

**ExxonMobil**

## PIONEERING INNOVATION

AN INTERVIEW WITH

**AMR ABOU EITA**

EXXONMOBIL EGYPT'S CHAIRMAN  
& MANAGING DIRECTOR





# EDITOR'S LETTER

## Working Safely During the Pandemic

Many oil and gas companies have changed their strategies since the start of the pandemic. One of the main aspects that witnessed core changes was Quality, Health, Safety and Environment (QHSE) measures. By the end of the second year of the pandemic, we need an answer for the question "how QHSE in the oil and gas industry will transform post-pandemic?"

Thus, EOG's December issue is dedicated to discuss the future scenarios of QHSE in the oil and gas sector amid energy transition. In our industry insights section, we tackled the environmental part by highlighting the efforts made to promote net-zero carbon in the industry. The overview section, tackled a different angle of QHSE, which is safety. As Egypt is willing to develop the operations in the Western Desert, it is essential to keep the onshore sites safe workplaces. Our Research and Analysis team prepared a full report analyzing Egypt's refining sector.

December issue is rich with interviews. We had a great chance to conduct an exclusive interview with Amr Abou Eita, Chairman and Managing Director of ExxonMobil Egypt. Moreover, Dawn Summers, COO of Wintershall Dea talked to us on the sidelines of Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC) 2021.

The issue also includes a full coverage for EOG's 4th Upstream Technical Convention that was held on October 31st at the Dusit Thani Lakeview Hotel and ended on November 2nd at the Triumph Luxury Hotel.

**EOG team wish you a Merry Christmas and a happy new year!**

**MAHINAZ EL BAZ**

Acting Editor-In-Chief  
Research & Analysis Manager

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DIRECTOR



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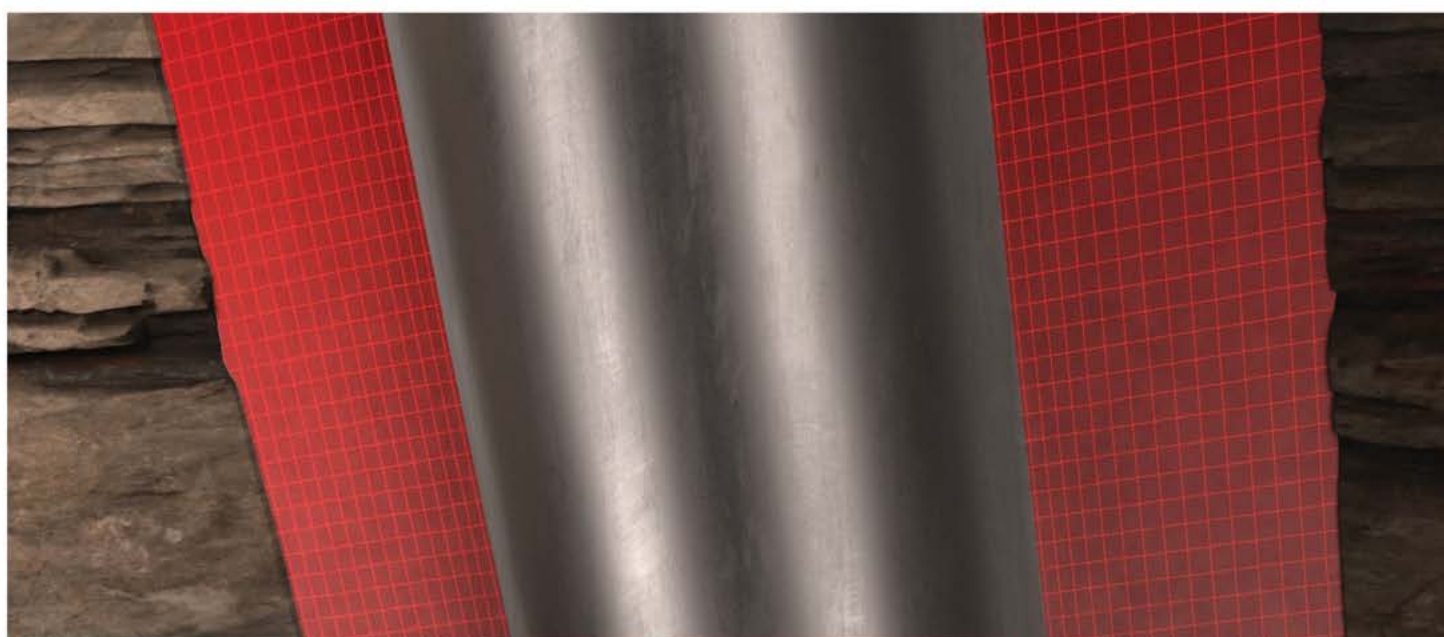
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## TOP 5

## EGYPT, LEBANON DISCUSS ARRANGEMENTS FOR EGYPTIAN NATURAL GAS DELIVERY

Egyptian Minister of Petroleum and Mineral Resources Tarek El Molla met with Lebanese Minister of Energy and Water, Walid Fayad to have additional discussions regarding arrangements for the Egyptian natural gas exports to Lebanon via Jordan and Syria.

El Molla stated that the meeting with his Lebanese counterpart comes as a continuation of the discussions to follow-up on the executive procedures and the steps that have been taken to bring Egyptian natural gas to Lebanon. This demonstrates Egypt's commitment and the keenness of the political leadership to help the Lebanese people overcome the current energy crisis by providing them with the natural gas supplies they need.

The two ministers followed-up on the course of the intensive meetings held by executives from the oil and gas sector in both countries via video conference to finalize all the details related to the agreements for the supply of natural gas and to agree on the timetable for the arrival of gas.

## CABINET APPROVES FIVE OIL DRAFT AGREEMENTS

The Egyptian Cabinet announced the approval of five oil draft agreements, aiming to enhance production rates, optimize the exploitation of resources, and pump investments into research and development areas.

The draft agreements authorize the Egyptian General Petroleum Corporation (EGPC) and several international companies to conduct exploration and production (E&P) activities in the Gulf of Suez and the Nile Delta. This also includes integrated development and research areas in the Western Desert, in addition to the development areas in West Bakr, West Ghareb, Northwest Gharib in the Eastern Desert, and others.

Furthermore, the Cabinet approved the President's draft decision regarding the reallocation of two state-owned plots in the Abu Madi area in Dakahlia Governorate to the EGPC.

## EL MOLLA MEETS WITH WORLD ENERGY LEADERS AT ADIPEC 2021

At ADIPEC 2021, Minister of Petroleum and Mineral Resources Tarek El Molla met with key world energy figures to discuss bilateral cooperation.

El Molla held a meeting with International Energy Agency (IEA) Executive Director Fatih Birol, where they discussed cooperation between Egypt and

the IEA for the success of the COP27 UN Climate Change Conference, which Egypt will host next year in Sharm El-Sheikh.

Egypt is keen on cooperating and coordinating with the IEA as an international organization with global weight and has previously cooperated in this regard with other countries in hosting the previous sessions of the conference.

Birol indicated the IEA's keenness to enhance cooperation with Egypt and to provide all means of support. The two officials also discussed the main factors necessary to enhance the chances of success for COP 27 in Sharm El Sheikh.

## EGYPT EYES SELF-SUFFICIENCY IN REFINED OIL BY 2023

Egypt will be self-sufficient in refined oil by 2023, stated Egyptian Minister of Petroleum and Mineral Resources Tarek El Molla in Saudi Arabia's capital Riyadh, where he was attending a climate conference.

Due to a \$7 billion project to upgrade existing refineries and construct seven new ones, Egypt's goal of self-sufficiency is now within reach. El Molla noted that the new facilities will have the capacity to produce 6.2 million tons per year (mt/y) of products, such as gasoline and diesel.

He further elaborated that although the country is not a big oil producer, refined oil products will be the real game changer. "Instead of importing refined products, we'd rather import crude oil and refine it" locally.

## PETROMAINT, AMOC SIGN FIVE-YEAR MAINTENANCE CONTRACT

Alexandria Petroleum Maintenance Company (Petromaint) signed a five-year contract with Alexandria Mineral Oils Company (AMOC) for the maintenance of the AMOC units.

The contract is worth EGP 46 million annually and was signed by Petromaint Chairman Ahmed Fouad and AMOC Chairman Ihab Mabrouk at the headquarters of AMOC.

The contract was effective as of November 1, 2021, and will last five years, during which Petromaint will provide comprehensive mechanical, electrical, and automatic control maintenance services.

This joint cooperation comes in line with the directives of El Molla on the need to achieve integration and enhance cooperation between companies affiliated with the petroleum sector in various fields.

## A BLAST FROM THE PAST



**In December 2014**, Egypt signed its first unconventional gas contracts, as part of its efforts to accommodate the growing energy demands. After the enormous success in North America, unconventional gas has been viewed as the next frontier for energy security. According to the US Energy Institute Administration (EIA), Egypt's western desert contains a series of basins underlain by organic-rich shales.

One important basin is in the Abu Gharadig region. This basin includes the Apollonia tight-gas chalk play which has potentially significant hydrocarbon volumes. Furthermore, geologists have confirmed that the North America tight-gas technology has potential for success in Apollonia.

Hence, Egypt awarded the contracts to Texas-based Apache Corporation and Shell in late 2014. The foreign oil firms created a joint-development proposal to unlock the significant stranded gas in Apollonia. The gas reserves which can be extracted from the concession area are approximately 700 billion cubic feet (bcf).

It should be noted that the proposal consisted of a staged development, starting with a three-horizontal-well pilot project worth \$ 30 million. The companies successfully drilled two horizontal wells which are delivering relatively sustained gas rates. That is to say, the Apollonia project has opened new avenues for the country within unconventional gas exploration and production.

## NUMBER OF THE MONTH

Egypt's LNG Exports Increase  
in Q3 2021 (YoY)



Egypt's liquefied natural gas (LNG) exports rose enormously in Q3 2021, reaching **1** million tons (mmt), which was an increase by **900%** compared to the **0.1** mmt in Q3 2020. The LNG exports slightly declined by **28.6%** compared to Q2 2021, according to Organization of Arab Petroleum Exporting Countries (OAPEC). Egypt is ranked at the **13<sup>th</sup>** position among OAPEC countries.

It is worth noting that, Egypt's LNG exports during the first nine months in **2021** recorded **4.3** mmt, increasing by **856%**, compared to **0.45** mmt during the same period in **2020**. Such a massive increase is due to the increase in the number of passing LNG cargoes. It should be noted that OAPEC has announced that Egypt had topped the list of the most growing Arab exporters of LNG during Q1 2021.





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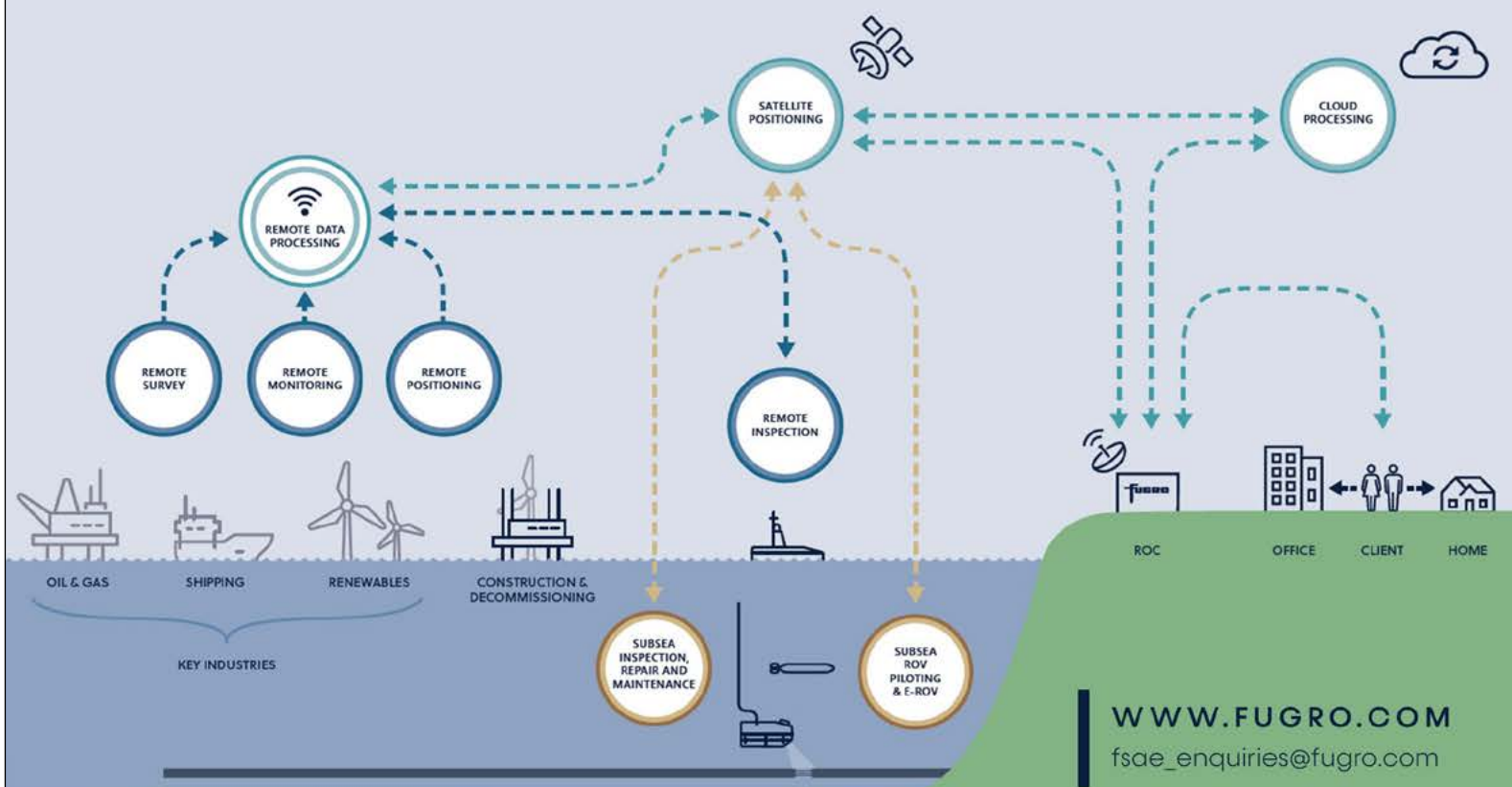
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## PETROLEUM PROJECT

## EL MOLLA, MADBOULY REVIEW PETROLEUM PROJECTS UPDATES

The Minister of Petroleum and Mineral Resources Tarek El Molla showcased the latest updates regarding the implementation of several petroleum projects during his meeting with Prime Minister Mostafa Madbouly.

El Molla updated the Prime Minister on a number of projects under implementation, including the Midor refinery which aims to maximize the production of petroleum products by increasing current refining capacity from 100,000 to 160,000 barrels per day (bbl/d). This will be done by adding new five units and expanding some of the existing units.

Regarding the Red Sea Petrochemical Complex, El Molla explained the general plan for the project's units and the implementation situation during the last period, including an air distillation complex.

In addition, the minister discussed the latest updates of the diesel complex of Assiut National



Oil Processing Company (ANOPC) and the Asphalt Production Unit of Suez Oil Processing Company (SOPC), which is completed by 99%, noting that its trial operation will start in November.

Moreover, the meeting discussed the latest updates of using compressed natural gas (CNG) as a fuel project and the establishment of natural gas stations for cars. El Molla stated that the ministry plans to operate 1000 stations.

## REGIONAL ENERGY HUB

## WORLD BANK SUPPORTS EGYPT'S PUSH TO BE REGIONAL ENERGY HUB

In a meeting with two delegations from the World Bank, Minister of Petroleum and Mineral Resources Tarek El Molla stated that the World Bank's participation in the East Mediterranean Gas Forum (EMGF) as an observer is instrumental in pushing Egypt towards being a regional hub for energy.

During the meeting, he further elaborated that the World Bank is a strategic partner for Egypt's petroleum sector and has contributed to achieving many success stories over the past years.

The meeting addressed the executive procedures for delivering Egyptian natural gas to Lebanon and the EMGF's work programs. In addition, the global efforts to accelerate energy transition and reduce emissions were also discussed. El Molla highlighted the national projects to expand the use of natural gas, referring to Egypt's full commitment to all international agreements aimed at preserving the environment.

He also noted that the bilateral meetings which he held on the sidelines of his participation at the UN Climate Change Conference 2021 (COP 26) in Glasgow, Scotland, discussed Egypt's participation in the American initiative to reach zero emissions as well as its leading role in the eastern Mediterranean region.

For their part, World Bank officials confirmed their interest in following up on Egypt's achievements



in the areas of digital transformation, energy transition and emissions reduction. They added that Egypt's selection as a nominee to host the UN Climate Change Conference 2022 (COP 27) is a strong indication of the global community's appreciation of the country's efforts to preserve the environment.

It should be noted that the first delegation, included Merza Hasan, Dean of the Board of Executive Directors and Executive Director of the World Bank, Rajui El-Etreby, Alternate Executive Director of Egypt at the World Bank Group. The second delegation included Dr. Paul Nomba, Regional Director of the World Bank's Infrastructure department in the Middle East and North Africa region, and Marina Weiss, World Bank country director for Egypt, Yemen, and Djibouti, in the presence of Osama Mubarez, Undersecretary of the Ministry of the Technical Office.

## NATIONAL GAS GRID

## EGYPT CONNECTS 12.6 M HOUSEHOLDS TO NATIONAL GAS GRID

A regular meeting chaired by Minister of Petroleum and Mineral Resources Tarek El Molla indicated the landmark success of Egypt's national project to deliver natural gas to households, which has reached 12.6 million housing units, 50% of which were connected to the national gas grid during the past seven years.

This comes in light of the high annual delivery rates, which amount to 1.2 million housing units and presidential and governmental support for this project.

El Molla indicated that the current fiscal year and the coming years will witness a qualitative leap in this activity through the planned rates of the national project for delivering natural gas to households and the rates added through the distinguished presidential initiative, Decent Life ('Haya Karima').

The minister further reviewed the current situation to connect the initiative's 1,436 villages that are currently being developed, as gas delivery to 85 villages has already been completed and gas delivery procedures are underway to 241 new villages.

## PM WITNESSES OPERATION OF NATURAL GAS CONNECTION PROJECT IN KHARGA

During his visit to the New Valley governorate, Madbouly witnessed the operation of the first phase of the Household Natural Gas Connection Project in Kharga, in the presence of senior officials.

This project came in line with the directives of President Abdel Fattah El Sisi to expand the delivery of natural gas to homes across the whole country, El Molla said.

Minister of Petroleum and Mineral Resources Tarek El Molla further elaborated that the project is implemented through the new technology of Mobile CNG. This technology has for the first time been introduced in Egypt, the Middle East and Africa as a whole.

The first phase of the project includes delivering natural gas to 14,000 families, 120 commercial facilities, and 34 bakeries, in addition to a refueling station. There will be two other phases, El Molla noted, stressing that the second phase will include connecting 6000 families and 25 bakeries to natural gas. The third phase aims at delivering gas to 700 families in the villages of Al-Muneera and Bulaq.

The governor of The New Valley confirmed that the natural gas project is part of the cooperation protocol signed between the Ministry of Petroleum and Mineral Resources, the New Valley Governorate and TAQA Arabia in 2020.

The Executive Chairman of TAQA Arabia Khaled Abu Bakr stated that this huge step comes in conjunction with the efforts and policies of Egypt's government to expand the use of natural gas to develop urban areas as well as establish new cities and industrial areas.

## AGREEMENTS

## PETROMAINT SIGNS CONTRACTS WITH NOCS WORTH EGP 390 MILLION IN TOTAL

Alexandria Petroleum Maintenance Company (Petromaint)'s Chairman Ahmed Fouad signed a EGP 300 million technical services contract with Alexandria Petroleum Company and a separate EGP 90 million contract with El Wastani Petroleum Company.

The one-year technical services contract was signed by Alexandria Petroleum Company's Chairman Mohamed Sobhi at its headquarters in Alexandria and in the presence of Petromaint's Chairman. According to the agreement, Petromaint will provide technical services including maintenance and new projects in

mechanical, civil, and electrical works, automatic control, and information technology.

