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EGYPT OIL&GAS NEWSPAPER

EXCLUSIVE INTERVIEW

THE ENVIRONMENT AND ENERGY MINISTER OF GREECE, **KOSTIS HATZIDAKIS**

STRENGTHENING THE EGYPTIAN-GREEK TIES

Eastern Mediterranean Gas Forum: **PAVING THE WAY TOWARDS A NEW AGE OF ENERGY DEPENDENCE AND COOPERATION**

EAST MEDITERRANEAN NATURAL GAS: **AN ATTRACTIVE YARD FOR INTERNATIONAL COMPETITION**

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EDITOR'S LETTER

Last January, energy ministers from the East Med Seven have met in Cairo to discuss the establishment of the East Mediterranean Gas Forum (EMGF). The EMGF brings together the gas producing and importing countries in the region, which are Egypt, Cyprus, Greece, Italy, Israel, Jordan and Palestine, in a single platform

In July, the second EMGF ministerial meeting was held. Thus, we decided to dedicate this issue to cover the natural gas market in the East Mediterranean region. Egypt Oil & Gas interviewed the Environment and Energy Minister of Greece, H.E. Kostis Hatzidakis, to discuss his contribution in the second ministerial meeting and Greece's efforts in strengthening its bilateral ties with other EMGF countries. The Greek Minister gave us a glimpse into the future of the regional natural cooperation.

The issue also includes a variety of features, from our industry insights to our political review, that tackle different angles of the natural gas potential in the EMGF countries. In the research and analysis section, we introduce a summary of a bigger report that provides the industry's stakeholders with a full profile for each of the EMGF countries, in addition to more important and valuable information and analysis. The EOG Team wishes you all a pleasant and informative reading.

MAHINAZ EL BAZ

Acting Editor-In-Chief
Research & Analysis Manager

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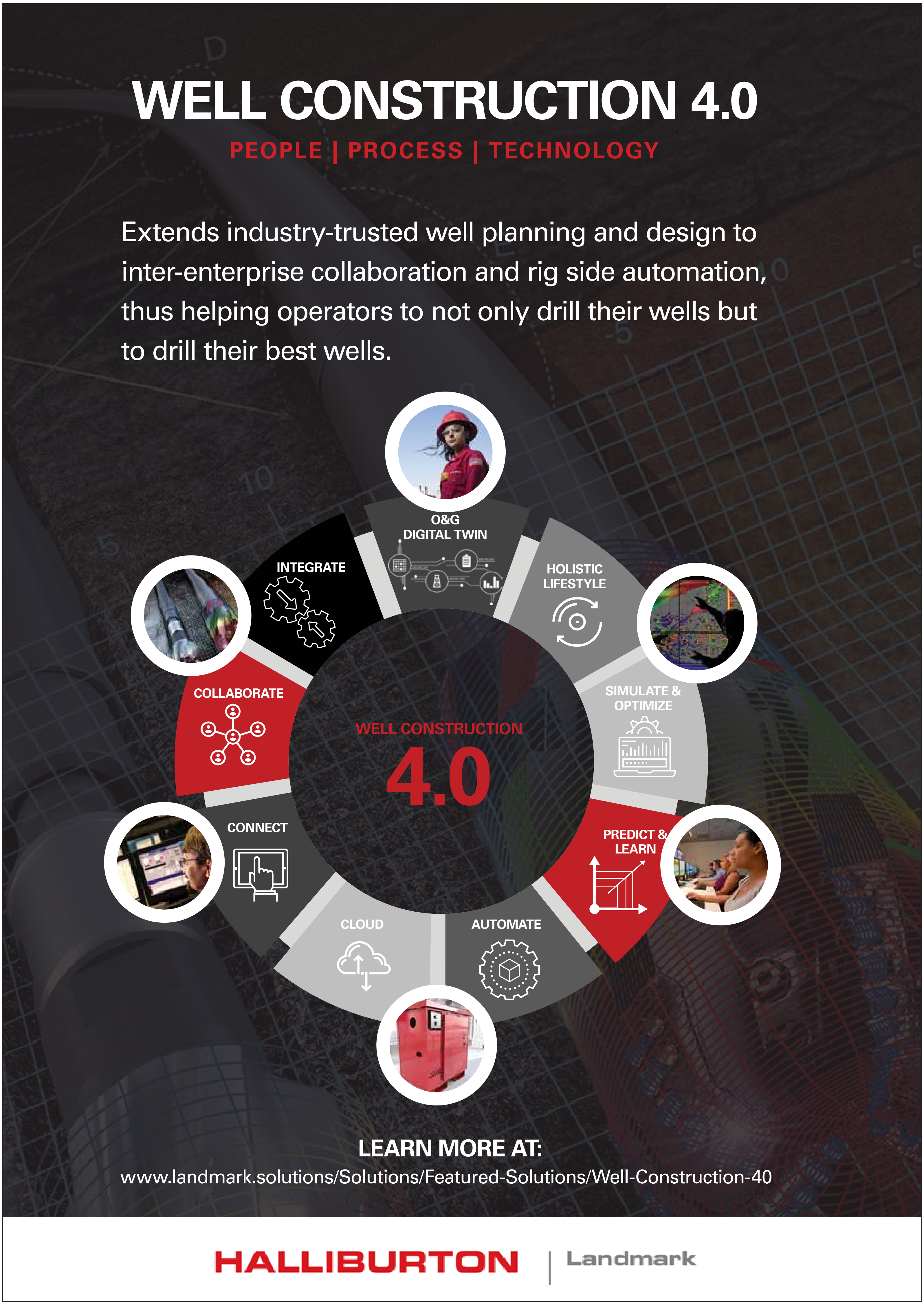
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EGYPT'S CRUDE OIL PRODUCTION TO REACH 690,000 B/D

