peaceful resolution, the shadows of conflict threaten to engulf Sudan for years to come.

Actually, Sudan is only one piece of a much larger puzzle in African continent. The International Rescue Committee (IRC) has identified several other potential hotspots across the continent that could erupt in 2024, raising concerns about regional instability and humanitarian crises.

Other hotspots include; Burkina Faso, South Sudan, Ethiopia, Niger and Mali. The continent is also prone to several broader trends raising concerns about climate change consequences, food security and political uncertainty.

In 2024, Asia is also expected to remain a region where simmering tensions and unresolved conflicts threaten to boil over. From the contested waters of the South China Sea to the delicate diplomatic dance between China and Taiwan, and from the volatile Korean peninsula to the ongoing crisis in Myanmar, the potential for escalation is alarmingly present.



THE SUN SHINES THE WAY TO EGYPT'S ENERGY FUTURE

Egypt, with its abundant sunlight and vast expanses of arid land, holds immense potential for harnessing solar energy. In recent years, the adoption of photovoltaic (PV) solar energy in Egypt has gained momentum, marking a significant stride towards sustainable and clean power generation.

One of Egypt's greatest assets is its geographical location, placing it in a region characterized by high solar irradiance. The country receives an abundance of sunlight throughout the year, making it an ideal candidate for solar energy projects. The use of PV solar technology is a strategic move for Egypt to diversify its energy sources, reduce carbon emissions, and address environmental concerns.

The economic advantages of PV solar energy in Egypt are substantial. By investing in solar power, the country can tap into a renewable resource that not only curtails greenhouse gas emissions but also provides a stable and sustainable energy source. The reduced reliance on imported fuels contributes to energy security, shielding the nation from the volatility of global oil markets. Furthermore, the development of a robust solar industry can stimulate economic growth by creating jobs, fostering innovation, and attracting investments.

One notable initiative in Egypt's solar energy landscape is the Benban Solar Park, located in the Aswan Governorate. This ambitious project, considered one of the largest solar installations in the world, comprises multiple PV solar power plants. The Benban Solar Park demonstrates Egypt's commitment to a clean energy transition and is poised to significantly contribute to the national energy grid. Its completion underscores the feasibility and scalability of solar energy projects in the Egyptian context.

The environmental benefits of PV solar energy align with Egypt's commitment to tackling climate change and promoting sustainable development. Solar power generation produces electricity with minimal environmental impact compared to conventional fossil fuels. The reduction of carbon emissions contributes to eliminating air pollution, improving air quality, and fostering a healthier environment for the population. As Egypt grapples with the challenges of climate change, embracing solar energy emerges as a viable solution to address both environmental and energy security concerns.

Based on the above, we can conclude the following:

(1) **Economic Advantages:** The adoption of PV solar energy in Egypt brings economic advantages, including reduced dependence on imported fuels, energy security, job creation, innovation stimulation, and the attraction of investments. The economic benefits are crucial for the nation's sustainable development.

(2) **Benban Solar Park as a Milestone:** The Benban Solar Park serves as a landmark project, symbolizing Egypt's commitment to a clean energy transition. As one of the largest solar installations globally, its completion demonstrates the feasibility and scalability of solar projects in the country.

(3) **Environmental Sustainability:** PV solar energy aligns with Egypt's environmental goals by reducing carbon emissions, mitigating air pollution, and promoting a healthier environment. As the nation faces challenges related to climate change, solar energy emerges as a key solution to address both environmental and energy security concerns.

By Mohamed Adel Hafez

Energy Efficiency Department Head
Khaldia Petroleum Company

COMPRESSED HYDROGEN: A KEY INGREDIENT FOR EGYPT'S ENERGY RENAISSANCE

Hydrogen, with its diverse roles, emerges as a pivotal force in the global shift toward sustainable and low-carbon energy solutions. The selection of compressed hydrogen methods involves careful consideration of specific application requirements, and acknowledging the merits and drawbacks of each approach. The terms "green," "blue," and "brown" hydrogen categorize production based on environmental impact and carbon footprint.

Various methods compress hydrogen, catering to factors like storage needs, intended use, and safety considerations. Gaseous compressed hydrogen (CGH₂) involves compressing hydrogen gas into high-pressure cylinders, while liquid compressed hydrogen (LH₂) requires cooling hydrogen to extremely low temperatures for storage in cryogenic tanks. Metal hydride storage involves absorbing hydrogen into a metal alloy for later release, offering higher storage density. Carbon nanotube-based storage, an area under research and development, explores hydrogen adsorption onto carbon nanotube surfaces.

Now, let's delve into the distinctions among "green," "blue," and "brown" hydrogen:

Green Hydrogen and Benefits:

- **Production Method:** Generated through electrolysis using renewable energy sources (wind, solar, hydropower), splitting water into hydrogen and oxygen.
- **Environmental Impact:** Environmentally friendly, as it avoids carbon dioxide production during the process.
- **Environmental Sustainability:** Minimal environmental impact, considered a sustainable and clean energy carrier.
- **Energy Independence:** Reliance on renewable resources reduces dependence on fossil fuels, contributing to energy security.
- **Decentralization:** Can be produced on-site using renewable sources, promoting decentralized energy production.