Petromaint's EGP 90 million contract with El Wastani Petroleum Company, which was signed by Chairman Hazem Eid, will involve the development and modernization of firefighting, alarm, and gas detection systems. In addition, Petromaint will also ensure that the fire extinguishing mechanisms, warning systems, and gas detection systems for El Wastani Petroleum Company are meeting the international specifications, codes, and requirements of the Egyptian Civil Protection Authority.



## COOPERATION

## EGYPT, FRANCE HOLD IMPORTANT OIL, GAS TALKS

Minister of Petroleum and Mineral Resources Tarek El Molla met with French Ambassador to Egypt Marc Baréty to discuss joint cooperation in the oil and gas sector.

El Molla congratulated the French ambassador on assuming his new duties in Cairo, pointing out that the relations between Egypt and France are long, solid, and have witnessed great development and remarkable momentum in recent years. El Molla added that this reflects the distinguished relations between Presidents Abdel Fattah El Sisi and French President Emmanuel Macron, as well as their keenness to strengthen joint ties and cooperation between the two countries.

The minister further highlighted the success of Egyptian Prime Minister Mostafa Madbouly's Paris visit, which reflected the common interest in consolidating the Egyptian-French partnership in all fields and enhancing joint investment between the two sides.

El-Molla and Baréty reviewed the current cooperation situation with a number of French companies to implement new projects in the



Egyptian oil and gas sector. The discussion highlighted the manufacturing licenses for the Red Sea Petrochemical Complex, the largest petrochemical project to be established in Egypt and Africa, which is operated by the French engineering leader, Axens.

The meeting further reviewed areas of cooperation with other French companies, led by the French energy giant Total Energies, which was keen to diversify its investments in Egypt. This did not only include areas of fuel distribution and circulation, but also involves the search for natural gas in new and promising areas in the Mediterranean.

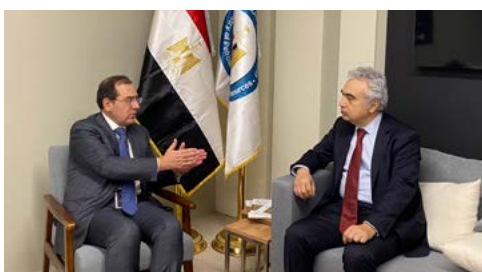
## EL MOLLA MEETS EU ENERGY COMMISSIONER

Minister of Petroleum and Mineral Resources Tarek El Molla, met with the European Union (EU)'s Commissioner for Energy Kadri Simson, on the sidelines of the UN Climate Change Conference (COP26), held in Glasgow, Scotland.

The two energy leaders discussed cooperation and coordination between Egypt and the EU in the field of transporting and exporting natural gas to Europe within the framework of the East Mediterranean Gas Forum (EMGF), and through the Egyptian liquefaction and gas export plants on the Mediterranean coast.

The meeting further reviewed ways of cooperation with the EU to support Egypt's hosting of the upcoming COP27 climate summit in Sharm El-Sheikh in 2022, within the framework of working to make this event a success.

During the meeting, Egypt's role in the eastern Mediterranean region as a major supporter for the optimal exploitation of natural gas resources was discussed. Emphasis was placed on the fact that Egypt's influence is significant in bringing prosperity to the people of the region and securing gas supplies to the European market.



Moreover, the meeting pointed out that Egypt's unique infrastructure, which includes liquefaction and natural gas export factories on the Mediterranean coast, is an essential pillar in promoting plans to transfer natural gas to Europe.

The EU's support for the EMFG since its first steps reflects the distinguished cooperation relations with Egypt, which launched the initiative to establish and host the forum in Cairo, El Molla highlighted. He also stressed the importance of cooperation with the European Union, especially since the European market is a main consumer of natural gas produced from the fields of the East Mediterranean.

## EGYPT, US HOLD BILATERAL ENERGY TALKS AT COP26

Minister of Petroleum and Mineral Resources Tarek El Molla held bilateral talks with US Secretary of Energy Jennifer Granholm on the sidelines of his participation in the activities of the UN Climate Change Conference (COP26) in Glasgow, Scotland.

During the meeting, the two officials discussed the current aspects of cooperation between Egypt and the US in the field of energy. Additionally, the meeting reviewed the developments of cooperation in the East Mediterranean Gas Forum (EMGF), in which the US participates as an observer.

Moreover, they discussed the possibility of the two countries working together through the joint strategic dialogue initiative in the field of energy,

as well as through the Net Zero World Initiative, which was recently launched by the US with Egyptian participation, in a way that contributes to assisting countries technically and financially in the field of energy transformation and the use of clean fuels to reduce emissions.

During the meeting, El-Molla pointed out that the strong relationship between Egypt and the US is based on solid foundations and a significant number of objectives that both nations have in common. He noted that bilateral cooperation in the field of energy has witnessed many significant developments, contributing to many achievements in this regard.

## EVENTS

## EL MOLLA INAUGURATES EGYPTIAN PAVILION AT ADIPEC

Minister of Petroleum and Mineral Resources Tarek El Molla inaugurated the Egyptian pavilion at ADIPEC 2021, which showcased the achievements and the investment attractions of Egypt's oil and gas industry.

During the exhibition, the pavilion displayed an attractive overview of the various activities Egyptian petroleum companies are involved in and their successful record in implementing projects inside and outside Egypt.

The minister commended the representatives of the oil and gas sector companies in the Egyptian pavilion for their efforts, pointing out that this huge event is a real opportunity to promote Egypt's image and the Egyptian petroleum industry on a global scale.

## EL MOLLA PARTICIPATES IN ADIPEC 2021 OPENING

Minister of Petroleum and Mineral Resources Tarek El Molla participated in the opening of ADIPEC 2021, one of the largest events for the global energy industry, which is held in the United Arab Emirates (UAE) from 15 to 18 November 2021.

The minister was a keynote speaker in the opening session of the conference entitled "New Market Dynamics in a Changing Energy World," which included other speakers, such as UAE Minister of Industry and Advanced Technology and ADNOC CEO Sultan Al Jaber, UAE Minister of Energy Suhail Mohamed Al Mazrouei, Saudi's Minister of Energy Abdulaziz bin Salman and others.

El Molla's speech tackled how Egypt became one of the most important LNG exporters during the first quarter of the current year. The production of LNG increased to 1 million tons during this period. The minister attributed the success to the discovery of the giant Zohr field and other major gas fields in the Mediterranean. He also stressed on Egypt's commitment and readiness to cooperate and work jointly with other countries to deliver on energy transition, highlighting its hosting of the upcoming COP27 climate summit in Sharm El-Sheikh.

It should be noted that the petroleum sector participates in the exhibition through the Egyptian pavilion, which includes a number of oil companies. The pavilion showcases the potential investment opportunities in the oil and gas industry as well as the capability of Egyptian companies to expand exploration activities outside of Egypt.

## EL MOLLA TAKES PART IN ADIPEC AWARDS CEREMONY

As a member of the High-Level Jury Panel, Minister of Petroleum and Mineral Resources Tarek El Molla has participated in the delivery of the ADIPEC conference 2021 awards.

It added that El Molla has delivered the Excellence in Remote Operations Award which was granted to Saudi Arabia's Aramco this year.

According to the statement, the awards are given every year to honor the initiatives and efforts of the companies in innovations, ideas, digitalization, operational excellence and efficiency and social responsibility. It also recognizes the significant achievements of individuals in leading energy transition and meeting the urgent demand for sustainable energy.

The High-Level Jury includes the Minister of Energy and Infrastructure of UAE, Suhail Al Mazrouei; the CEO of Baker Hughes, Lorenzo Simonelli; the CEO of Oil and Gas Climate Initiative (OGCI), Pratima Rangarajan; the CEO of INPEX Corporation, Takayuki Ueda; the CEO of Occidental Petroleum, Vicki Hollub; the Chief Economist and Head of Research at the Gulf Research Center, John Sfakianakis; and the President and Founder of Eurasia Group, Ian Bremmer.

## ENI

## ENI ANNOUNCES 3 NEW DISCOVERIES IN EGYPT'S WESTERN DESERT

The Egyptian Ministry of Petroleum and Mineral Resources announced that Italy's energy giant Eni has discovered new oil and gas resources in the Meleiha and South West Meleiha concessions, in the Western Desert of Egypt.

"The discoveries in the Meleiha development lease were achieved through the Jasmine W-1X and MWD-21 wells, while in South West Meleiha exploration concession the discovery was made through SWM-4X well, located 35 km south from the Meleiha oil center," Eni announced.

With regards to the Jasmine W-1X well, it encountered 113 feet of net hydrocarbon pay in the Khatatba formation's Jurassic sandstones. Moreover, the production test indicated a promising production rate of 2,000 barrels per day (bbl/d) of light oil (49°API) and 7 million standard cubic feet per day (mmscf/d) of associated gas. With a stabilized production rate of 2,500 bbl/d, Jasmine MWD-21 well encountered 51 feet of net oil column in Cretaceous sandstones of the Alam El Bueib formation.

Turning to South West Meleiha, the SWM-4X well encountered 36 feet of net oil sand in the Bahariya formation's Cretaceous sandstones. The production test indicated an initial rate of 1,800 bbl/d with 0.3 mmscf/d.

According to the company's press release, the new discoveries should add more than 6,000 barrels of equivalent oil per day (boe/d) to its gross production.



## NPCC

## EGYPT'S PETROJET, UAE'S NPCC SIGN STRATEGIC MOU AT ADIPEC

Egypt's Petroleum Projects and Technical Consultations Company (PETROJET) signed a memorandum of understanding (MoU) with the National Petroleum Construction Company (NPCC), a subsidiary of the UAE National Marine Dredging Company (NMDC).

Witnessed by Minister of Petroleum and Mineral Resources Tarek El Molla, the MoU signing took

place on the sidelines of his participation in the activities of the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC 2021).

The MoU aims to activate cooperation between the two sides in the activities of the oil and gas industry and promote partnership in the implementation of major projects, whether in Egypt or the UAE. This is especially important since

the two companies enjoy modern capabilities and equipment, advanced technologies and technical cadres trained at the highest level that enable them to gain the confidence of international oil and energy companies in executing their major projects.



## UOG

## UOG ANNOUNCES PRODUCTION COMMENCEMENT AT ASX-1X WELL

United Oil & Gas PLC (UOG) announced that the ASX-1X well has started production from the AR-C reservoir with 870 barrels of oil per day (bbl/d) initial gross rates, which was achieved on a 64/64 choke.

The production came in three weeks from announcing the initial well results.

The ASX-1X exploration well, which reached a total depth of 4,272 meters, was ahead of schedule while still being under budget.

The well encountered at least 10 meters of total combined net pay across several reservoir intervals.

"The Commercial discovery at ASX-1X well and the fast track to production will enhance revenue and further increase the proven reserves on the license," Brian Larkin, UOG Chief Executive, stated.



## UOG SPUDS FINAL DEVELOPMENT WELL OF 2021 DRILLING PROGRAM IN ABU SENNAN

United Oil & Gas PLC (UOG) announced the spudding of the Al Jahraa-13 development ("AJ-13") well in the Abu Sennan Licence, onshore Egypt.

The AJ-13 well is the fifth and final well in the Abu Sennan 2021 drilling program. Operators of the

Abu Sennan Licence, Kuwait Energy Egypt, have commenced drilling the well, and the process will take approximately 65 days to complete.

The well, which is a follow-up to the successful Al Jahraa-8 well, will target the Upper and Lower Bahariya reservoirs in the Al Jahraa Field.

Furthermore, the well, as Chief Executive Officer Brian Larkin noted, can be quickly be brought into production, thus, adding immediate cash flow to the company.

## SCHLUMBERGER

## SCHLUMBERGER, ENAP CELEBRATE SIGNING DIGITAL INTEGRATION MOU

ENAP and Schlumberger signed a memorandum of understanding (MoU) for mutual cooperation between the two companies in the oil and gas sector, seeking to boost ENAP business through new blocks in Egypt across integrated digitally enabled solutions.

As a Chilean state company specialized in exploration and production (E&P), ENAP has aspirations to develop/manage assets in Egypt's oil and gas industry. The statement also added that ENAP is seeking to double the current production baseline.

The MoU was signed by Sherif Bayoumy, Managing Director, Egypt & East Mediterranean GeoUnit, Schlumberger and Denisse Abudinén Butto, CEO ENAP Sipetrol and General Manager ENAP Sipetrol Egypt branch and witnessed by Lyndsey Lomas, VP Digital Subsurface Solutions – MENA, Schlumberger.



## TGS, SCHLUMBERGER TO CONDUCT NEW 3D MULTI-CLIENT SEISMIC SURVEY IN EGYPTIAN RED SEA

TGS, in partnership with Schlumberger, revealed news about its new 3D seismic survey in the Red Sea, Egypt.

The project will involve approximately 6,800 square kilometers. It will be acquired with long offsets and processed using a Pre-Stack Depth

Migration (PSDM) workflow to enable sub salt imaging. The final products will be expected by Q4 2022.

It is worth noting that both companies have a prolonged commitment with the Egypt Ministry of Petroleum and South Valley Egyptian Petroleum

Holding Company (GANOPE) to focus on the potential of Egypt's Red Sea. GANOPE plays a crucial role in managing Egypt's hydrocarbon resource potential under latitude line 28° by acquiring and processing seismic data.





**25 years of experience in primary and remedial cementing services across the Middle East, North Africa & Asia.**

### **Solutions:**

- Cementing equipment with complete automated density control capabilities
- Large volume batch mixers allowing larger volume of slurries to be mixed and pumped at homogeneous density
- Customized cement systems for specific applications (gas migration, ultra-light weight, flexible cement, HTHP slurries & self-healing cement)
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# PIONEERING INNOVATION

## AN INTERVIEW WITH **AMR ABOU EITA**

ExxonMobil Egypt's Chairman  
& Managing Director

**ExxonMobil**



**W**ith its long history of contributing to Egypt's oil and gas industry, ExxonMobil Egypt has been a leading figure in innovation and an important model for understanding how multinational companies in the private sector can be the driving force for the greater good. Our mission to gain a deeper understanding of ExxonMobil's role in Egypt and around the world led us to have an exclusive interview with ExxonMobil Egypt Chairman and Managing Director Amr Abou Eita. During our interview, we will discuss ExxonMobil's role in meeting Egypt's energy needs and supporting various initiatives that will benefit the country as a whole.

### **ExxonMobil has been working in Egypt for almost 120 years. How would you describe the company's journey in Egypt throughout the past years?**

We are proud of our longstanding history of successful partnership in Egypt's growth, dating back to 1902 when kerosene was the primary product being supplied. Ever since, we sustained a proven track record in meeting the society's evolving demand for reliable energy. Our commitment remains to continuously provide high-quality petroleum products and lubrication solutions, around the clock to millions of our valuable customers.

We deploy the most advanced technology with the highest operational standards through our 2 state-of-the-art lubricants blending plants and 4 fuel terminals.

Our growing network of more than 350 Mobil service stations and 200 Mobil 1 and Mobil Auto-care centers across the country supplies motorists with their daily needs. Moreover, we export our premium Mobil products to more than 40 countries around the world, including the US, Asia, Europe, Africa and Middle East; as well as supplying the aviation sector.

Additionally, ExxonMobil Egypt takes pride in being a pioneer in introducing the concept of service stations convenience stores to the Egyptian market; under the well-known brand name of "On the Run" which has proven year after year to be a very successful business model. Today, ExxonMobil Egypt's convenience retail network has grown to 28 branches of "On the Run" and 16 branches of "The Way to Go" in Cairo and Alexandria, offering quality products in a clean and reliable environment 24/7 to meet consumer needs.

Moreover, ExxonMobil Egypt has been assuming a leading role in supporting the community over the years through initiatives focused on education, capacity building, youth development, and women's economic empowerment.

We have been proudly cooperating with community partners in implementing sustainable and impactful initiatives across Egypt, including Save the Children, Injaz Egypt, Business Women of Egypt 21, Alexandria Business Association, Misr El-Kheir, Enactus, MECA student initiative, Educate Me, Alwan wa Awtar and many more.

ExxonMobil's success in Egypt is built on a strong foundation of business principles, core values, and a deeply rooted culture of integrity led by our world-class workforce. Over the years, ExxonMobil Egypt created more than 10,000 direct and indirect jobs nationwide.

**“EXXONMOBIL EGYPT HAS BEEN ASSUMING A LEADING ROLE IN SUPPORTING THE COMMUNITY OVER THE YEARS THROUGH INITIATIVES FOCUSED ON EDUCATION, CAPACITY BUILDING, YOUTH DEVELOPMENT, AND WOMEN'S ECONOMIC EMPOWERMENT.”**



## How does ExxonMobil through its partnership with Egyptian companies support the country's Compressed Natural Gas (CNG) strategy?

ExxonMobil Egypt continues to proactively seek and explore new promising opportunities in cooperation with the government. Building on the CNG national strategy, ExxonMobil Egypt signed earlier this year two cooperation protocols with GASTEC and CarGas, under the auspices of H.E. Tarek El Molla - Minister of Petroleum and Mineral Resources. The objective is to avail Compressed Natural Gas (CNG) at a number of Mobil stations nationwide, aiming to meet customers' evolving demand.

## How did ExxonMobil help the Egyptian community during the Covid-19 crisis?

Stemming from our firm commitment to the community, ExxonMobil has joined forces with other O&G companies to plan and implement the Eid Wahda ("One Hand") initiative in response to the pandemic. Launched under the patronage of H.E. Tarek El Molla - Minister of Petroleum and Mineral Resources, the aim of the initiative was to support the Egyptian medical sector, enabling Misr El Kheir Foundation (MEK) to purchase required medical supplies and materials for the public hospitals. "Eid Wahda" was a solid demonstration of the power of working together as one team in support of our Egyptian community during hardships and challenging times.

Another initiative undertaken by ExxonMobil Egypt was the launch of a Mobil branded COVID19 awareness campaign utilizing haulers' trucks. 'Messages for COVID-19 precautionary measures were visible on the trucks as they travelled across Egypt's streets, delivering packed products to our customers.

With respect to the health sector, we strive to provide support whenever possible. For instance, we donated a number of unused beds to university hospitals after the pandemic, including Demerdash, Qasr el Eini, Zahraa and Banha through the Egyptian cure bank, who additionally coordinated in previous years the donation of wheel chairs to various public hospitals and an electrical generator installed in the dialysis unit of Qena Public Hospital.

“WE TRULY VALUE OUR COLLABORATION WITH THE EGYPTIAN GOVERNMENT AND OUR OBJECTIVE IS TO IDENTIFY ANCHOR DEVELOPMENT OPPORTUNITIES TO CREATE A LONG-TERM UPSTREAM BUSINESS IN EGYPT”

## How was ExxonMobil Egypt able to keep operating during the COVID-19 crisis and its repercussions?

Upon the sudden outbreak of the pandemic, ExxonMobil Egypt's emergency preparedness and response procedure was triggered, resulting in the immediate activation of an Emergency Support Group (ESG). The ESG led the planning and ensured implementation of firm precautionary measures across all our facilities. We reduced occupancy at our facilities, introduced remote work policies, and a rotation work-schedule to ensure flawless operations.

Moreover, an employee wellness monitoring process was introduced, along with holding virtual employee awareness sessions. A Business Continuity Plan (BCP) was developed to ensure operational continuity, in case the situation at any of our facilities became more challenging.

Conducting regular senior management virtual sessions with the employees was instrumental in boosting morale during these challenging times. As part of the commitment to the wellbeing of our employees and their families, we organized an ExxonMobil Egypt COVID-19 vaccination event with the support of Egypt's Ministry of Health.

## What does it mean to ExxonMobil to be back to Egypt's upstream sector and what is the plan for exploration activities during the upcoming period?

The evident development and progress in Egypt's business environment at large and the successful modernization program of oil and gas sector in particular has encouraged ExxonMobil to evaluate potential opportunities for the upstream business in Egypt.

ExxonMobil has recently reaffirmed its vested interest in the upstream business in Egypt and we are actively evaluating and progressing our exploration programs. We truly value our collaboration with the Egyptian government and our objective is to identify anchor development opportunities to create a long-term upstream business in Egypt.

“EXXONMOBIL'S SUCCESS IN EGYPT IS BUILT ON A STRONG FOUNDATION OF BUSINESS PRINCIPLES, CORE VALUES, AND A DEEPLY ROOTED CULTURE OF INTEGRITY LED BY OUR WORLD-CLASS WORKFORCE.”

## What are the growth plans ExxonMobil has set in the Egyptian Market?

Egypt is an important market with more than 100 million consumers and growing. Consequently, we are planning to expand Mobil service stations network across the country and to launch additional "On the Run" and "Way to Go" convenience retail stores. In addition, we are committed to continuing assuming a leading role in introducing new and advanced lubrication solutions to satisfy society's evolving needs.

It is not only what we do but also how we do it. For example, our most recent investment in ExxonMobil Egypt's new head office, located in Cairo Festival City Business District in New Cairo is 'smart' in many ways. The enhanced collaborative work environment that we seek shall eventually boost creativity, strengthen our teamwork innovation and accordingly serve our strategic business objectives. We aspire to grow our business even further and evaluate potential business opportunities to guide our investment strategy.

## Can you share with us the company's most innovative initiatives, services, and products?

ExxonMobil Egypt's success and leadership self-manifest on the ground. For example, our recently launched "Mobilawy" is a leading, innovative lubes and fuels loyalty program that has taken consumers engagement to a new level. Mobilawy is being rapidly embraced by the Egyptian market, and we are proud of being pioneers on this front.

On the lubricants side, we have recently launched the flagship Mobil 1X1 5W-30 that meets the requirements of API SP, as well as Mobil Multigrade 20W-50 for dual engines (Gasoline and Natural Gas), in addition to Mobil Special 20W-50. Our products are designed to meet or exceed the requirements of the industry's toughest standards, achieve energy efficiency, and enhance the lifetime of the equipment.

Moreover, capitalizing on Egypt's Ministry of Petroleum modernization strategy to enhance the quality of fuels offered, ExxonMobil has proudly assumed a leading role in introducing branded fuels in Egypt, namely Mobil Super Plus 95. The first fuel in Egypt with advanced Mobil additives and a special technology designed to clean and protect engines, as well as grant enhanced performance and optimize fuel consumption. Today it has proven to be a game-changer in the market.

Being an innovative business and a pioneer market leader, ExxonMobil Egypt is delighted to collaborate with and support 'Trella', a start-up technology platform that connects shippers to carriers. The recently-forged alliance aims to technologically revolutionize the freight industry in Egypt and provide it with advanced solutions. This agreement happens to be the first direct investment for ExxonMobil into a tech start-up in the

MENA region. It aligns with the company's mission to induce a mega digital transformation and empower young striving innovators beyond the energy industry; not to mention supporting the entrepreneurship ecosystem.

### **Currently, there is a global trend towards low carbon energy transition, what are ExxonMobil's plans in this space?**

Few challenges are more important than meeting the world's growing demand for energy and products that support modern life, while reducing environmental impacts, including the risks of climate change. ExxonMobil seeks to be a leader in society's drive for a lower-carbon future. Earlier this year we announced our Low Carbon Solutions (LCS) business to commercialize the company's extensive low-carbon energy portfolio. This separate business unit is focusing on commercializing low-carbon opportunities, including carbon capture and storage (CCS), hydrogen and low-emission fuels, where we can leverage the skills, knowledge, and scale of ExxonMobil. It is initially focusing on CCS and is advancing plans for multiple new CCS opportunities around the world to enable large-scale emission reductions, provided there is sufficient policy and market support to do so.

Let me share a couple of examples from Europe. In Belgium, ExxonMobil is participating in a multi-stakeholder CCS project at the Port of Antwerp, Europe's largest integrated energy and chemical cluster. The project, known as Antwerp@C would collect CO2 emissions from industrial sources in the Port for storage, potentially capturing 8 million metric tons of CO2 annually by 2030, a 50 % reduction in the area's CO2 emissions. In France, Esso SAF has signed a Memorandum of Understanding (MOU) with Air Liquide, Borealis, TotalEnergies and Yara to initiate discussions with a view to implementing an industrial chain for capturing, transporting and storing CO2 emissions from industrial facilities in Normandy. The objective is to reduce industrial CO2 emissions in that region by up to 3 million metric tons per year by 2030.

### **During EGYPS, ExxonMobil promoted the Youth Empowerment Program to attract high school students to the oil and gas sector. How can the industry develop a new generation of young professionals?**

One of our core values at ExxonMobil Egypt is to support and encourage Egyptian youth as they prepare to embark on their career journey. This is the main reason why ExxonMobil Egypt has been the Headline Sponsor of EGYPS Youth Engagement & Young Professional Program "YEP" since its inception. We look forward to continue embracing this program as the Headline Sponsor for the 5<sup>th</sup> consecutive year in the upcoming EGYPS 2022.

Furthermore, the American Chamber of Commerce O&G committee, which I proudly chair, is working closely with Egypt's Ministry of Petroleum and Mineral Resources (MoP) on its Capacity Building Program. The

committee along with the American Chamber of Commerce's Career Development Center (AmCham - CDC) and MoP have designed a training program aiming to take the sector's middle management through a competency development journey covering several domains. The program includes topics such as change management, strategy, leadership, business modelling, as well as project presentation and assessment.

### **Finally, employees are the core engine for the major companies, how does ExxonMobil empower its employees especially women and youth?**

This is a topic that is very dear to my heart as a proud father of two young ladies.

In ExxonMobil Egypt, our most valuable asset is without a doubt our exceptional workforce, some of the best talents in Egypt and the world and they have always been instrumental to our success. We embrace talents with a long-term career focus, encourage a strong culture of performance, and recognize experience. Along the years, many of our Egyptian calibers served on expatriation assignments across the globe.

Moreover, our global talent management actively fosters a productive and sustainable work environment, diversity and inclusion, and practices empowerment in so many ways, with special attention to striving female calibers of whom we take great pride. For example, in 2019 the number of ExxonMobil's female executives increased by 69%. Additionally, our employee-led resource groups assist in delivering our talent management objectives, including a dedicated initiative for women empowerment called "Women's Interest Network" (WIN). WIN leverage work settings to maximize the professional advancement and personal growth of women and gives our female population a fair chance to realize their full potential and overcome any cultural barriers. WIN was launched in November 2000 in North America and since then it has expanded to over 30 chapters in ExxonMobil affiliates around the world, including ExxonMobil Egypt WIN Chapter that was adopted in 2018.

**“IN EXXONMOBIL EGYPT, OUR MOST VALUABLE ASSET IS WITHOUT A DOUBT OUR EXCEPTIONAL WORKFORCE, SOME OF THE BEST TALENTS IN EGYPT AND THE WORLD AND THEY HAVE ALWAYS BEEN INSTRUMENTAL TO OUR SUCCESS. WE EMBRACE TALENTS WITH A LONG-TERM CAREER FOCUS, ENCOURAGE A STRONG CULTURE OF PERFORMANCE, AND RECOGNIZE EXPERIENCE.”**



**“CAPITALIZING ON EGYPT'S MINISTRY OF PETROLEUM MODERNIZATION STRATEGY TO ENHANCE THE QUALITY OF FUELS OFFERED, EXXONMOBIL HAS PROUDLY ASSUMED A LEADING ROLE IN INTRODUCING BRANDED FUELS IN EGYPT, NAMELY MOBIL SUPER PLUS 95.”**



# Mobil™

## محتاجة موبيل

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التسجيل الضريبي ٧٩٨-٣٤٤-١٠٠



# LEADING THE PACK IN ENERGY REVOLUTION:

## An Interview with Wintershall Dea COO, Dawn Summers

**A**s the world geared up for Abu Dhabi International Petroleum Exhibition & Conference (ADIPEC) 2021, Egypt Oil & Gas Newspaper was eyeing the opportunity to speak with Dawn Summers, the Chief Operating Officer of Europe's leading gas and oil company, Wintershall Dea. Mohamed Fouad, the CEO of EOG met with Dawn to discuss her strategic and technical insights on the latest developments that shape the energy transition pathway.

### What are the strategies that you implement to keep growth plans going on?

Dawn Summers: We are transforming how we operate; the energy transition is gathering with pace, we need to be even fitter and stronger for our future: future-proofing our business so we are even more resilient.

What does that mean in practice? The first thing is we already merged two companies together a couple of years ago, which means that going into the difficult pandemic period, we were already set up to be resilient and robust. Secondly, we are intentionally a gas and oil company, not oil and gas. We have a gas weighted portfolio, which sets us up for the energy transition and to deliver on net zero goals. We believe that gas should be seen as a strong pillar, alongside electrification, to deliver on energy transition. And we are already delivering high margin low emission barrels.

Thirdly, we set a clear sustainability strategy: our Energy Transition Pathway. We set ourselves clear goals. We aim for net zero upstream activities by 2030 for Scope 1 and Scope 2, across our operated and non-operated activities on an equity share basis. That's important. It's not just our operated equity. It's across our portfolio. Not many companies are doing that, so we are quite proud of that approach. We've also committed to maintaining zero routine flaring and to reducing methane intensity below 0.1% by 2025, and we are making great progress!

From an overall carbon footprint perspective, we are investing in technologies like CCS and hydrogen to reduce our overall carbon footprint, including Scope 3. And here we are progressing multiple projects.

One thing that underpins all of this is building long term, trusted, reliable partnerships in our 13 countries. We have been in Egypt for more than 45 years now. We are a trusted and committed partner for Egypt and that will continue to be the case. We want to make sure that we continue to deliver on our targets, working with our partners and stakeholders who we have built very good relationships. I think that's extremely important. We welcome Egypt's focus on gas and also the increasing focus on energy transition. Together we have great opportunities to move forward.

So, that's where we are. A resilient company, with a gas-weighted portfolio, low-cost low-emission barrels, we have a clear Energy Transition Pathway, and it is all enabled by fantastic long-term partnerships.

### Definitely, one of your company's priorities for Vision 2030 is becoming a net zero company, but are there any other top priorities for the company in the future?

Summers: Alongside energy transition, two key priorities are safety and financial robustness. We want to absolutely make sure that we maintain the safety and well-being of our employees. That is a top priority, every day, and particularly as the pandemic continues. Moreover, we are continually future-proofing our business, and ensuring financial resilience.

### Corporate social responsibility is a part of Wintershall Dea's DNA. Can you expand on that?

Our license to operate builds on our core values: We care, we trust, we are brave, and we are open-minded.



**“ WE WELCOME EGYPT’S FOCUS ON GAS AND ALSO THE INCREASING FOCUS ON ENERGY TRANSITION. TOGETHER WE HAVE GREAT OPPORTUNITIES TO MOVE FORWARD. ”**

It’s important that we continue to invest in the communities in which we operate, and that we are a good neighbor.

We’ve got some great sustainable long-term projects that we continue to deliver on, and a great example of that is in Egypt. Near our Disouq operation, we have a shelter campaign, where we are supporting the construction of roofs for families and the community in need. And we have also set up a training program that will help build the skills necessary for the future, so that the families and their friends have the necessary skills going forward. It is very important for us.

#### **What is the value of enhancing HSE standards among employees?**

In my mind, it is simple. The fact that we all go home safely to our families and our loved ones at the end of every day is a top priority. So is that we continue to keep our hydrocarbon in the pipes and cause no harm to the environment. At the end of the day, safety is everybody’s responsibility. From the management board all the way to the frontline operations. Aiming to be the best at what we do every single day and that we apply the highest HSEQ standards to everything we do is our responsibility and our accountability. HSE culture and business performance, for me, go hand in hand.

#### **How can state-of-the-art digital technologies contribute to sustainability and performance improvement at the same time?**

In order to deliver on our performance and also to deliver new innovative solutions, we need digitalization and technology. Our industry is embarking on a transition. The world requires more energy, with fewer emissions, as the global population is growing. It is the biggest challenge we face. Imagination, innovation, collaboration, diversity of thought, new technologies and big data are all extremely important for us in order to deliver solutions for our future. And we are implementing solutions. Like a digital energy management system, at our Brage and Mittelplate platforms in Norway and Germany. That helps us to understand and optimize energy use, improving sustainability. Or our Exploration Advisory Tool, which is an AI-powered search tool. We have rolled that out in Egypt already and it is improving exploration performance.

Technology is important, but so is people. Our biggest asset. So, the magic comes from digital and innovative technologies along with having the right people with the right skillsets at the right time together in order to deliver solutions for the future.

#### **What are the main pillars of Wintershall Dea’s energy transition strategy?**

We have set really ambitious goals: net zero for Scope 1 and 2 by 2030, zero flaring by 2030, and 0.1% methane emissions intensity by 2025. Moreover,

investing in technology solutions for both our Scope 1 and 2, but also for our Scope 3 emissions. We have a four-pillar approach. The first pillar is about analyzing our portfolio across the globe, where we look at our carbon footprint and we decide whether we are going to buy new assets or whether we are going to sell assets, depending on the emissions intensity of that project or that operation.

The second pillar is about improving the efficiency of our existing operations and that’s about reducing our emissions and making our business more performance orientated. We have got a great example of that in Germany, where we now power our Mittelplate offshore operation completely from wind power. 100 percent renewable energy is supplying that offshore facility. Pillar three is focused on nature-based solutions and pillar four is what we mentioned earlier around technology investment. We are specifically investing in technologies like CCS and hydrogen, both of which have been talked about a lot in the past few months at the European Green Deal conference and recently at COP26. There is a clear consensus now that they are essential to deliver climate zero targets. So we’re investing a lot in that space, in projects like the Greensand

**“ IMAGINATION, INNOVATION, COLLABORATION, DIVERSITY OF THOUGHT, NEW TECHNOLOGIES AND BIG DATA ARE ALL EXTREMELY IMPORTANT FOR US IN ORDER TO DELIVER SOLUTIONS FOR OUR FUTURE. ”**

CCS consortium in Denmark, or our hydrogen partnership with VNG in Germany. We believe we’ll be part of the solution.

#### **Can you give a very defined one-statement quote about Wintershall Dea in Egypt?**

“A trusted and reliable partner of Egypt: now and for the future.”



**“ WE HAVE A GAS WEIGHTED PORTFOLIO, WHICH SETS US UP FOR THE ENERGY TRANSITION AND TO DELIVER ON NET ZERO GOALS. ”**

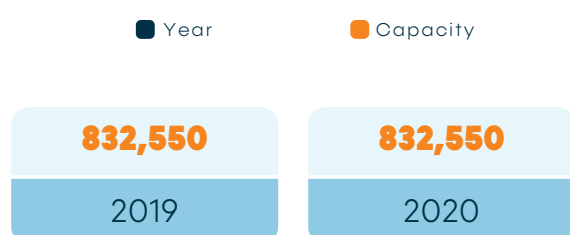


# VIEWING THE REFINING SECTOR IN EGYPT

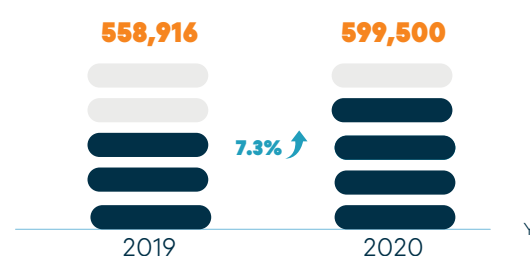
BY AMINA HUSSEIN, REHAM GAMAL, AND TASNEEM MADI

## PERFORMANCE OF EGYPT'S REFINING SECTOR

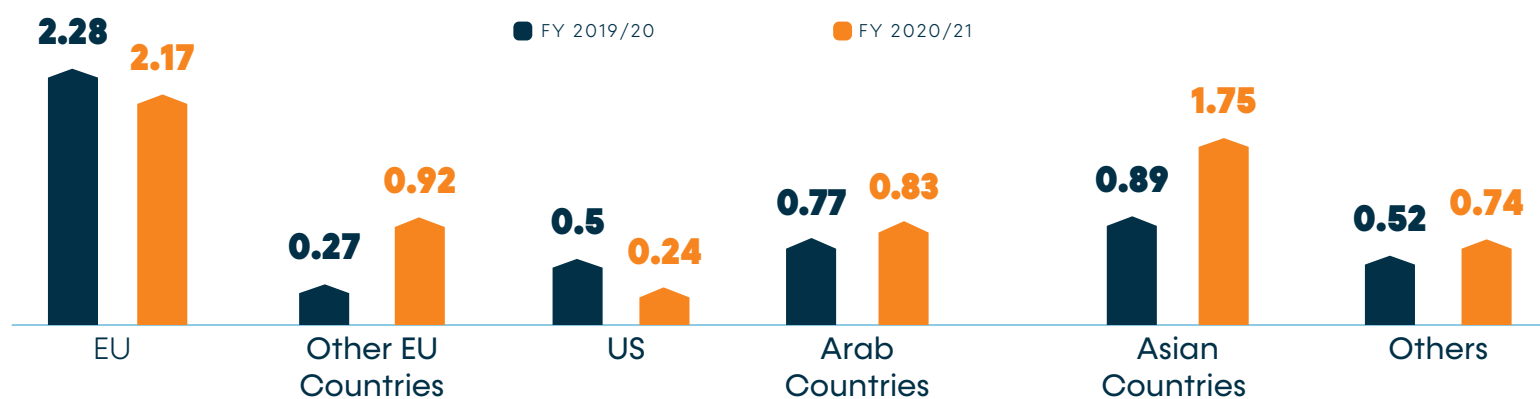
OIL REFINING CAPACITY (bbl/d)



PETROLEUM PRODUCTS OUTPUT (bbl/d)



EGYPTIAN PETROLEUM PRODUCTS EXPORTS BY REGION (\$ billion)\*



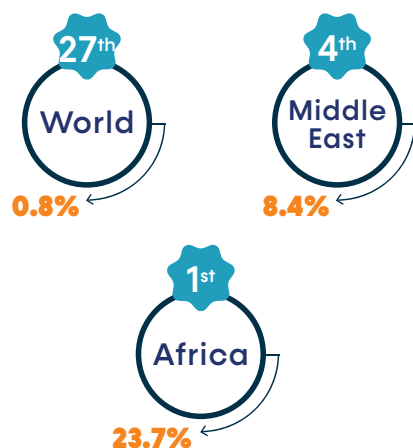
\*Data is available in FYs



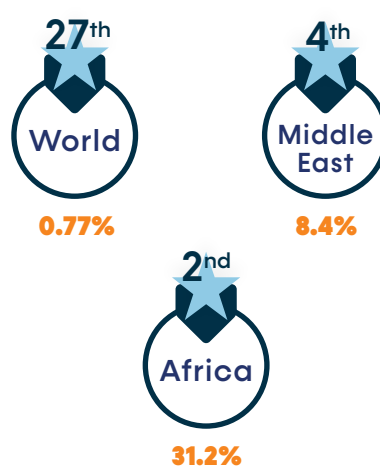
# EGYPT'S REFINING SECTOR IN THE GLOBAL SCENE