Blue Hydrogen and Benefits:

- **Production Method:** Derived from natural gas through steam methane reforming (SMR), with captured and stored carbon dioxide (CCS) to prevent emissions.
- **Environmental Impact:** While hydrogen is clean, the overall impact depends on the effectiveness of carbon capture and storage.
- **Lower Carbon Emissions:** Carbon emissions are significantly lower compared to traditional gray hydrogen without carbon capture.
- **Utilization of Existing Infrastructure:** Uses existing natural gas infrastructure, easing the transition to low-carbon hydrogen production.
- **Energy Security:** Provides a reliable hydrogen source, reducing dependence on fossil fuels.

Brown Hydrogen and Benefits:

- **Production Method:** Produced from natural gas using traditional methods like SMR without carbon capture, leading to carbon dioxide release.
- **Environmental Impact:** Higher carbon footprint due to direct CO₂ emission during production.
- **Industrial Availability:** Established production methods are well-developed and widely used in industry.
- **Economic Viability:** Economically viable, making brown hydrogen accessible for various applications.
- **Infrastructure Utilization:** Can leverage existing infrastructure designed for gray hydrogen production.

Additionally, hydrogen finds diverse applications across sectors:

- **Energy Storage:** Stores excess energy from renewables, produced through electrolysis during surplus electricity, for later use during peak demand.
- **Fuel Cells:** Generates electricity through electrochemical reactions, used in vehicles, backup power, and stationary power generation.
- **Transportation:** Serves as a clean fuel, especially in hydrogen fuel cell vehicles, offering an alternative to traditional fossil fuels and reducing emissions.
- **Industry:** Acts as a feedstock in chemical production (e.g., ammonia, methanol) and refining, serving as a clean and versatile fuel source.
- **Heat and Power Generation:** Burned directly for heat and power, yielding water vapor and heat without emitting carbon dioxide, providing a cleaner alternative to natural gas.
- **Decarbonization:** Substitutes traditional fuels in challenging-to-electrify sectors, aiding decarbonization and reducing greenhouse gas emissions.
- **Grid Balancing:** Integrated into natural gas infrastructure, supports grid balancing by blending with natural gas, facilitating the transition to a low-carbon energy system.

In essence, hydrogen's multifaceted applications and varied production methods underscore its critical role in shaping a sustainable and low-carbon energy future.

By Wael Essam El Rayes

General Petroleum Company (GPC) Vice Chairman



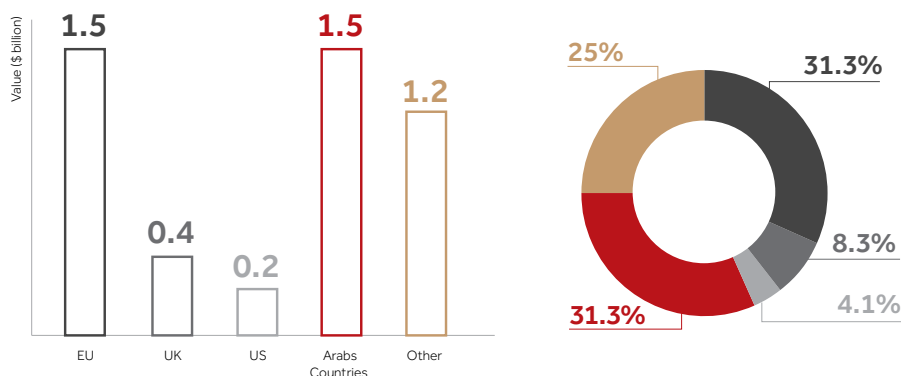
QUARTERLY INDICATORS

Net Foreign Direct Investments (FDI)



Investments Inflows per Destination

In the fourth quarter (Q4) of the fiscal year (FY) 2022/23, FDI recorded \$2.1 billion, with net inflows of \$2 billion. The European Union (EU) and Arabs countries are the largest sources of FDI inflows to Egypt, contributing together with more than 60% of the total FDI.



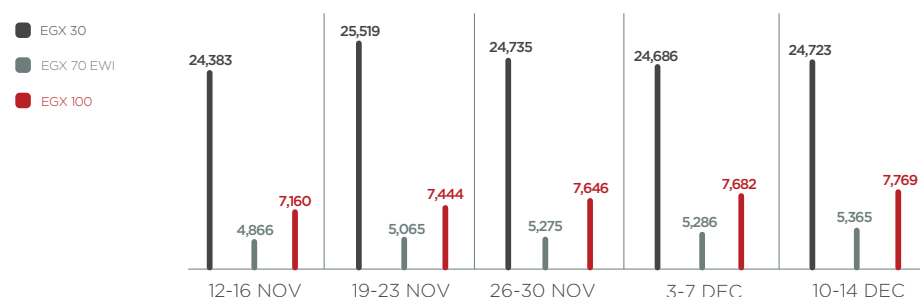
EGX HIGHLIGHTS

Performance of Listed Petroleum Companies November 2023

Company	Close Price	YTD Price Change	P/E*
TAQA	EGP 10.87	↑ 1,924%	-
NDC	USD 4.69	0%	4.84
AMOC	EGP 10.63	↑ 68.2%	10.01
EGAS	EGP 43.61	↑ 2,074%	13.89
EGPC	EGP 29.2	↑ 122.56%	41.25