## 1. EGYPT'S RANKINGS AND SHARES IN 2020

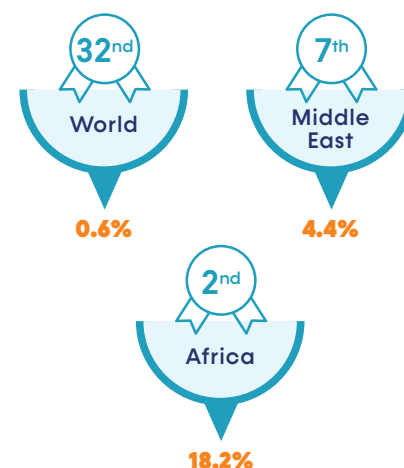
### OIL REFINING CAPACITY



### PETROLEUM PRODUCTS OUTPUT



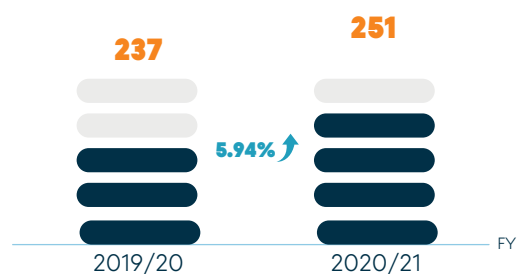
### PETROLEUM PRODUCTS EXPORTS



## ECONOMICS OF REFINING

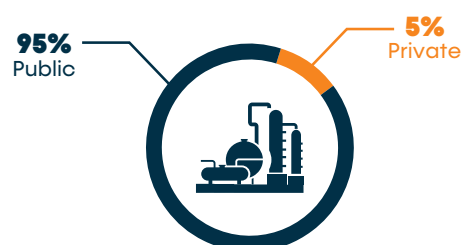
### 1. CONTRIBUTION TO GDP

#### PETROLEUM REFINING GDP (EGP billion)\*

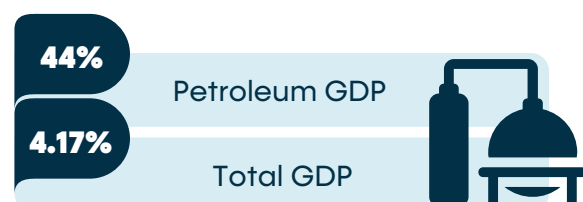


\*Data is available in FYs

#### PETROLEUM REFINING GDP PER SECTOR IN FY 2020/21

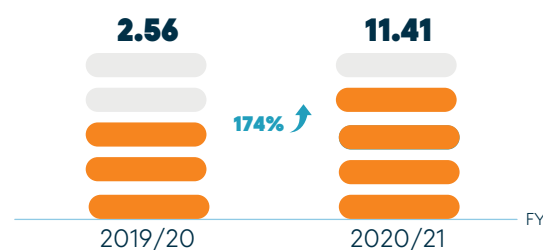


#### PETROLEUM REFINING SHARE IN GDP IN FY 2020/21 (%)



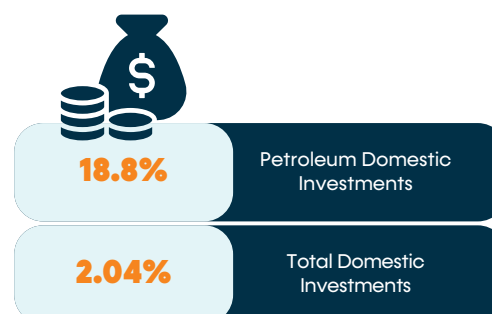
### 2. CONTRIBUTION TO DOMESTIC INVESTMENTS

#### PETROLEUM REFINING DOMESTIC INVESTMENTS (EGP billion)\*



\*Data is available in FYs

#### PETROLEUM REFINING SHARE IN DOMESTIC INVESTMENTS IN FY 2020/21



# DEVELOPMENT OF REFINING INDUSTRY

## 1. LATEST PROJECTS

### SIGNIFICANT REFINING PROJECTS DURING (2015-2022)\*

Project	Location/ Company	Products	Targeted Capacity (mmt/y)
MIDOR's Expansion	MIDOR	-	60% increase
High-octane Gasoline Production Unit	ASORC	High-octane Gasoline	0.8
Hydrocracking Complex	ERC	High-quality Products	4.7
Hydrocracking Complex	ANOPC	High-quality Products	2.5
Hydrocracking Complex	Red Sea Co	High-quality Products	Feed Capacity Fuel Oil: 2.5 Naphtha: 1
Rehabilitation of Coking Complex	SOPC	Fuel Oil	1.75
Asphalt 60/70 Production Unit	SOPC	Asphalt 60/70	0.4
High-octane Gasoline Production Project	ANRPC	High-octane Gasoline	0.7
Aromatics Extraction Units	APC	Oils Wax	0.01 - 0.016 0.001 - 0.002

\*Expected Completion Date for Hydrocracking Complex At Red Sea Co., & Asphalt 60/70 Production Unit



# HIGHLIGHTING THE SCZONE REFINING & PETROCHEMICALS COMPLEX

## 2. INVESTMENTS

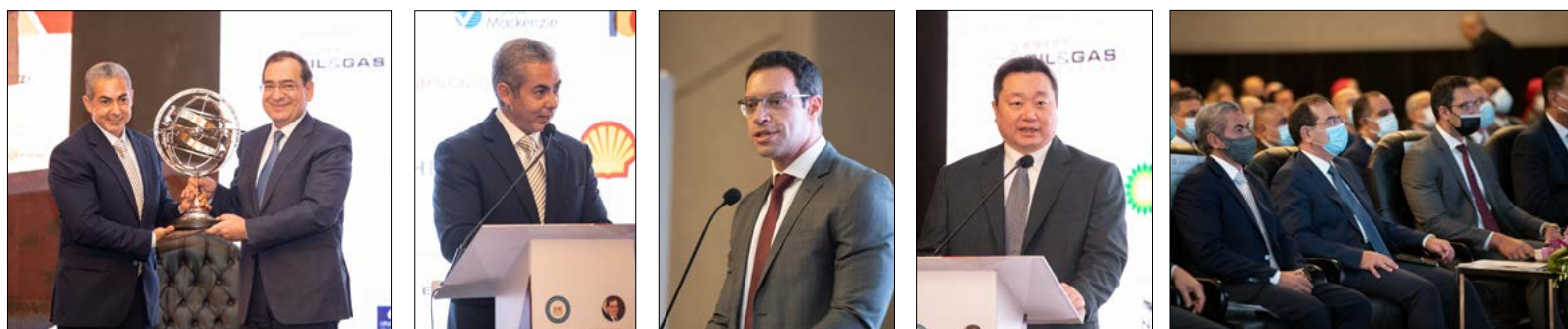
### INVESTMENTS DIRECTED TO MAIN REFINING PROJECTS DURING (2015-TO DATE) (\$ billion)



ERC	4.3
Hydrocracking Complex at ANOPC	2.9
Hydrocracking Complex and Production of Gasoline at Red Sea Co.	2.75
MIDOR	2.3
High-octane Gasoline Production Unit at ASORC	0.45
Revitalization of Coking Complex at SOPC	0.6
Aromatic Extraction Unit Project at APC	0.438
Asphalt 60/70 Production Unit at SOPC	0.064







## 4<sup>TH</sup> UPSTREAM TECHNICAL CONVENTION: UNLOCKING VALUE IN AN UNCERTAIN UPSTREAM ENVIRONMENT

Under the patronage of His Excellency Minister of Petroleum and Mineral Resources, Tarek El Molla, the 4<sup>th</sup> Upstream Technical Convention organized by Egypt Oil & Gas (EOG) kicked off to a vibrant start on October 31<sup>st</sup> at the Dusit Thani Lakeview Hotel and ended on November 2<sup>nd</sup> at the Triumph Luxury Hotel.

The convention was a rare chance for Egypt's oil and gas community in the aftermath of COVID-19 to engage in physical events, which included strategic panels, technical workshops, and sustainable development discussions. The event's aim was to encourage best practices for enhancing competitiveness and business models, as well as to highlight technologies for "unlocking value in the uncertain upstream environment".

EOG's CEO Mohamed Fouad started the event, offering due thanks to the Minister of Petroleum who graced the event with his presence. "Once again, we are gathered to celebrate the successes of our thriving industry, to share knowledge, whilst creating unrevealed opportunities for us all," Fouad said. "Your [Minister of Petroleum and Mineral Resources, Tarek El Molla] presence with us today affirms the importance of enhancing the Egyptian upstream environment."

Wintershall Dea Egypt's Senior Vice President & Managing Director Sameh Sabry and Apache's Vice President & Country Manager David Chi also had opening remarks, acknowledging the crucial role that the EOG Committee plays in the sector and the significance of this event. During the opening ceremony, Chi was announced as the new chairman for EOG's Committee.

## RECOGNIZING THE INDUSTRY'S PIONEERS



Following a series of inspirational speeches, the Convention also witnessed awards being given to several of the petroleum industry's notable companies, figures, and pioneers for their tireless work to make the sector succeed.

Wintershall Dea Egypt's Managing Director and Senior Vice President Sameh Sabry received an award and recognition for diligently serving as Egypt Oil and Gas Committee's Chairman during 2020/21.

Composite Pipelines (SCP) – Project". Petromaint and ZEITCO also won the same award for the "5 MMSCFD Flared Gas Recovery Economic and Environmental Impact – Project".

The Operational Excellence in Brownfield Award was given to Rashpetco and Kuwait Energy Egypt for the "Rosetta Solar Panel Project" and the "Rejuvenation of the 'Area A' Fields, Egypt: Challenges, Plan and Results Project".

Wintershall Dea Egypt's Senior Vice President & Managing Director Sameh Sabry and Apache's Vice President & Country Manager David Chi also had opening remarks, acknowledging the crucial role that the EOG Committee plays in the sector and the significance of this event. During the opening ceremony, Chi was announced as the new chairman for EOG's Committee.

In addition, the Outstanding and Impactful HSE Projects Award went to TransGlobe Energy and West Bakr for the "Zero Oil Spill by Using Spoolable





# SECRETS BEHIND THE SUCCESS:

## A GLIMPSE AT TAREK EL MOLLA'S LIFE JOURNEY

The Convention included with a live interview with H.E Egyptian Minister of Petroleum and Mineral Resources Tarek El Molla that delved deep into his life journey and past experiences. It was a rare chance to know more about his motivation, background, and career.

### Early Career Path

The interview took the minister many years back when he was dreaming of becoming an engineer and how he went against the trend among his generation who preferred civil engineering, not recognizing the potential of mechanical and petroleum engineering.

The Minister explained how he got to study mechanical engineering. "I am happy that I followed this career of mechanical engineering, where I think for those who are here with me will really confirm that mechanical engineering has got [a] wider spectrum and overseeing more of different engineering disciplines that are easy for us to get a common understanding to different other activities," El Molla pointed out.

The Minister then mentioned his first experience when he worked at Caltex, a subsidiary of Chevron, where he started as a junior engineer. "This was my first and last employer before joining the government. It was Caltex at the time, Chevron when they merged Texaco and Chevron," El Molla said about Caltex.

El Molla worked for Caltex for around 24 years, from January 1987 until October 2010, where he said he had "a very diverse, interesting, and successful learning [experience] and career through the jobs that I had within the company, with the different stages that I passed through, and with the different changes that happened globally, and to the company definitely," the Minister noted.

### Becoming Egypt's Minister of Petroleum & Mineral Resources

In the beginning, El Molla worked in the private sector, and then he recognized that he had the needed experience to benefit the public sector. "I did not know that I was going to join the government at that time, but I was saying that I think that it is the time to pay back my country," he said.

Despite spending all his years in the private sector in one company, El Molla said "I had this one career with a big company as Chevron. In my opinion, I think it is a blessing because it had given me all the experience and the exposure needed because of its diversity."

The Minister said that his experience in Caltex helped him when he became a minister. "Actually, in Chevron, we were operating from East of Suez till Australia. These were the countries where they were operating, and this had given me some good experience, in dealing with Africa, the Middle East and Asia," he pointed out. It also gave him the opportunity to interact with coworkers from other cultures. He was highly involved given overseas assignments in important companies for operations, such as Kenya, Singapore, and South Africa.

In October 2010, El Molla came back to join the public sector, and a few months later in January 2011, he joined the Egyptian General Petroleum Corporation (EGPC), during the time when Egypt needed his experience with the partners and IOCs. In September 2015, El Molla was appointed as the Minister of Petroleum.

El Molla recalled the challenges he faced as soon as he began his job as a minister, including the gasoline crisis and energy shortage at that time.



"For me being a minister at that time, the first priority was to ensure the supplies of products, and the security of products, whether it was natural gas or gasoline or diesel."

### Work/Life Balance

The Minister talked about his family, mentioning the two most important pieces of advice he remembers from his parents, which remain in his mind until today. The first was to "do good and do all the favors and the good things you can do for the people, without waiting for a reward." The other was what his mother always told him, which was to "be confident."

El Molla, who has been married for 27 years, mentioned the importance of maintaining a balance between work and personal life, because "we don't want to regret the time when we discover that our kids are grownups and we didn't enjoy the time [when] we see them younger." He stated that despite his responsibilities as a minister during the past few years, he made sure to spend time with each of them at night, and he agreed with them to have breakfast together on Friday, or sometimes to have late lunch or early dinner outing. He said that he organizes get-togethers with all of them once a year at least, especially during Eid Holidays.

### Youth and Women in Energy

The Minister of Petroleum talked about youth, and how he is taking youth as a priority for the oil and gas sector's development. "I believe in our youth and I believe in their skills and capabilities. What they only need is to be given the opportunity."

Therefore, he has been adopting programs to develop young professionals. "I felt in my position that it is part of my responsibility to develop our future leaders, so that's why, as part of our Modernization Program, I have created the first-ever Middle Management Program," El Molla pointed out. The Minister highlighted the importance of having a continuous mechanism, saying that training future leaders will ensure this continuity.

El Molla further stressed the importance of empowering women in the oil and gas sector. He pointed out the capabilities of women saying that "you can depend on them and rely on them and they have this capability of doing different jobs at different times." The Minister noted that "over the last five/six years, we have been able to demonstrate that empowering women has also given us good results."

The interview with H.E. Tarek El Molla presented his journey and success story and how it played a role in his success as a Minister of Petroleum. It further illustrated his keenness to lead the sector towards a prosperous future through empowering youth and ensuring gender equality.

# HOW CAN THE OIL AND GAS INDUSTRY CONTRIBUTE TO SUSTAINABLE DEVELOPMENT?



The Convention hosted a roundtable discussion titled “How the Oil and Gas Industry Can Contribute to Sustainable Development”, bringing together Minister of Petroleum and Mineral Resources Tarek El Molla and other industry leaders to discuss corporate social responsibility (CSR) and sustainable development (SD). It was moderated by Iman Hill, Executive Director at the International Association of Oil and Gas Producers (IOGP).

El Molla opened the discussion by stressing on the importance of cooperation and effective coordination between international oil companies (IOCs) and national oil companies (NOCs) when working on CSR and SD initiatives. He highlighted Egypt Oil and Gas CSR Committee's role in helping the sector generate a priority list that could be limited to a select-few unified and focused projects that will have a significant impact. “My dream is to reach the priority project that would go in alignment with Egypt's 2030 vision as well as the presidential initiatives, [...] such as ‘Hayah Karima’,” he said.

Osama Mobarez, Undersecretary for Technical Office at the Ministry of Petroleum and Mineral Resources, shed light on the driving mechanisms behind the CSR strategy. “In the past two months, we worked extensively on the CSR strategy, as directed from H.E [Minister Tarek El Molla],” Mobarez said. Echoing the ministry's desire for a unified CSR strategy, he pointed out that CSR efforts could be hampered by poor coordination and lack of societal alignment.

For her part, Denisse Abudinén, CEO, ENAP Sipetrol, General Manager for Egypt said “At ENAP Sipetrol we are totally committed to support the Corporate Social Responsibility and we are eager to support all initiatives lead by His Excellency Eng. Tarek El Molla.” She emphasized on making CSR a core value and business pillar for organizations, not just spending money.

Since CSR has been a subject of much debate, Sameh Sabry, Senior Vice President and Managing Director Egypt at Wintershall Dea aimed to dispel the misconceptions about the term. “I think it is our responsibility to increase awareness on what is CSR in the first place, because I personally believe that it is sometimes mistakenly thought of as a cheque for charity or just creating new jobs”, said Sabry. Based on this broader view of CSR, he said that programs should contribute to the overall well-being of the entire community.

Furthermore, Waleed Hamed, Chairman and Managing Director of Petrojet emphasized that “Our strategy support active participation in sustainable development projects in Egypt which are mostly under presidential initiatives and government.” He added that Petrojet's strategy focused on environmental protection and educational initiatives.

David Chi, Vice President and Country Manager at Apache Corporation, said “We need to look at sustainable development from a more holistic point of view: social, environmental and economical.” Chi insisted on the need for the sector to operate in an environmentally responsible manner, pointing out that it is also important to enhance business performance to generate the funds not only needed by the companies themselves, but for social and environmental activities.

From his side, Tameer Nasser, Director and General Manager Egypt, Sudan Baker Hughes, expressed his pleasure in discussing the CSR topic adding “Collectively investing the social and community sustainable projects will be positive for the industry and we are happy to join the efforts.”

Moreover, Salah El Din Riad, Q&HSE Chairman Assistant at EOCHEM, said “we are committed to always making a change in the neighboring communities where we work and these changes must [have] a positive impact from day one.” He elaborated that EOCHEM focuses on social investments, especially health, education empowerment, and training.

Moving forward, Khaled Abu Bakr, TAQA'S Executive Chairman, talked about the company's best CSR initiatives taken while developing Benban Solar Park in Aswan. “We decided that this is a wonderful opportunity to empower women.

So, we started to train and resource young lady engineers from Aswan Area,” said Abu Bakr.

For his part, Colby Fuser, Vice President Egypt and Libya at Halliburton, explained the key criteria for CSR project selection saying: “When companies like Halliburton look at who or where to put our focus for sustainable development, we focus on two things. First is how we can collaborate with our partners to make the biggest impact together in areas we work and second is what can we do that improves the communities our employees work in as well as supports internal teamwork.”

Demonstrating Shell's commitment to sustainability, the company's Country Chairman and Managing Director Khaled Kacem said that they aim to provide energy in a responsible manner, integrating both environmental and social considerations. “Sustainability is at the heart of everything that Shell does,” concluded Kacem.

With regards to CSR projects, Craig Robertson, Country Manager and Director at TransGlobe Energy Corporation, stressed on the importance of being aware of a community's needs within a certain area. “I am excited and very optimistic that between us all, we can come up with a blueprint of what sustainability looks like for CSR in our industry,” Robertson added.

Badria Khalfan, Chief HR officer at Dragon Oil, discussed the company's philosophy on sustainability in operations. Enjoying several years of success in making a social and economic development impact in Turkmenistan, Khalfan spoke about aspirations to do work in Egypt's healthcare and educational sectors. “In Egypt, we have our own CSR strategy, and soon we are going to submit a plan mainly in the health and education sector,” Khalfan said.

Kamel Al-Sawi, Kuwait Energy Egypt President, has referred to an idea that would help incorporate CSR into the organizational culture. He explained that the concession agreements should include an obligation for the companies to implement CSR codes. Reflecting on the importance of CSR, he said that “this is the most tangible thing that our society can see.”

According to Sherif Bayoumy, Managing Director of Egypt and East Mediterranean at Schlumberger, the new role of CSR revolves around re-empowering local communities. “Historically, or [by] legacy, the focus has been on the environmental, but now we are moving a little bit more towards the local community and we are fully aligned with the strategy that is coming out now from the Ministry.” Schlumberger has been actively organizing training programs for technicians and university students.

For his part, Nicolas Katcharov, Energean's Egypt Country Manager, struck the right balance between CSR and energy efficiency. To illustrate, energy efficiency can be used as a CSR tool to achieve sustainable development goals. “Energy efficiency, and, more generally, how the energy we produce is used by the final consumer, is an attention and developments in which the oil and gas industry must involve and become a leader. It's not anymore just an option,” Katcharov stated.

The roundtable also witnessed the participation of Tawfik Diab, Chairman of Chevron Petroleum Corporation and Mohamed Abdel Aziz, Chairman and CEO of Enppi.



# POST-COVID OPERATIONAL EFFICIENCY

With industry engagement as the event's core focus, the Convention hosted an interesting panel discussion about post-COVID operational efficiency.

Moderated by Apex International's President and COO Thomas Maher, this discussion witnessed the participation of Egyptian General Petroleum Corporation (EGPC) CEO Abed Ezz El Regal, Apache Corporation's Vice President and Country Manager David Chi, Chevron Petroleum Corporation CEO David Thomas, and Halliburton Egypt & Libya Vice President Colby Fuser.