*Price-Earnings Ratio (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 (%)



Egypt's inflation rates declined in November 2023 by 5.5%, reaching 36.4%, compared to October 2023. The decline was mainly driven by a decrease in the price of meat and poultry by 1.5%, fruits by 3.5%, and vegetables by 4.7%. This came despite the increase in some food groups, such as the cereals and bread group by 5.2% and sugar by 5.9%.

Net International Reserves (\$ billion)



Egypt's net international reserves increased slightly by 0.20% in November 2023 compared with October 2023. Foreign currencies are the largest component of Egypt's international reserves, accounting for \$26.879 billion in November.

Non-Oil Private Sector PMI (Point)



The non-oil private sector of Egypt showed a modest rebound in November, even though it remained below the 50 level. Output and new business levels continued to decline in November, however with a lower decline than that of October.



Petroleum Sector Economic Contribution in FY 2022/23

The oil and gas sector is considered a significant player in the Egyptian economy, it's gross domestic product (GDP) reached about EGP 0.85 trillion during the past fiscal year (FY), contributing about 9% to Egypt's total GDP.

Sector's GDP* at Factor Cost

		EGP Trillion
	Crude Oil Extraction	0.31
	Natural Gas Extraction	0.23
	Refining	0.30

*Current Prices

SCA Amended Oil & Petroleum Products Tankers' Granted Rebates

The Suez Canal Authority (SCA) issued several navigation circulars that amended the reductions granted to crude oil and petroleum products tankers sailing starting from January 1, 2024, until June 30, 2024. Yet it issued renewing circulars concerning liquified petroleum gas (LPG) and liquified natural gas (LNG).



Oil Tankers

	Rebate from Tolls
US Gulf Ports & the Caribbean Area	25-75%
Latin America Ports, its Southern Ports, and Asian Ports	75%



Petroleum Products Tankers

US Gulf Ports, the Caribbean Area, and the Following Areas in Asia	30-75%
Latin America Ports, its Southern Ports, and Asian Ports	75%

Egypt Exported the World's 1st Green Ammonia Shipment

The shipment was successfully exported on November 20 by Fertiglobe company using the hydrogen produced in the experimental electrolyzer of the company's project in the Suez Canal Economic Zone (SCZONE).

Company's Project Production Capacity (t/y)



Shipment Destination

Tuticorin Chemicals and Fertilizers Limited (TFL) in India

15,000
Green Hydrogen

To Produce
90,000
Green Hydrogen

New Green Ammonia Project at Gulf of Suez

The project will establish an electrolysis facility, an ammonia station, and a water desalination station that enters into the electrolysis process to produce green hydrogen. It is worth noting that the project had won the National Initiative for Green Smart Projects' Round II.

Company
Benchmark Power International (BPI)

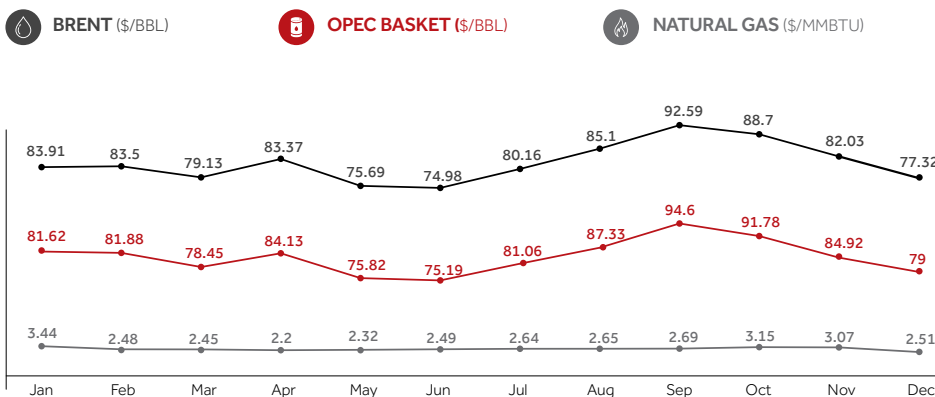
Investments
\$1 billion

Targeted Production
1000 t/d

Electrolysis Capacity
400 mw

PRICING HIGHLIGHTS

Average International Prices in 2023



Local Fuel Prices (EGP/L)

OCTANE 80	10	
OCTANE 92	11.50	KEROSENE
OCTANE 95	12.50	LPG (EGP/12.5KG CYLINDER)
DIESEL	8.25	CNG (EGP/M ³)
		5.50

Latest Update (2/11/2023)



SINOPEC



**Cleaner Energy
Better Life**