## HSE and Addressing Supply Chain Difficulties

Starting with Ezz El Regal, Maher asked about how EGPC dealt with the outbreak of COVID-19. EGPC's CEO responded by saying that despite pandemic-related challenges, low oil prices were used to accumulate reserves and that business operations were kept running. He also pointed to digitalization plans that existed even before the pandemic. "In spite of the COVID, a very good revenue [was achieved] compared to what [it] was before," Ezz El Regal said. Later during the discussion when talking about health, safety, and environment (HSE), he affirmed the sector's commitment to maintaining best practices in HSE to meet the required international standards.

Being part of a company that has demonstrated excellence in HSE, Halliburton's Colby Fuser also discussed his company's contribution to HSE standards in Egypt, emphasizing that Halliburton is a company that leads by example. He also pointed to cooperation within the sector and that in the end, it is all about following the process. When Maher asked Fuser to discuss precautions that companies need to take for future supply chain challenges, he said that the solution lies in working with the local market. "One of the things that we have seen in the pandemic or post-Covid is switching to more local providers, whether they are local providers for chemicals or local providers for raw materials," Fuser said. He said that running a supply chain within Egypt is a very strong position to be in, adding that companies can cooperate to put standards in place for manufacturing chemical components locally.

Chevron's CEO David Thomas was also asked about how his company handled pandemic-related supply chain challenges. He said for his company, there were no difficulties from an equipment perspective, pointing to Chevron's close cooperation with the local market. Later on, Thomas also commented on Chevron's acquisition of Shell's assets in Egypt, highlighting that the real strategic drive for this was related



to the upside they saw in that portfolio. "A primary drive [for acquiring assets] is the fact that we see a lot of potential in the area whether through drilling or workover."

## The Pandemic's Key Lessons & Egypt's Potential

Apache's David Chi, recently selected as Egypt Oil & Gas Committee (EOG) Chairman, also shared his take on how 2020 affected the way his company operated and the pandemic's key lessons. He said that Apache focused on employee safety and implemented a remote work scheme. In addition, he highlighted the importance of being flexible to effectively cope with change, planning ahead, and financial health to endure future crises. When Maher asked Chi about opportunities for Egypt beyond the energy sector later on in the discussion, Chi said that COVID-19 will accelerate the way business works in the future, as it will be more digital and flexible.

He highlighted some of Egypt's advantages, including its geographical location, human resources, and potential to be the manufacturing powerhouse for the supply chain in the MENA region. "Egypt has a lot of qualified people. I think as a country, Egypt will continue to push for capacity building, which will enable a more productive workforce," Chi said.

# DIGITAL TRANSFORMATION & NEW TECHNOLOGY

The second panel witnessed the participation of four industry experts who discussed innovation and new technologies in the oil and gas sector. The session was moderated by Sameh Sabry, Senior Vice President and Managing Director Egypt at Wintershall Dea.

## EUG Success Stories

Speaking of digital transformation and new technologies, Egypt Upstream Gateway (EUG) is the first thing that springs to mind. Sabry initiated the discussion by asking EUG Project Manager Mohamed Radwan about the success story of the EUG. Firstly, Radwan said, "the EUG is one of the key outcomes of the modernization project and the upstream investment attraction team."

He added that the EUG team succeeded in populating the exploration and production (E&P) data acquired over the last century. Moreover, the importance of this platform lies in the fact that it is not only a data bank but also a portal that promotes upstream investments by driving technical value from the existing data. Realizing this, more than 31 international companies signed membership agreements. Radwan concluded his speech saying that Egyptian General Petroleum Corporation (EGPC), in partnership with Schlumberger, delivered the EUG in a record time.

Sherif Bayoumy, Managing Director Egypt and East – Mediterranean at Schlumberger, described the EUG as an investment done in the right place and at the right time. "Our aim from the EUG is not only having a national data library or consolidating of the legacy data over the last 80 years in Egypt. However, it is how we can utilize this data for the benefit of new investors," Bayoumy said. In order to achieve this aim, the platform will ensure that Egypt's subsurface data is kept evergreen.

## Technology as a Key Enabler for Climate Action

When asked about the new technologies and innovation, Wang Hao, CTO of Energy, North Africa Region at Huawei, tackled the topic from a rather interesting approach. He viewed data as an untapped asset, and Huawei's mission is to extract value from it. "Nowadays, getting the data is not a problem. The problem



is getting value from it and you need to be able to attract value. That's what we call digital revenue," Wang remarked.

For years, Huawei has been exploring new technologies that will leverage the wealth of data. As a result, it developed its cloud services and artificial intelligence (AI) platforms. Wang noted that they provided cloud stack to oil industry giants, such as China Petroleum and Chemical Corporation (Sinopec) and PetroChina Company.

During the panel, the active role of digitalization in combating climate change was also discussed. Tameer Nasser, Director and General Manager of Egypt and Sudan at Baker Hughes, agreed saying "Digital transformation is an integral part of climate change." Furthermore, he stated that Baker Hughes invests in technologies like Flare IQ. By employing it, the average combustion efficiency can be increased from 70% to 90%. Hence, digital solutions are a key enabler for climate action.

# A DAY OF SHARING KNOWLEDGE AND EXPERTISE

The second day of the convention held a series of technical workshops, offering insights on wide-ranging topics, such as safety, platform priorities, operational efficiency and asset management. Each workshop included four presentations delivered by industry experts.

## SAFETY & ENVIRONMENT

The first technical Session included four presentations on safety and environment management processes.

Ella Hilali, Risk Management Engineer at DNV, spoke about the defining principles of an inherently safer design. These principles, she noted, would eliminate the need for safety systems and procedures at later lifecycle phases.

Then, Mazen Al Omari, Marketing and Sales Director at Nesr, addressed a major environmental issue in a presentation entitled "Oilfield Produced Water Re-use for Drilling and Completion". Omari explained that processing the produced water could not only offset the industry's demand for freshwater but also empowers it as a water supplier.

## SETTING THE PLATFORM OF PRIORITIES

The second technical session that was launched on the second day of the 4<sup>th</sup> Upstream Technical Convention revolved around the theme of "setting the platform of priorities" in the oil and gas industry. The session witnessed four consecutive technical presentations.

The first presentation was introduced by Dragon Oil's Performance Lead & Senior Petroleum Engineer Eman Sayed Shahin. She talked about the success story of advanced reservoir management through classical reservoir modeling and real-time monitoring system integration. Sayed reviewed the Gulf of Suez Petroleum Company's (GUPCO) case study, which is a joint venture between Dragon Oil and the Egyptian General Petroleum Company (EGPC).

Moving forward, Mohamed Gaber, Processing Piping and Pipeline Design Engineer at Petrojet, made a presentation on "Flare Gas Recovery Multi-Approaches". Gaber remarked that 5% of Egypt's energy needs will be covered by capturing the flare gas. Hence, he proposed three methods to recover gas: Liquid- Ring Compressor (LRC), Multiphase Pumping (MPP) and C3 recovery.

The technical session ended with a success story when Radwa Taman, Senior PhD Chemical Engineer at Gulf of Suez Petroleum Company (GUPCO), delivered a presentation on GUPCO Risk Management Process- success story. Taman gave a detailed description of the company's risk management project, highlighting its major role in preventing major accidents, hydrocarbon leaks as well as decreasing the number of fatalities.

For the next presentation, El Hamra Oil Company's General Manager & Managing Director Mark A. Reis talked about the use of a screening model to manage the development of a production enhancement program at IPR Energy Company.

Meanwhile, American University in Cairo (AUC) Petroleum Engineering Professor Moustafa Oraby discussed the issue of reducing uncertainty in water saturation calculations in the oil and gas industry.

Moreover, EGPC's Operation Team Leader Safwat Ghazaly discussed approaches for unlocking tight gas reservoirs using long section horizontal wells.

## OPERATIONAL EXCELLENCE, COST EFFICIENCY, AND OPTIMIZATION

With a prominent group of the industry's leading minds ready to present their ideas, the Third Technical Session of the 4<sup>th</sup> Upstream Technical Convention kicked off, specifically focusing on operational excellence, cost efficiency, and optimization.

It is worthy of noting that the audience had the opportunity to be enlightened by experts from both Egypt and abroad. Speakers at this session were from companies including Schlumberger, 3M Oil and Gas Company, Weatherford, and Khalda Petroleum.

For those who always seeking to learn and grow in the industry, "Continuous Rod" presented by Don Connolly, Global Product Line Manager – Reciprocating Rod Lift, provided the audience with interesting industry-related insights. Contributing

his knowledge and expertise to the technical session, Mohamed Ibrahim, an Application Engineer from 3M Oil & Gas, also delivered a presentation entitled "A step Change Approach to Sand Control: Economically Unlocking Reserves with Downhole Ceramic Sand Screens in X field, Nile Delta, Egypt".

Moreover, known for its years of experience and notable accomplishments, the audience was happy to listen to Schlumberger's Coiled Tubing Technical Engineer Roshdy Shalaby, who delivered an informative presentation about the "Successful installation of thru-tubing gravel pack using real-time downhole measurements."

Mahmoud Salama from Khalda Petroleum also gave an eye-opening presentation titled "A More Efficient Way to Meter Gas Lift Wells".

## TRANSFORMING ASSET PERFORMANCE MANAGEMENT

The fourth technical session discussed the topic of transforming asset performance management. The first presentation entitled "Unleashing the Next Generation of Asset Performance Management (APM) Opportunities: Predictive and Perspective Analytics" was introduced by Enppi's Cost Control Specialist Marwa Ghareib. She explained the importance of APM to avoid unexpected equipment breakdowns. "APM with Predictive and Prescriptive Analytics will accelerate the digitalization of Oil & Gas sector and help refiners to not only remotely monitor asset health, but also improve asset reliability by providing early warning notification and diagnosis of equipment issues days, weeks or months before failure," Ghareib concluded.

The second presentation was entitled "Western Desert Brownfields Digitalization" presented by Agiba Petroleum Company's Production Assistant General Manager

Ahmed Sabaa, who discussed how digitalizing the brownfield can reduce costs and maximize its recovery. He pointed out that digitalization improves asset utilization and reduces the downtime related to planned and unplanned shutdowns.

DNV's Development Manager Osama ElSaadawy presented the third presentation discussing "New Recommended Practice from DNV to help accelerate uptake of digital twins". Through his speech, he introduced the new DNV-RP-A204 and how it could be implemented. At the end, a presentation about "Digitalization" was delivered by Farah Shoukry, a petroleum engineer from Halliburton. She showcased some solutions to digitalize exploration and production practices.





## Baker Hughes Remote Operations Services: At a glance

2019			2020		
Executed <b>HALF</b> of the company's total drilling jobs	Drilled or logged <b>3,350</b> onshore wells in North America alone	Drilled <b>42 MIL</b> feet globally	Executes <b>55%</b> of the company's total drilling jobs	Delivers services in <b>30+</b> countries	Deploys from <b>20+</b> centers and customer offices

**TODAY**  
Baker Hughes can support  
**100%**  
of our Directional Drilling and  
MWD/LWD portfolio using  
**Remote Operations Services**

Remote drilling and evaluation  
**BY THE NUMBERS:**

**360+**

engineers and geologists  
supporting operations worldwide

**100%**

connectivity with every  
Baker Hughes drilling operation

**300+**

shifts-per-day  
delivered remotely

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Baker Hughes 

# TOWARDS A MORE EFFECTIVE CSR/SDG STRATEGY

## Egypt Oil & Gas CSR Committee Brief



With many members of Egypt's oil and gas sector committed to having a positive impact on society, Shell Egypt's Social Performance Manager, Ahmed Gabry gave a presentation in front of an engaged audience about the Egypt Oil & Gas (EOG) Committee and corporate social responsibility (CSR) that can be a model in this regard.

In his presentation, which was one of the events of the convention, Gabry approached CSR from two angles, sustainable development and community development. It was noted that though the CSR initiatives involve many of the industry's top players, cooperation is always the key to success. "When we work, we don't compete against each other, rather we are unified," Gabry said indicating that "though competition is great, but in CSR, unity is always better."

Moreover, he highlighted the importance of the EOG CSR Sub-Committee in unifying and coordinating development efforts in a number of important CSR initiatives. He pointed out that CSR projects should be within the framework of Vision 2030.

Some of the most important projects that the EOG Committee had worked on were highlighted in the presentation including the Blood Donation Campaign, the HSE Awareness Campaign, the Anti-COVID-19 Aid Supply "One Hand", and the CSR Strategy Taskforce which is in close cooperation with the Ministry of Petroleum and Mineral Resources.

### Drawing the Map for a Viable Sustainable Development & CSR Strategy

The third day of the convention witnessed several panel discussions. The first panel, titled "SDG Roadmap for the Oil and Gas Sector", discussed the efforts exerted by the Ministry of Petroleum and Mineral Resources and international oil companies (IOCs) to achieve sustainable development within the sector. The discussion was moderated by Nihad Shelbaya, Business Ventures Manager at ExxonMobil Egypt.

Heba El Karrar, Marketing, Communication & Stewardship Lead at Schlumberger Egypt, Sudan and East Mediterranean, started the panel by discussing the role of Schlumberger in the fields of sustainable development and corporate social responsibility (CSR). El Karrar explained the best practices of her company in this regard, emphasizing the importance of having a reality check for every CSR project idea before implementation.

"A lot of projects are well planned and well-funded from the start, but fail to continue after one or two years because their sustainability and continuation were not properly planned at the beginning," El Karrar said. Also, El Karrar mentioned that Schlumberger is actively involved in educational initiatives for schools.



Enas Shabana, Communications Section Head at the Ministry of Petroleum and Mineral Resources, discussed her role in CSR projects directed by the Minister of Petroleum and Mineral Resources Tarek El Molla, as well as the efforts exerted by the ministry in this regard. Shabana explained the strategy that the ministry follows with IOCs and the Egypt Oil & Gas (EOG) CSR Committee in adopting and implementing CSR projects.

She highlighted that the importance of promoting such projects across the sector and the country. "There will be a CSR marketing plan so that the whole community will be aware of our [the ministry] efforts," Shabana affirmed. In the end, Shabana elaborated that the CSR strategy has mainly four pillars including youth empowerment and development, improving the community's health (especially women's wellness), defining adverse impacts of the oil and gas industry, and ensuring CSR projects align with presidential initiatives.

Additionally, Nehal Khalil, Media General Manager at Petrojet, talked about the practices and projects adopted by her company in CSR and sustainable development. She underlined the importance of SDGs projects saying "the major advantage of the ministry's CSR strategy is that it touches SDGs." Khalil added that Petrojet has obtained ISO 26000 certificate in social responsibility.

Khalil emphasized the 3Ps approach when executing CSR projects, which seeks to benefit people, the planet, and profits. She noted also that the company is always encouraging its employees to get involved in volunteer activities. Khalil stressed on the importance of closer cooperation between international and national companies in the field of sustainable development.

For his part, Ahmed Gabry, Social Performance Manager at Shell Egypt, stressed on the importance of community impact during implementation when selecting a CSR project, as it may cause disturbance for people. "We always need to focus on things in the long-term," Gabry said. He mentioned Shell's health, safety and environment (HSE) awareness project that they held at Ain Shams University. Furthermore, Gabry concluded his speech, discussing the future plans for cooperation between the ministry and IOCs with regards to CSR projects.



## Strategic Partnership: Shell Egypt and World Food Programme



Dina Ghoniem, Partnerships and Donor Relations Officer at the World Food Programme (WFP), and Nihal Abdel Wahab Programme Policy Officer at WPF, delivered a presentation on the successful partnership between WFP and Shell Egypt.

Ghoniem explained that WFP joined forces with Shell Egypt to support the marginalized communities in Marsa Matruh Governorate. She further added that "this partnership is a strategic one that aligns with Egypt's vision 2030 as well as the sustainable development goals, especially Goal 2 'Zero Hunger'."

Abdel Wahab stressed that the projects launched as part of the partnership contribute to the well-being of the whole community. As a manifestation, she referred to the funds provided to the vulnerable families if any of their children attend community school. Not only does the project increase school attendance and combat drop-out rates, but it also helps families withstand the financial hardships of COVID-19. In addition, the community schools were used as training centers for women. Therefore, WPF and Shell Egypt adopt the philosophy of "leaving no one behind".

## Zohr Sustainable Development Case Study



Shahinda Shirazi, General Manager Community Development at Egyptian Natural Gas Holding Company (EGAS) delivered a presentation, titled 'Zohr Sustainable Development Case Study', during which she reviewed the sustainability efforts undertaken by EGAS and its partners.

The presentation talked about several corporate social responsibility (CSR) activities done in cooperation with Eni, including the establishment of a primary healthcare center located within Port Said's Emirates district. It offers dentistry, emergency services, vaccinations, pediatrics, and pharmacy services to around 20,000 people. Additionally, the company has a youth center that aims to provide recreational opportunities and training to the healthcare center's staff.

Moreover, Shirazi talked about Zohr Applied Technology School, which follows all the sustainable development goals. The school aims to prepare its students with the technical skills needed to find job opportunities in the future. Shirazi

stated that through the school, EGAS and Eni are trying to change the way technical schools are perceived, noting that there are many applicants. The school provides various types of training, including logistics classes, electronics classes, and energy classes.

With many CSR initiatives, the Zohr field development and its operators have surely benefitted Port Said and its people in their effort to support the areas where oil and gas companies are working.

## CSR-SDGs Interactive Session

The CSR-SDGs Interactive Session offered an engaging platform for those working in the oil and gas sector to discuss the various ideas and initiatives in the areas of corporate social responsibility (CSR) and sustainable development.

These ideas and project proposals tackled a variety of different issues having to do with nutrition, health, recycling, water conservation, poverty, gender equality, education, and much more. For the "zero hunger" goal, Fatma El Zahra from the General Petroleum Company discussed project ideas which included initiatives to fight malnutrition and hunger through an awareness campaign targeting school children that will teach them about better nutrition. As far as the "partnership" goal is concerned, Ahmed Raafat from Rashid Petroleum Company talked about strategic cooperation initiatives that involve working with the Ministry of Social Solidarity to support the Haya Karima Project as well as partnerships with international entities, such as the International Energy Agency (IEA), to promote energy efficiency. To help achieve the "gender equality" goal, Raghdha Safwat from EGAS suggested a campaign, which would involve a nationwide survey that will seek to gain a deeper understanding of women's needs throughout different parts of Egypt. This will help address women's needs in a more effective way.



The session also offered the opportunity for many other professionals from various companies in the oil and gas industry to present their CSR ideas.





# CAPACITY BUILDING PROGRAMS: BRIDGES TO THE FUTURE

## The Keys of A Personal Journey: Moataz Darwish Brightens Middle Management Mentalities

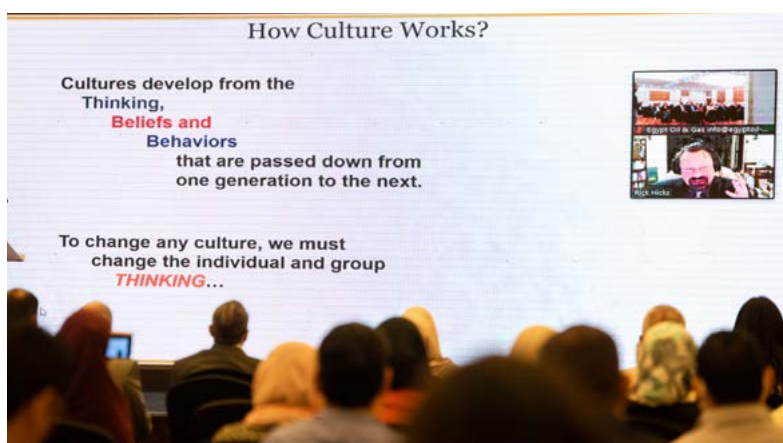


Deputy Chairman of Shell Egypt Moataz Darwish introduced a session titled "The Forgotten Keys in Your Personal Journey". The session aims to support the capacity building strategy by showcasing eight significant keys in this regard. Darwish started his session with a piece of advice saying, "always think big, even if you are not in a big position." He said the first key is to have a lifestyle and strategy before criticizing the strategies of the company and the managers.

Darwish stated that the second key is to know that you are different and biased. He denied the assumptions that "people are rational, objective, and perfect" and advised people to know him/herself well. The third key is to have a vision, which people can get by asking the question "why?". Darwish said that a vision is made of layers and it should not be represented in quantifiable key performance indicators (KPI's). He mentioned that the fourth key is that people have to think about everything around them in a process called environmental scanning.

Additionally, Darwish said that sixth key is about selecting the best tool by mastering questioning as a skill. The seventh key is the action which enables you to form a vision. Finally, eighth and last key is to have a learning mindset and make it the best catalyst for success.

## Rick Hicks' Philosophy On HSE



Rick Hicks, Executive Consultant, SPHR, SHRM-SCP, gave a virtual presentation titled "Coaching in HSE", in which he explained the role of coaching in promoting a culture of safety at worksites.

Hicks explained that actions taken by staff members that might put them at risk come from their beliefs. Therefore, in order to reduce risks, operators should start with coaching. Not only does coaching prevent risky behavior,

but it also helps change people's way of thinking and convinces them to take safety precautions, not only as a requirement but as a conviction.

When it comes to safety, it has to be a culture that is adopted in the oil and gas sector. According to Hicks, cultures develop from thinking, behaviors, and beliefs that are passed down through generations. In order to change the culture, operators need to change individuals and group thinking.

Through effective coaching, encouragement, and feedback, the oil and gas sector can reduce risky behavior and spread safety as a culture among its people.

## Mentorship & Coaching



On the third day of the convention, a panel was moderated by Sara Badr, Senior Engineer at Schlumberger. The panel discussed the value of mentorship and coaching.

At the beginning of the panel, Alaa El Dabaa, Head of Corporate Relations at Shell Egypt, explained the difference between coaching and mentorship. "Coaching is a type of short term, immediate kind of support that you might need when you are delivering assignments, completing projects, etc," he stated, adding that mentorship is there to help a person understand things and to support this person throughout his/her journey from one point to the other.

During the panel, Alaa Hagar from the Ministry of Petroleum, reviewed the ministry's efforts to train, develop, and help young professionals throughout their career paths, within the framework of the Modernization project. "We aim to attract and develop a broad base of young professional leaders capable of leading and supporting the oil and gas sector," Hagar noted.

Meanwhile, Badria Khalfan, Chief HR Officer at Dragon Oil highlighted the importance of training and mentoring middle management and future leaders to bridge the gap between management and youth. She further talked about training staff during the COVID-19 pandemic, and the challenges they had to face to keep business as usual. "Many training organizations were shutdown [due to the pandemic] and it was very difficult to bring experts from outside due to travel ban. So, what I decided [is] to have our own mentors from Dragon Oil," Khalfan said.

The panel also offered one of the young professionals an opportunity to talk about his experience with coaching and mentorship. Islam Gaafar, Senior Geoscientist at BP Egypt, advised every youth in the oil and gas sector to "never be shy to ask [mentors or coaches] any questions. Always seek to learn and benefit from the experience [that you've had]."

Gaafar stated that it is important to always keep learning and to benefit from every experience that comes your way. He further advised the attendees



to recognize their goals and aspirations in order to seek the right mentors throughout their career paths.

Additionally, Al Dabaa highlighted the significance of having a learning mentality, saying that every person should never seek a mentor if this person is not ready to learn.

The coaching and mentorship panel was rich with experience and encouraged future leaders to realize the value of having a learner's mentality, having an experienced mentor, and being well-trained for the future.

### Shell NXplorers Programme 2021



Shell Egypt delivered an informative and inspiring presentation about the NXplorers Programme.

Presented by Shell Egypt's Social Investment Manager Nashwa El Saleh, the session mostly discussed how through the NXplorers Programme, young professionals can use their critical thinking skills to find an innovative solution to tackle a problem or discover new approaches to resolve an issue.

Those who participated in the program received training to develop the skills and assets they need to excel in the oil and gas industry. As a precautionary measure to prevent the spread of coronavirus, training took place on Zoom

and some took place physically at Petrojet's office. Participants were divided into several competing teams, where one team won the prize for their innovative idea.

At the end, the Innovators team was announced as the winner and the victorious team members were called on to the stage to showcase their ideas.

### Awards Ceremony



The Convention was topped off with the awards ceremony and the Innovators team emerged as the grand winner of Shell NXplorers Programme 2021.

The team members were offered appreciation awards in recognition of their insightful project, which tackled a deep-rooted problem of water scarcity in the petrochemicals industry. The Innovators team dug deeper into the problem and came up with transformative solutions.

Additionally, there is something to be said about the team; it brought together industry professionals from across the country and unified their efforts. The team members are Lamia Abo Shahba from EGAS, Ahmed Magdy from EPROM, Ahmed Ghanem from Red Sea Egypt, Osama Yousef from Enppi, Nouran Ahmed and Sherif Tarek from EOCHEM.







# PROMOTING NET-ZERO CARBON IN THE OIL & GAS INDUSTRY

BY RANA AL KADY

**A**ccording to climate researchers, net CO<sub>2</sub> emissions must be zero in order to maintain global average temperature stability. To meet the Paris climate targets, net CO<sub>2</sub> emissions must reach zero far before temperatures increase by over 2°C. Afterward, no more CO<sub>2</sub> may be discharged into the air until it is compensated by CO<sub>2</sub> removal.

The Net Zero Carbon (NZC) concept for the Oil and Gas industry, developed in collaboration with over 20 top investors, establishes basic standards for companies in a number of areas, including emissions objectives, decarbonization plans, capital expenditure and governance. Industry experts have been assessing the durability of the rising commitments by nations, governments, cities, and enterprises throughout the country are skeptical of oil and gas firms' proposed net-zero emissions objectives, which provide an opportunity to hold large polluters accountable.

## OVERVIEW

First of all, recently, there has been an upsurge in the number of oil and gas companies pledging to go net-zero by 2050. However, the current situation necessitates a quicker response due to the increasing CO<sub>2</sub> emissions. Experts emphasized the need of establishing an interim goal with defined deadlines.

As climate disasters become more common, the demand to reach net-zero emissions by 2050 is becoming more urgent than before. Climate campaigners anticipated the UN Climate Summit COP26 in Glasgow, Scotland to make critical choices toward this objective. Coal-fired power facilities throughout the globe are under severe strain as a result of mounting protests and dwindling financing. However, oil and gas firms, actively promote their long-term sustainability to the rest of the globe. As stated by an expert in the academic field who preferred anonymity, "this event is a stepping stone to a larger and higher-level achievement for Egypt and for other countries in the region as well. Now that Egypt has been set to host COP27 next year, the world will be looking at Egypt as energy and climate leaders and I believe that Egypt can take the wheel to represent the region in terms of its action plan, especially in the oil and gas sector."

During COP26, Minister of Petroleum and Mineral Resources, Tarek El Molla, took part in a conversation session entitled "Net Zero World Partner Countries," hosted by US Energy Secretary Jennifer Granholm. During this session, as part of Egypt's sustainable development agenda, El Molla said in his statement at the session that Egypt follows an ambitious plan that supports its transition to clean energy and reduces carbon dioxide emissions according to Egypt's 2030 vision.

## NET-ZERO TARGETS IN THE OIL AND GAS FIELD

Approaching net-zero is a huge task for an oil and gas corporation that predominantly supplies fossil fuels. It necessitates a significant reduction in both; its own emissions and those emitted when the items it sells are consumed. As a result, achieving net zero requires an oil and gas firm to make a thorough strategic

commitment to alter its operations. Significant emission sources are unlikely to be rectified without determination, and emissions are unlikely to reduce at the needed rate.

Many oil and gas corporations have stated intentions to decrease their CO<sub>2</sub> emissions to zero in the coming years, with a goal year ranging from 2030 to 2050. BP, for instance, has committed to achieving net zero emissions by 2050 and reducing operating emissions by 35% by 2030. Among the ambitious goals are: decreasing carbon intensity by 15%, assessing emissions at all processing facilities and working toward halving the amount of methane produced by activities by 2023, and raising low-carbon investments by over ten times by 2030, to roughly \$5 billion per year.

## THE WAY FORWARD

To meet these sustainable goals in the future, oil and gas firms will need to increase operating efficiency, enhance resource use, and minimize waste - all of which may be aided by Artificial Intelligence (AI). Considering the combined issue of providing more energy (to keep up with high population densities and demand) while simultaneously generating less carbon, operational performance is crucial, which sometimes necessitates organizations consolidating or revamping processes to be more efficient and environmentally friendly. AI systems may also assist oil and gas firms in addressing operational problems that lead to leaks, which are one of the most significant environmental threats, alongside pollutants. For instance, AI-powered self-navigating machines can examine pipelines for issues, while AI-powered monitors are frequently used to check pressure and temperature. Furthermore, AI can give advanced monitoring readings for all wells in a company's portfolio, selecting the most appropriate CO<sub>2</sub> injection prospects for carbon capture and sequestration across exhausted areas.

More importantly, oil and gas corporations must move their capital spending away from increasingly dangerous fossil fuels dependencies and toward low-carbon operations such as renewables, carbon capture and storage, biofuels, and hydrogen generation in order to secure their long-term survival.

In conclusion, the oil and gas sector becomes a part of the answer, stepping up and making a name for itself in the climate battlefield thanks to new technologies. By working together, the industry can design a plan that will lead to net-zero emissions. Corporations have the expertise, skills, technology, and resources necessary to make the move, allowing them to lead a larger energy transformation. Since this will most certainly be a difficult process, energy businesses have the potential to make the globe a better country to live.





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# ONSHORE SAFETY:

## HOW TO SECURE OIL OPERATIONS IN EGYPT'S DESERT

BY FATMA AHMED

During the past few months, Egypt witnessed several discoveries in its desert. This came after giving more attention to exploring the desert. Supporting this plan, the Ministry of Petroleum and Mineral Resources (MoP) has launched an exploration and production (E&P) bid round in February included blocks from the Western Desert. Most of Egypt's crude production comes from its deserts. According to data released by the MoP, the country produces crude oil from its deserts that equaled 67.5% of its total production until 2019. Thus comes the necessity to keep desert fields a safe workplace and guarantee sustainable production at the same time.

### RED ALERT AT ONSHORE RIGS

In those desert fields workers are expected to work for long hours - of approximately 12 hours per day- and this puts stress on them as all the time; this is in addition to the fact that they are constantly ready for any sudden incident that could happen especially when they are using heavy equipment. Also, they may work on hard environmental circumstances such as sand storms or high temperatures. With that, it is crucial to define the most common dangers that may occur in the onshore fields.

According to the Bureau of Labor Statistics, working on an oil rig carries a higher-than-average risk of nonfatal injury. There are four major types of accidents in onshore fields; Fire, Falls and Falling, Machinery, and Fatigue.

### FIRE

Fire could happen as a result of several chemicals that are regularly used in onshore drilling especially hydrogen sulfide. Also, the high pressure from the well can lead to an explosion if it is not repaired in time.

### FALLS AND FALLING TOOLS

Falls from higher to lower levels is another hazard that may face workers in onshore rigs leading to their death. Moreover, when workers drop tools to another worker this may cause injuries or fatalities, as well. In order to avoid that, workers wear hard hats to protect themselves.

### MACHINERY

There are a lot of dangerous machines used in oil fields and can expose the workers to risk including the drill, spinning machinery and support units such as cranes and forklifts. These machines make noise which hinders the communication between workers so they cannot warn each other or be attention if there is a risk.

### FATIGUE

Fatigue is a hazardous reason for incidents in the oil fields as it may reduce the focus of the workers and slow their reactions. Fatigue happened as a result of long working hours. "According to the Bureau of Labor Statistics, onshore rig workers typically work between 7 and 14 days in a row, and each day entails between 8 and 12 hours of work."

### IMPROVING OCCUPATIONAL SAFETY

Actually, it is important to find solutions that lower these incidents as much as possible in order to keep production from onshore sites. The International Finance Corporation has issued a publication showcasing

some guidelines to be followed in order to guarantee a safe onshore workplace. It stated that repairing and maintenance activities should be done regularly to prevent leakage of flammable materials that can lead to a fire. It advised to regularly monitor the well and its pressure level to control it before the explosion.

The publication also said that "occupational hazards should be identified and assessed through an Occupational Hazards Management Plan, detailing prevention and mitigation measures (including operational procedures) to be considered. All workers should be made aware of the contents of this document through induction training." In addition, it stressed on installing active fire protection systems to the facilities for rapid response in case of any danger. "Personnel should be provided with adequate and sufficient equipment," the publication added.

As for hydrogen sulfide, the publication reported that hydrogen gas sulfide gas monitoring should be installed with the number and location of monitoring stations determined through air dispersion modeling, taking into account the location of emissions sources and areas of community use and habitation. For its part, the Occupational Safety and Health Administration (OSHA) has organized a campaign with National Occupational Research Agenda (NORA) for Fall Prevention. It stated that the employer should provide safety equipment and tools for workers when working from heights and train the workers on how to use the heavy equipment safely.

In Egypt, the MoP exerted every effort in this regard and still. It organized a lot of events and initiatives for raising awareness among the employees and workers about the importance of following safety guidelines. It selected OSHA standards regulation to be implemented in managing hazards in the work processes and ensure the availability of a safe and secure working environment for the sector's employees. A case study published by Al-Ahram gate discussed how Khalda Petroleum company provides a safe environment for its employees in Al-Salam field showcasing the measures taken by the company in this regard.

This includes wearing personal protective equipment while working, taking permission for working from heights, working on energy insulation, lifting works, working in enclosed areas and excavation works, avoiding smoking, using mobile phones and lighters, and guiding the newcomers about the hazards of the site. One of the employees mentioned that they are using advanced technologies to monitor and control well pressure to avoid explosions. This is in addition to the fact that suitable equipment is used to deal with dangers and workers were well-trained to use them. Thus, the precautions adopted by the Egyptian oil industry reflect good indications for safer onshore sites, which in turn, encourages more discoveries and explorations to take place in a sustainable manner.





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# ECONOMIC COSTS OF SAFETY POLICY IN THE OIL AND GAS INDUSTRY

BY SARAH SAMIR AND NADER RAMADAN

For years, there's been a long debate over what constitutes sound safety policy in an industry which is known for its high risks and its volatility. It's no mystery that the oil and gas industry is not for the weakhearted. Potentially hazardous onsite work, especially in the oil and gas industry, poses a significant risk to drain companies of the vital financial resources that they need to remain competitive in the market. Though many may perceive that safety expenses and revenues have an inverse relationship, economists reveal that the reality is quite the contrary. Case after case has made it evident that safety is a prerequisite to the prosperity of the economy as a whole, and this is especially true for the oil and gas sector.

## SAFETY ECONOMICS AT A GLANCE

So how much has to come out of a company's wallet in order to keep their workers and the environment safe? There are two main factors that oil and gas businesses have to take into consideration when spending on safety as a part of their general health, safety, and health (HSE) strategy, which are precaution/prevention measures costs and incidence costs. Precaution/prevention measures costs seek to reduce risk and involve spending on the minimum HSE standards that should be in place whether there will be an accident or not. Incidence costs are the expenses incurred in case of any accident. The incidence costs could include spending on extra safety measures, costs of medical treatment, compensations to injured employees, and compensations to affected residents near the operation area.

In some countries, billions of dollars are spent because of accidents, showing that safety is not just a luxury, but could also be a key survival factor that determines the fate of any company. "Businesses in the United States spend \$170 billion a year on direct and indirect costs related to occupational injuries and illnesses which are taken directly from company profits. This expenditure is quite crucial as it could lead to bankruptcy of the firm," according to Adaobi Gloria Bolu's thesis 'Economics of Safety: An empirical Study', published by the University of Aberdeen.

In analyzing safety policies on an employee level, the economic repercussions for laborers working in the sector can be financially disastrous, something that will affect the wider market as a whole. Accidents in the oil and gas work place can cost a lot of money, affecting the economics of every employee as an individual. Costs may include medical treatment and rehabilitation. Moreover, in some cases, after being exposed to hazardous effects and suffering from unsafe hydrocarbon site, the employee may need to change his/her lifestyle, and travel to places with less pollution to recover.

Furthermore, accident victims may be at risk of losing a vital source income in case of disability. "In the United

Kingdom, the average £62,500 salary earned by an offshore worker could be lost due to an incident in the absence of any compensation payments or benefits," according to Professor Alexander G. Kemp and Dr Theophilus Acheampong's paper 'Economic and Policy Perspectives in Health, Safety and Environment in the Offshore Oil and Gas Industry: Evidence from the United Kingdom Continental Shelf'.

Accidents do not only affect the individual, but they also have a wider impact on the surrounding people who care about this individual. Depending on each family's financial situation, individuals close to an accident victim may need to take an extra job to afford the costs of treatment, and sometimes it affects their life choices and career path.

## SAFETY POLICIES IN EGYPT: PROTECTING VALUABLE HUMAN ASSETS

With a legal framework that requires the maintenance of minimal HSE standards, safety is never looked at as a cost in Egypt's oil and gas sector, but as a foundational part of the company's strategy to ensure that productivity is maintained, while the employees are kept safe.

"HSE is the responsibility of everyone in the organization. In our calculations, spending financially [on HSE] cannot be compared with any risk that could happen to anybody in the company because we have direct and indirect results from the incident itself. [First] of all, we create the barriers of our activities in our plan, prior to the implementation of the plan itself," said ERC Refinery QHSE Manager Mohamed Fikry. "In our opinion the cost of implementation is a continuous effort, rather than a financial cost because when we create understanding people, implementing people, flexible people, to deal with safety, health, and environment in a professional and responsible way, in our philosophy, it's much more beneficial," He added.

In a market where it is essential to expect the unexpected, safety is the best economic self-defense move companies can make to protect skilled labor. A competitive market requires that companies have an

arsenal of well-trained employees, equipped with the experience that any competitor would bid generously for. Protecting the market's valuable human resources is not only essential for any individual company, but the economy as a whole. This is essential to preventing a loss of production as a result of an accident. "Whatever companies spend on whether it includes providing the health support, occupational safety, or maintaining a good work environment, this is an investment for human resources," said Mohamed Ramadan AlBahwashy, an economics professor and researcher at Suez University. "This is in the interest of the organization. Equipment can be damaged, but to get a skilled, experienced laborer that you can actually depend on is like having a pilot for a plane. The pilot is more valuable than the plane itself. This is especially the case for the petroleum sector."

Apart from financial considerations, safety is a collective effort that involves the organization working towards one goal. "Maintaining the safety of employees and minimizing the environmental impact requires a lot of combined and hard efforts from different departments within the organization, starting from HSE department, HR, Procurement, Finance, and above all the Leadership of the organization; it requires commitment and belief," said Hassan Rashed, QHSE Management Specialist / QHSE Manager Lafarge Egypt, member of Holcim Group. "Maintaining the HSE system through continuous auditing and reviewing, monitoring implementation, training workforce and providing them with the correct tools and PPE definitely consumes financial resources, but this should not be looked at as expenses or waste cost, but should be considered as an investment," Rashed added.

Most importantly, safety policies harmonize the relationship between business managers and skilled onsite workers, since both have a mutual interest in the welfare of the other. Though many may perceive economics to be strictly a financial science, the fact of the matter is economics is also about the integrity of human relationships and safety is a pillar to maintaining the essential management-employee symbiosis that every organization needs. As a whole, safety does not just guard the well-being of just any single employee working in the sector, but the economy as a whole.





# HARNESSING METAVERSE TECHNOLOGY FOR QHSE EXCELLENCE

BY YARA ALY

In a world where everything is moving closer and closer towards digitalization, the craze for “Metaverse” has taken over all conversations. This new wave of innovation has wet people’s appetite for the power of tools like digital twins, mixed reality, and autonomous systems. Moreover, modern manufacturer views Metaverse applications as the next step toward becoming a safer and productive organization.

## CONVERGING THE PHYSICAL AND DIGITAL

The term “Metaverse” is a portmanteau of the prefix “meta” (meaning beyond) and “universe”. It is typically used to describe the convergence of virtually enhanced physical reality and physically persistent virtual space.

According to Azure Vice President Sam George, Metaverse applications are the culmination of the intelligent cloud and intelligent edge working in harmony. He added that at the foundation of these applications lies the technology of digital twins (DTs). Digital twins are virtual models of anything physical, from simple assets or products to complex environments. These models can be brought to life and synchronized with the physical world via two-way internet of things (IoT) connections. As these spaces come together, they create a new world of opportunities and transformative solutions.

From here on, the world becomes a digital canvas. To illustrate, modern software techniques such as analytics, simulation, autonomous control, and interactions can be applied to the digital model in order to explore untapped potential.

For further illustration, DT can afford companies several advantages that would otherwise be not possible. For example, it provides a space for running risk analyses, health assessments and real-time monitoring. Accordingly, there has been a growing adoption of this technology in several verticals, especially the oil and gas (O&G) field since it’s a highly regulated industry because of the inherent health, safety, and environmental (HSE) risk associated with the exploration and production activities.

## REIMAGINING QHSE IN O&G INDUSTRY

Digital twin technology is considered a panacea for QHSE-related risks. To manifest this, DT adopts the best approach to QHSE management, which is “prevention”. In the simplest terms, it helps map a path for preparedness with plans for mitigation, evacuation, and containment.

DTs acquire data and analyze it in real-time to provide insights about the assets. These insights include production rates, operating condition, malfunctions as well as need for repairs and replacements. Operators can use these insights to run ‘what-if’ simulation scenarios on the model.

Not only doing ‘what-if’ scenarios enhance production, but they also reduce downtime and HSE risks. For instance, with such an application of DT, operators can determine the de-rated operating condition of an asset having potential structural integrity issues. Therefore, the operation can continue until the next turnaround without leaving any space for failures or accidents.

Adding to that, DTs can mitigate HSE risks associated with control parameter updates for facilities. When developing a new operating procedure to enhance production, this new procedure can be evaluated on the DT to examine whether

it poses a threat to the employees, facility, or environment. Once proved safe, the new control parameters can be applied to the physical asset.

Moving forward, the use of 3D modelling for risk assessments provides new breakthrough capabilities, including the prediction of smoke dispersion, incident investigations, passive fire specification and protection and placement of safety equipment. To exemplify, FLACS is a computational fluid dynamics software (CFD) which simulates flammable and toxic gas dispersion. It was applied in the investigation of many high-profile oil accidents: for example, Buncefield fire, Piper Alpha, and the Petrobras 36 platform. Since frontline workers are the most affected by these incidents, digital twin technology puts people at the center of disaster risk management.

## ADOPTING A HUMAN-CENTRIC APPROACH TO QHSE

The safe and sustainable operation of O&G facilities generally depend on the workforce. As the industry begins a long-awaited recovery, a recent research outlines two key challenges in the area of worker health and safety.

The first is managing operations with less experienced workforce. It has been proved that younger workers are twice as likely to be injured on their job as experienced workers. Digital twin together with extended reality technologies can offer a virtual platform to train field engineers or workers for unfamiliar tasks on new equipment or hazardous environments. Such virtual training can help reduce the number of accidents that may occur when new workers operate physical assets. DTs can also help in conducting an emergency evacuation training without increasing the facility downtime or posing unnecessary risks to the personnel on board. It should be noted that during such training, equipment may need to be shut down, and operation may require to be suspended leading to a drop in productivity.

The second challenge is associated with worker’s behavior or response; consequently, oil and gas companies study how to improve safety by applying digital twin concepts to their human assets. Using smart wearables and advanced analytics, IoT data is used to create the operator digital twin. Furthermore, the human digital twin mirrors the worker’s habits, predict fatigue risk, and identify hazards in the environment. Thus, the worker can be warned of any potential hazards or accidents in real-time.

In short, digital twin technology is smashing the industry’s stigma in every way possible. The oil and gas industry has been under great regulatory scrutiny, with record fines for environmental crimes as well as safety hazards. With the adoption of DT, the industry has already made strides to reduce HSE risks. That is to say, DTs maps the oil and gas industry to regulatory compliance.





# COP27: A CHANCE FOR TURNING OVER A NEW LEAF

BY IHAB SHAARAWY

**F**or many experts, this year's Conference of the Parties to the UN Framework Convention on Climate Change (COP 26) in Glasgow has been a failure. The event was highly awaited by observers with high expectations after the environment's sharp warnings that came in a form of strong floods, forest fires, storm damage and heat waves that hit different parts of the world.

However, under the pressure of looming energy and economic crises, participants failed to renew targets for 2030 that align with limiting global warming temperatures to 1.5°C, and to reach an agreement on accelerating the phase-out of coal.

Some experts see that the only positive aspect of COP26 was to keep alive the Paris Agreement's aim to limit global warming to 1.5°C (2.7°F) above preindustrial levels. However, hopes for reaching the goal still hinge on the ability of nations to return in 2022 with new and more ambitious targets to curb emissions.

## POSTPONED DREAMS

After extending the COP26 negotiations an extra day, the 197 countries meeting in Glasgow adopted an outcome document that, according to the UN Secretary-General, António Guterres, "reflects the interests, the contradictions, and the state of political will in the world today."

Despite describing the outcome of COP26 as an important step, Guterres confesses that it is not enough. "We must accelerate climate action to keep alive the goal of limiting global temperature rise to 1.5 degrees," said Guterres in a video statement released at the close of the two-week meeting.

He added that it is time to go "into emergency mode", by ending fossil fuel subsidies, phasing out coal, putting a price on carbon, protecting vulnerable communities, and delivering the \$100 billion climate finance commitment.

The outcome document, known as the Glasgow Climate Pact, calls on 197 countries to report their progress towards more climate ambition next year, at COP27, set to take place in the Egyptian coastal city of Sharm el-Sheikh.

Commenting on the outcomes of COP26, Swedish activist Greta Thunberg said: "It is not a secret that COP26 is a failure. It should be obvious that we cannot solve a crisis with the same methods that got us into it in the first place."

While struggling to hold back his tears, COP26 President Alok Sharma announced a last-minute change to the pact, by China and India, softening language circulated in an earlier draft about "the phase-out of unabated coal power and of inefficient subsidies for fossil fuels". That language was revised to "phase down" coal use for the disappointment of many participants.

Thunberg, meanwhile, addressed thousands of young people who gathered for protest, saying "immediate and drastic" cuts to emissions are needed.

## MISSING THE BRIGHT SIDE

However, some find it's unjust to fail to see the bright side of COP26 where about 50,000 participants online and in-person shared innovative ideas, solutions, attend cultural events, and build partnerships and coalitions.

The event also witnessed many encouraging pledges, including a pledge by leaders from over 120 countries, representing about 90 percent of the world's forests, to halt and reverse deforestation by 2030. There was also a methane pledge, led by the US and the EU, by which more than 100 countries agreed to cut emissions of this greenhouse gas by 2030.

Meanwhile, major coal users such as Poland, Vietnam, and Chile agreed to shift away from coal, one of the biggest generators of CO2 emissions.

Nearly 500 global firms agree to align \$130 trillion with the goals set out in the Paris Agreement, including limiting global warming to 1.5°C.

## COP27 CHANCES

However, COP26 failed to provide answers to important questions related to finance and accountability that obviously were left to be decided in the coming session in 2022.

The COP26 outcomes emphasized the need to mobilize climate finance "from all sources to reach the level needed to achieve the goals of the Paris Agreement, including significantly increasing support for developing country parties, beyond \$100 billion per year."

Although the pact calls on rich nations to at least double finance for adaptation by 2025, this remains far below the projected costs.

One of the other unfinished tasks in COP26 is introducing transparency and accountability mechanisms. The Glasgow Climate Pact only included provisions to increase transparency to boost accountability, which remains a central challenge for global efforts to combat the climate crisis. The pact, however, urges nations to come back in 2022 with greater ambitions.

COP27 is seen also as a greater chance for African and developing nations to present their cause and needs that President Abdel Fattah El Sisi has summarized during his speech on Glasgow: "Although it is not responsible for the climate change crisis, the African continent faces the most negative repercussions and the subsequent economic, social, security and political consequences."

El Sisi insisted that the continent is considered a model for serious climate action, as much as its capabilities and the support that it receives allow.

El Sisi also expressed Egypt's concern about the gap between the available funding and the actual needs of developing countries as well as the obstacles that our countries face to have access to it. "Therefore, the developed countries must fulfill their pledges to provide 100 billion US dollars annually to fund climate in the developing countries," El Sisi said.

The conference will also be a good chance for Egypt to showcase its story of success and the serious steps, it initiated, to apply a sustainable development model, at the heart of which lies climate change and adaptation to climate change. This model aims for government-funded green projects to reach 50% by 2025 and 100% by 2030.

According to data offered by Egypt during the COP26, sources of renewable energy represent today around 20% of the energy mix in Egypt. Egypt is even working on bringing it to 42% by 2035.

Transition to clean transportation is also a top priority for Egyptian governments that initiated several mega projects for expanding the metro, rail and electric vehicle networks, preparing the necessary infrastructure for that, and establishing smart and sustainable cities.



# PETROLEUM EXPORTING AND IMPORTING POLICIES & REGULATIONS



BY ENG. MOHSEN AHMED FARHAN, DRILLING DEPARTMENT HEAD - GENERAL PETROLEUM COMPANY (GPC)

Ever since the Organization of the Petroleum Exporting Countries (OPEC) was established, there has been a conflict between the producers and consumers related to oil barrel prices and their effect on the global economic growth rate worldwide. As a result, several legislations and rules have been set up to regulate the mechanism of oil barrel prices and create a good tool for oil barrel pricing based on mutual interests shared by both exporting and importing countries. There were times when regulations were not fair for exporters, such as in the 1990s.

Crude oil's prominent position in the global commodities market is well-known because changes in oil barrel prices impact the global economy. Thus, those countries or groups that produce crude oil also impact economies worldwide. Oil barrel prices are largely dependent on two factors, geopolitical developments and economic/political events. These two variables can lead to changes in oil demand and supply level, which drives oil barrel price fluctuations. For example, the 1973 Arab oil embargo, the 1982 Iran-Iraq war, the 1990 Arabian Gulf War, the Asian financial crisis of 1997, and the global financial crisis of 2008 are some of the historical geopolitical developments that have significantly impacted oil barrel prices. In the last two years, the COVID-19 pandemic affected the oil barrel prices negatively because of quarantine policies which reduced traveling worldwide.

OPEC sets production targets among its members to manage oil production. OPEC countries produce roughly 40% of the world's crude oil. Additionally, OPEC's oil exports represent about 60% of the total petroleum traded globally.

OPEC's actions have a huge effect on the international oil barrel prices. In particular, OPEC's largest producer of crude oil, Saudi Arabia, has the most frequent influence on oil barrel prices. Historically, crude oil barrel prices have seen increases in times when OPEC production targets are reduced. As a result, OPEC's members take action to cut production when the oil barrel prices go down sharply to control the oil prices and to avoid the negative effect on their economies.

Responding to the highly dynamic economic and geopolitical developments, OPEC makes changes to its oil production capacities, which impact the oil supply levels and result in oil barrel price volatility. With OPEC's oil exports accounting for roughly 60% of the total petroleum traded worldwide, more than 80% of global crude oil reserves are within the territories of OPEC countries. Hence, roughly more than 60% lie within the Middle East. Additionally, all OPEC

member countries have been continuously improving technology and enhancing exploration sciences and techniques, leading to further enhancements in their oil production capacities at reduced operational costs.

To have more control over crude oil supply globally ten non-OPEC countries joined OPEC to form OPEC+ in late 2016. OPEC+ controls over 50% of the global crude oil supplies. The influence of OPEC+ as an organization is due to the lack of alternative sources equal to its prominent status, the absence of economically feasible alternatives to crude oil, and a low-cost price advantage in comparison to high-cost non-OPEC production.

As we agreed, oil prices are affected by geopolitical developments and economic interests. Additionally, major global events or crises greatly affect the supply/demand levels. One such event occurred in January 2020, when the global economy was struck by the COVID-19 pandemic. The global demand for oil led to divisions forming within OPEC+, specifically between Saudi Arabia and Russia being the two largest oil exporters.

The dynamics of the oil economy are complicated and oil prices depend on more than the rules of demand and supply. Although at its most primal level, the market is the final arbiter of the price of oil barrel. Under the normal global market conditions, OPEC+ will continue to maintain its dominance in oil barrel price determination. Despite challenges, such as shale oil & fracking technologies and oil discoveries in non-OPEC countries, OPEC's share of the global market allows the international organization to determine production trends and continue to be a major player in oil price determination.

In summary of the above, oil barrel prices are driven by many factors, including supply and demand. OPEC member countries produce about 40% of the world's crude oil and OPEC's oil exports represent about 60% of the total petroleum traded internationally. OPEC (especially KSA) has the upper hand in determining the direction of oil prices, but Russia has also become a key player.

In Egypt, the government has issued a system for pricing the petroleum refining products or fuels to avoid the crude oil barrel prices fluctuation and to control its impact on the Egyptian economy totally. I see that this system will attract investments and will be a safety factor for different investors to develop their business activities in Egypt.

# DRIVING SUSTAINABILITY DESPITE THE PANDEMIC

Over the past three years, Methanex Egypt, in cooperation with the United Nations' International Labor Organization (ILO), has been executing the joint partnership agreement to bring the full-scale of the ILO's Decent Jobs for Egypt's Young People (DJEP) project to Damietta where its methanol production plant is located, addressing one of Egypt's most pressing challenges, that of youth unemployment and underemployment. The project aligns with the UN's Sustainable Development Goals (SDGs) 2030 and Egypt's Vision 2030, directly addressing SDG #8 on Decent Work.



The project aims to create decent employment opportunities for youth in Damietta, through promoting entrepreneurship and facilitating job matching processes. It also aims to build capacities of local partners on the ground for improved services to support unemployed youth and job matching processes.



Through the agreement signed in 2019, Methanex, in partnership with ILO, has been supporting micro, small and medium enterprise owners, would be owners and job seekers through three key world-class international ILO programs: Get Ahead Program for Women in Enterprise, Start and Improve Your Business, and Job Search Clubs.

The Get Ahead for Women in Enterprise program is designed to promote enterprise development among low-income women, who want to start or are already involved in small-scale business through strengthening their basic business and people management skills. Methanex Egypt also provides the Get Ahead for Women in Enterprise Training the Trainers (ToT) program, in collaboration with the National Council for Women (NCW), targeting women from Damietta to ensure the sustainability of the program in the future by trainers from the community.



Start and Improve Your Business (SIYB) program aims to enable potential entrepreneurs to develop concrete, feasible and bankable business ideas to start their own small businesses. This program is delivered in partnership with Egypt's Micro, Small, and Medium Enterprises Development Agency (MSMEDA) under the auspices of the Ministry of Trade and Industry.

Job Search Clubs (JSC) program provides an enriching environment where young people gather and share resources and contacts while searching for jobs in various fields under the supervision of trained facilitators. This program

is delivered in cooperation with the Egyptian Ministry of Youth and Sports.

As COVID-19 hit the globe and the number of infections increased in Egypt, Methanex and ILO took the decision to put the project on hold in 2020 to ensure the community's safety and prevent any infections that can result from gatherings and face to face interactions that can take place during the program's training delivery.



In March 2021, Methanex resumed the program while taking all the necessary precautions to protect the different program beneficiaries. The relaunch started with running a number of Business Development Service Clinics that offer free consultation to beneficiaries who have received the "Start and Improve Your Business" entrepreneurship training through the Methanex - ILO partnership in 2018, 2019 and early 2020. The sessions were designed to help beneficiaries assess their projects' status, understand factors affecting their performance and provide solutions to challenges they have faced. These BDS clinics were conducted in cooperation with the Micro, Small and Medium Enterprise Development Authority (MSMEDA) and the Chamber of Wood Working & Furniture Industries (CWWFI).

Following the BDS clinics delivery, Methanex and ILO have been working on an intensive training plan including the delivery of seven rounds of the JSC training to 109 beneficiaries so far, ten courses of SIYB training to 193 young entrepreneurs in coordination with CWWFI, a number of syndicates and the Furniture Hub, including sessions to graduates of Engineering, Dentistry, Pharmacy and Physiotherapy Faculties at Damietta Horus University. The execution plan also included the delivery of "GET Ahead for Women" sessions to 327 women from Damietta to date as well as GET Ahead TOT refresher training to 14 trainers from the community to ensure the continuity of the program.

This intensive plan has resulted in the successful completion of the SIYB program after supporting a total of 447 entrepreneurs in Damietta over the past years who were also provided with focused business sessions including Marketing and Digital Marketing to further support their projects. The program resumption has also resulted in the successful fulfillment of the 2021 target for the GET Ahead for Women in Enterprise program to reach a total of 646 women so far since the

beginning of the program. This is in addition to delivering the Job search club training to a total of 243 trainees so far.

By supporting this number of young entrepreneurs, Methanex Egypt takes solid steps towards achieving its Social Responsibility strategy and goals that aim to provide Damietta youth with better opportunities and improve the standard of living, not only that of the program beneficiaries but also of other community members and related businesses and markets that can be created around them.

Through this project, Methanex Egypt sets a unique model of social responsibility to the private sector that provides a focused approach to social investment that addresses the community needs while aligning with the Government of Egypt's priorities, and the UN's Sustainable Development Goals (SDGs) 2030.

Methanex aligns this social investment program with Egypt's Vision 2030 through coordination with "Hayah Karima" or "Decent Life" government initiative endorsed by H.E President Abdel Fattah Al-Sisi, that works on improving the quality of life in the poorest rural communities within the framework of the Sustainable Development Strategy: Egypt Vision 2030, through decreasing multidimensional poverty and unemployment rates. Methanex and the ILO have conducted visits to Hayah Karima NGOs, in coordination with the National Council for Women covering five villages in Damietta to include women residing in those areas within the GET Ahead for Women program.



The ILO Decent Jobs for Egypt's Young People in Damietta project remains active as one of Methanex's social investment projects. Methanex is currently preparing new intakes of the different training programs under its ILO funded project to empower more individuals from the community building on its successful partnerships with the different local entities and authorities that have positively impacted the program delivery over the past couple of years. Through this partnership, Methanex continues to honor the true spirit of Responsible Care, the governing ethic that drives the company's Social Responsibility work.



# UNLOCK YOUR ASSET'S POTENTIAL BY CLOSING PRODUCTION GAPS

## HALLIBURTON

### EXPERTS:

- » Sergio Sousa, Solution Owner, Workflow Automation
- » Zainub Noor, Head of R&D-Reservoir, Production & Economics
- » Raed Charrouf, Domain Owner for Production

### THE ELUSIVE ASSET POTENTIAL

Asset management in the oil and gas industry involves several disciplines that need to collaborate and work together to increase the chances that the actual asset operates as close as possible to its potential. The harsh reality is that planning phases are often surrounded by geological, technical, and economic uncertainties which prevent optimal plans from being devised. What further contributes to sub-optimal planning is disconnected workflows between the different disciplines (geosciences, engineering, economics, etc.). In practice, there is a gap between an asset's current production levels and what it could potentially deliver (Figure 1).

Halliburton Landmark aims to close that gap using intelligent monitoring, surveillance, and operations optimization available with Digital Field Solver®, a DecisionSpace® 365 cloud application.

### CLOSING THE GAP BETWEEN ACTUAL AND POTENTIAL

Let's define the overall gaps, which can be broken down into multiple categories according to their source:

- » Operating Gap
- » Availability Gap
- » Design Gap
- » Reservoir Development Gap

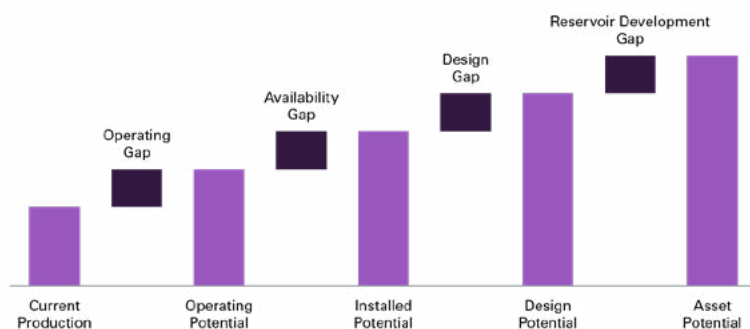


Figure 1 – The path to realizing asset potential

### OPERATING GAP

We define production which is lost due to sub-optimal field operations as the operating gap. Addressing this gap includes identifying improved choke settings for each well, well routings to separator trains, artificial-lift settings, compressor settings, and separator trains operating pressures, among others. Addressing all such gaps leads us to the theoretical Operating Potential, which is the maximum production the asset can deliver if the field operations are fully optimized.

### AVAILABILITY GAP

Going beyond the field operations, we think about planned and unplanned downtime of the asset, the availability gap, and how it can be minimized. Tasks here include equipment integrity management, preventive maintenance, optimized field testing and workover procedures, and so on. All these activities would elevate the Operating Potential to Installed Potential, i.e., the best you can deliver without investing in upgrading well potentials (workovers) and production infrastructure.

### DESIGN GAP

The next gap is the design gap. This gap is addressed by well and facility upgrades. Some examples include well stimulation, artificial lift installations, pipeline diameter increases, etc. Addressing the design gap elevates the potential to the Design Potential.

### RESERVOIR DEVELOPMENT GAP

The last gap, the reservoir development gap, is associated with sub-optimal reservoir depletion strategies. Typical initiatives to address this gap

include changing the field injection strategy, drilling more wells, adopting enhanced oil recovery methods, and so on. This is the most expensive gap to address and is usually addressed during the initial field development planning or when oil prices are high enough to make it economical to do so.

### ACHIEVING POTENTIAL WITH A DIGITAL TWIN

The common requirement to address all the gaps identified in Figure 1 is to have an integrated multi-disciplinary asset model which is always kept tuned to the latest observed asset performance. This enables us to generate and evaluate 'what-if' scenarios in an optimization framework. This type of setup is commonly referred to in the industry as an asset's digital twin. The Digital Field Solver application enables the digital twin by integrating dynamic data with multi-disciplinary models via automated workflows designed for surveillance, diagnostics, model updates, and optimization (Figure 2).

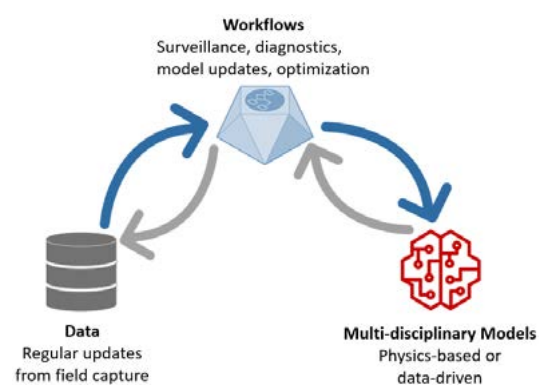


Figure 2 – How the Digital Field Solver application enables digital twins for producing oil & gas assets

The data component is powered by Landmark's Production Data Management database which is purpose-built to address the challenges associated with unlocking asset potential. Supported models include well, surface network, subsurface, and data-driven modeling technologies. The Digital Field Solver application supports the integration of both Landmark and third-party modeling technologies. Workflows are built in the Workflow Designer, a low-code environment where workflows can be visually created, edited, and tested (Figure 3).



Figure 3 – The Workflow Designer

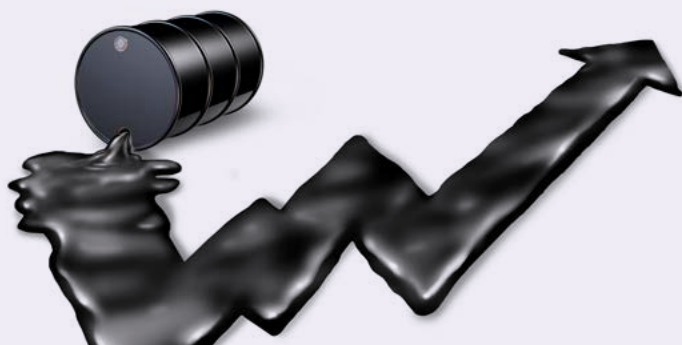
Models and workflows are fully managed in the repository to assure governance (who can do what, when, and where) and version control to support their evolution. The value is delivered by intuitive user interfaces and dashboards to improve decision making. The Digital Field Solver application includes a large collection of models and workflows to uncover and address many issues.

### THE KEY TO UNLOCKING ASSET POTENTIAL

When increased production at a lower cost per BOE is your asset's ultimate goal, the Digital Field Solver application provides an integrated view and analysis of a production asset by leveraging real-time data, diagnosis, optimization and automated workflows. This empowers you to execute faster data-to-decision cycles, in order to increase efficiency and reduce costs.

To learn more about how the Digital Field Solver application can help to increase your recovery factor, maximize asset profitability, and unlock your asset's potential – email us at [landmark-mena@halliburton.com](mailto:landmark-mena@halliburton.com) or contact us <https://www.landmark.solutions/Contact-Us>

## HOW HIGH OIL PRICES COULD BENEFIT EGYPT



**O**il and gas still play an important role in the global economy, despite the continued efforts to reduce its use and find alternative green energy sources. It is well known that petroleum projects are long-term ventures that require a generous amount of time to recover the huge initial investment.

The most important characteristics of the petroleum industry are the fluctuation and volatility of oil prices and the inability to predict oil prices for long-term or even short-term periods. In addition, the impact of oil prices is not limited to the local level but even goes beyond that to the global level, due to its paramount importance on a worldwide scale.

From the macroeconomic side, there is a direct relationship between oil prices and inflation, when oil prices increase, inflation increases. On the other hand, there is an inverse relationship between inflation and economic growth rates. An increase in the inflation rate most certainly entails a decrease in economic growth. It is well known that oil prices indirectly affect costs in most vital areas, such as transportation, manufacturing and heating, which in turn would affect the microeconomic side.

Since every increase in oil prices will result in an increase in all fuel prices, the consequence will involve the inflation of all goods and services that depend on oil or are oil-based. Therefore, it is evident that the increase in oil prices is a double-edged sword, as no one benefits absolutely and no one experiences a total loss in all areas.

Global oil prices were at a record high during the past months, approaching levels similar to that of the end of 2014. This came after a decline that lasted for many years and caused a devastating financial crisis for many countries. Then, the world oil prices began to recover to jump above the \$70 and \$80 mark. This rise will be an important factor in achieving a balance between production volume and price stability.

For Egypt, most of us may think that the drop in oil prices is beneficial to the country because of the reduction in the oil import bill. However, there is a negative side to the drop in oil prices, which is the reluctance of international oil companies (IOCs) to invest in an environment with low oil prices. This situation may be an obstacle to most petroleum projects until oil prices rise back up again. Some international oil companies may also seek to amend the terms of their petroleum agreements in Egypt in order to obtain higher profit rates that would enable them to continue under the conditions of low oil prices.

On the other side, the rise in international oil prices has double effects, as it will raise the value of Egypt's import bill of crude and petroleum derivatives, and will increase the funds to purchase the foreign partner's share of locally produced oil. In return, the value of Egypt's petroleum derivative exports will increase, and petrochemical companies' revenues will increase due to the boost in exports and sales volume. The rise in global crude will be an attractive incentive for foreign companies to expand in exploration and oil production projects.

In terms of investment attraction, a high oil price environment is in Egypt's interests because it will encourage IOCs to take more risks and make decisions strongly in Egypt's favor with better economic terms. Egyptian authorities will benefit in taking advantage of this opportunity to offer high-risk areas for exploration and brownfields for maximizing production. This in turn will accelerate development and product activity in the Egyptian oil and gas fields and may increase the production rates. As a result, this will close the gap between supply and demand, especially in the Egyptian oil market.

**BY HANY SHAKER HASHEM**

GM for Feasibility Studies and Project Evaluation  
Egyptian General Petroleum Corporation.

## INVESTING IN HUMAN POTENTIAL IN EGYPT PETROLEUM SECTOR



**W**e are currently witnessing what could be a historic period for the Egyptian oil and gas sector. History will mark these days as a pivotal point for Egyptian oil and gas development because of the Modernization Program led by the Minister of Petroleum and Mineral Resources Tarek El-Molla. The program is working on seven different aspects to allow the oil and gas sector the locomotive for sustainable development in Egypt, through turning Egypt into a regional oil and gas hub. The most important aspect of modernization is human resources management, as it is the only guarantee for continuous improvement in the other six aspects.

As the Egyptian sector evolves, the industry's labor force has had to adapt to new mentalities in the oil and gas market, involving new approaches to management. With the business atmosphere changing, a lot of training programs and development opportunities are now available to help Egyptian employees build skillsets that they need to meet the demands of the market.

International oil companies (IOC) working in the Egyptian market play an essential role in this regard, being an important provider from a human development perspective. These big multinational companies contribute generous amounts of investments into the Egyptian oil and gas market and also offer innovative technologies, research, and development strategies. Agreements between local and international companies involve training opportunities that will be provided by the IOC to Egyptian employees. Though these opportunities may be effective in equipping the country's local labor force with essential skills, there needs to be more flexibility in the market when it comes to organizing these trainings in order for these human development initiatives to achieve their intended objectives.

For the purpose of enhancing human development practices in the oil and gas sector, the concerned government entities involved in Egypt's petroleum industry should work together with IOCs to accommodate training abroad. This should be a special long-term agreement with its own rules and exceptions to get the maximum benefits from IOC research and development experience.

This effort should be led by special committee members from the top management and Egyptian universities, under the supervision of the Minister of Petroleum and Mineral Resources Tarek El-Molla. In addition, this committee would arrange training opportunities with international companies at their technology centers and headquarters to prepare the top Egyptian technical leaders to oversee and manage research and development departments in Egypt's oil and gas sector. These departments will work in areas including renewable energy, digital transformation, machine learning, and essential technologies that will help enhance the sector. Through these training initiatives, Egypt's oil and gas sector will enjoy even more success, and can also be a hub for innovative solutions to enhance our future.

**BY MOHAMED ADEL GABRY**

Section Head-Khalda Petroleum Company





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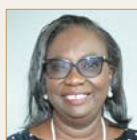
His Excellency  
Tarek El Molla  
Minister of Petroleum  
and Mineral Resources  
Arab Republic of  
Egypt



His Excellency  
Ahmed Kaouchuk  
Vice Minister of Finance  
for Fiscal Policy and  
Institutional Reform  
Ministry of Finance  
Arab Republic of Egypt



His Excellency  
Zafer Melhem  
Chairman  
Palestinian Energy &  
Natural Resources  
Authority



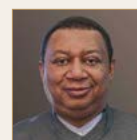
Her Excellency  
Dr Aissatou Sophie Gladima  
Minister of Petroleum  
and Energies  
Senegal



Gabriel Mbaga Obiang Lima  
Minister of Mines  
and Hydrocarbons  
Republic of  
Equatorial Guinea



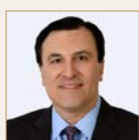
Dr Fatih Birol  
Executive Director  
International Energy  
Agency (IEA)



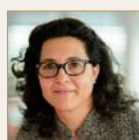
His Excellency  
Mohammad Barkindo  
Secretary General  
Organization of the  
Petroleum Exporting  
Countries (OPEC)



His Excellency  
Ali Sabt BenSabt  
Secretary General  
Organisation of Arab  
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Joseph McMonigle  
Secretary General  
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Forum (IEF)



Dr Houda Ben Jannet Allal  
General Director  
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Jean Sentenac  
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Luc Vandenbulcke  
CEO  
Dredging,  
Environmental and  
Marine Engineering  
NV (DEME)



Mathios Rigas  
CEO  
Energean



Dawn Summers  
Chief Operating  
Officer  
Wintershall Dea



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the Board of Directors  
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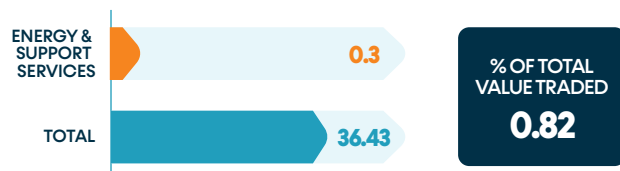


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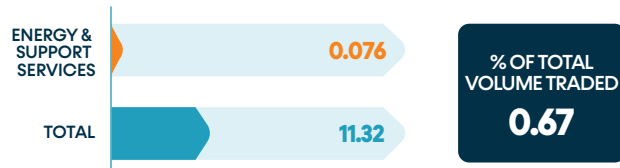


### Value and Volume of Shares Traded for Energy & Support Services Sector in Oct 2021

#### VALUE TRADED (EGP BILLION)



#### VOLUME TRADED (BILLION SHARES)



### Performance of Petroleum Companies in the Egyptian Exchange in Oct 2021



#### NATIONAL DRILLING

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
USD	4.69	-



#### ALEXANDRIA MINERAL OILS CO.

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	4.15	▲ 33.01



#### EGYPT GAS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	37.97	▼ 12.85



#### SIDI KERIR PETROCHEMICALS

CURRENCY	CLOSE PRICE	YTD PRICE CHANGE (%)
EGP	9.7	▲ 4.19



### MAIN ECONOMIC INDICATORS

September 2021

October 2021



#### ANNUAL INFLATION HEADLINE CPI (%)

6.6 ↓ 6.3



#### NET INTERNATIONAL RESERVES (\$ BILLION)

40.83 ↑ 40.85



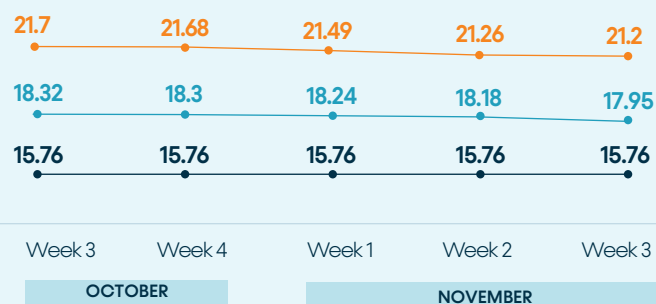
#### NON-OIL PRIVATE SECTOR PMI (POINTS)

48.9 ↓ 48.7



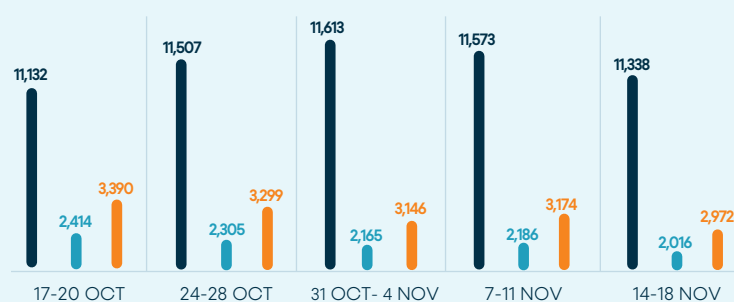
### EXCHANGE RATES

British Pound EUR USD







### CAPITAL MARKET INDICATORS

EGX 30 EGX 70 EWI EGX 100 EWI





## SPUDDING OF THE "AJ-13" DEVELOPMENT WELL

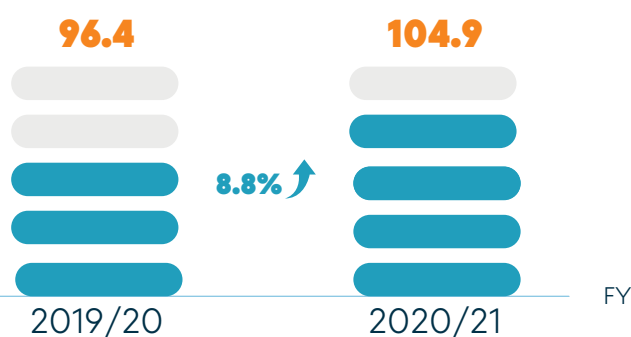
	Company	UOG
	Location	Western Desert
	Status	5 <sup>th</sup> (final) well "Abu Sennan 2021 Drilling Program"
	Completion Period	65 days

## CABINET APPROVES 5 OIL DRAFT AGREEMENTS

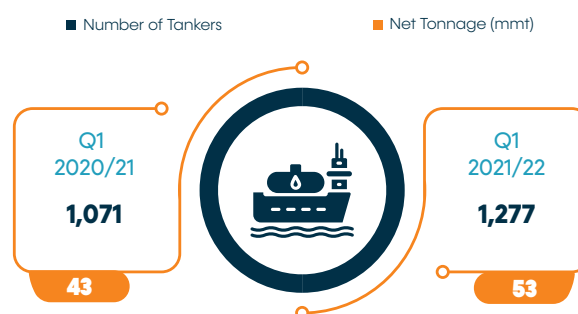


- Enhance production rates
- Optimize resources exploitation
- Pump investments into R&D field

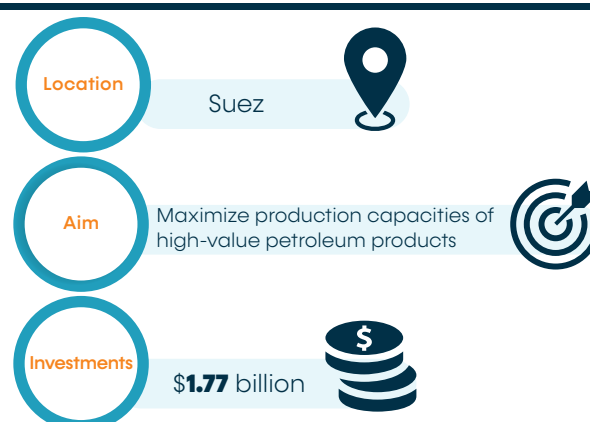
## TOTAL IMPLEMENTED INVESTMENTS IN PETROLEUM SECTOR (EGP BILLION)



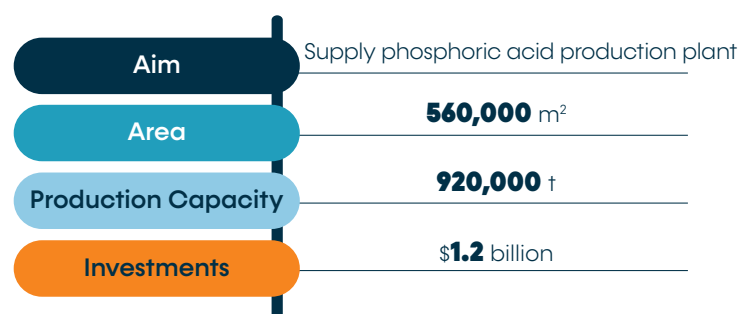
## OIL TANKERS NAVIGATION THROUGH THE SUEZ CANAL



## INAUGURATION OF COKING &amp; DIESEL PRODUCTION FACILITY



## IMPLEMENTATION OF SULFURIC ACID FACTORY IN ABU TARTOUR



## INTERNATIONAL OIL PRICES

## BRENT PRICES (\$/BBL)

## OPEC BASKET PRICES (\$/BBL)

## NATURAL GAS PRICES (\$/MMBTU)

03 September	72.61
28 September	79.09
11 October	83.65
28 October	84.32
05 November	82.74
18 November	81.24

72.56
78.37
82.53
82.41
80.16
79.37

4.71
5.84
5.35
5.78
5.52
4.90





# CHEIRON



## LEVERAGING MATURE FIELD SKILLS

### Building a Growth Portfolio

**CHEIRON** is the largest Egyptian independent E&P company with operated production levels of more than 150,000 boepd, which are set to grow further. The company is focused on applying cost effective solutions, new technologies and international safety, environmental and social standards to add value across its asset portfolio. In Egypt, the company holds an interest in 21 Concessions (17 of which operated), located in the three major oil and gas basins (Gulf of Suez, Western Desert and Nile Delta). Internationally, the company also holds assets in Mexico and Romania.