Tarek El Molla, the Minister of Petroleum and Mineral Resources, announced that the average crude oil production reached 630,000 barrels per day (b/d) and that the petroleum sector aims to reach 690,000 b/d by the end of fiscal year (FY) 2019/20. El Molla added that he has formed a working team under his own supervision to work on a program to increase Egypt's petroleum production rate, by choosing a new geological method that was proven to be successful in the Western Desert and the Gulf of Suez. El Molla stated that some areas in the Western Mediterranean have been assigned to international oil companies (IOCs) to explore new discoveries, especially after 2D and 3D seismic surveys have been performed on those areas. Accordingly, an international bid round was held to explore oil and gas in the Red Sea area, with a deadline of September 15, which will attract IOCs.

PETROBEL SETS NEW PRODUCTION RECORD WITH MILESTONE ACHIEVEMENTS

The average production of Belayim Petroleum Company (Petrobel) has exceeded a record 803,000 barrels of oil equivalent per day (boe/d) for the first time in its history during July. The company's production totaled around 358,000 boe/d in fiscal year (FY) 2018/19, with 1.475 billion standard cubic feet per day (bscf/d) of gas, 70,000 barrels per day (b/d) of oil, 14,000 b/d of condensates, and about 274 tons per day of butane, according to the report presented to the Minister of Petroleum, Tarek El Molla, by the Head of Petrobel, Atef Hassan.

The report also showed that a marine production platform was and manufactured and installed at the Baltim South West Field, three months ahead of schedule. Moreover, an 18-kilometer (km) offshore pipeline with a 26-inch diameter was completed, alongside a 25-km onshore pipeline, with the same diameter, with the first well set to be completed and begin production in the coming days.

Five more wells are planned to be drilled in the Baltim South West Field during FY 2019/20 to raise output to 500 million standard cubic feet per day (mscf/d) of gas, and 5,000 b/d of condensates. Investments of $1.21 billion were pumped in the oil and gas exploration and production (E&P) activities, of which $691 million were directed towards development operations, and $331 million for operating costs, saving 11% while maintaining the same levels of production, thus reducing costs by around 10% per barrel of oil equivalent (boe).

EGYPT PLANS MORE OIL HEDGING CONTRACTS

The Egyptian government is planning to double the number of crude oil hedging contracts for fiscal year (FY) 2019/20. The government is set to renew two hedging contracts with two international banks, in addition to signing five new agreements to ensure the highest degree of risk avoidance, by reviewing different offers and terms. Moreover, the government will expand hedging to include other commodities next year. It was previously reported that the Ministry of Petroleum and Mineral Resources along with the Ministry of Finance are negotiating adjustments to the hedging deals, targeting a price of less than $70 per barrel, ranging between $64 and $68.

EGYPT TO PUMP 6.39 BCF/D OF NATURAL GAS TO FULFIL MARKET'S DEMAND

The Ministry of Petroleum and Mineral Resources is planning to pump around 6.39 billion cubic feet per day (bcf/d) of natural gas to fulfil the average market's demand during the current year. The domestic consumption surplus of the natural gas pumped will be exported through Idku and Damietta liquefaction plants. The average natural gas consumption is increasing each year and is expected to reach 9 billion cubic feet per day (bcf/d) by fiscal year (FY) 2020/21 as a result of the natural gas surplus in most activities. The current investments will add around 1.15 bcf to the current production which is estimated at 6.8 bcf. The average surplus after fulfilling the local market's demand is 1.56 bcf/d after binding the second phase of North Alexandria and increasing Zohr's production that made Egypt's natural gas production raise to 7.95 bcf/d during the current fiscal year.

GANOPE EXTENDS DEADLINE FOR RED SEA BID ROUND

Ganoub El Wadi Petroleum Holding Company (Ganope) has extended the deadline for receiving offers for its international bid for oil and gas exploration in the Red Sea to mid-September, instead of August, to allow more companies to submit their offers. Ganope announced the international bid round back in March, for 10 offshore exploration blocks, as the first in the Egyptian Red Sea, in line with the Ministry of Petroleum and Mineral Resource's strategy to increase exploration and production activities to fully optimize the economic utilization of resources to contribute to the sustainable development of Egypt. Under the Production Sharing Agreement (PSA), bid winners will have the right to sell their share of production locally or export it globally after the ministry's approval.

EGYPT ALLOCATES NEW PROPERTIES FOR EGPC

President Abdel Fattah El Sisi issued decree number 338 on August 1, to allocate three private properties in the Suez Governorate owned by the state for the Egyptian General Petroleum Corporation (EGPC) to build storage and production stations for petroleum products.

ENERGY SECTOR RECEIVES EGP 266.7 B IN NINE MONTHS

A total of 12 projects have been implemented in the energy sector in the first nine months of fiscal year (FY) 2018/19 with a cost of EGP 266.7 billion, according to a report by the Ministry of Planning, Monitoring and Administrative Reform. Additionally, 82 projects have been implemented in the energy sector in Q3 FY 2018/19 with a cost of EGP 63.5 billion. Five of these projects were allocated to the petroleum sector with a cost of EGP 47.5 billion, representing 75% of the total amount. Meanwhile, 192 projects have been implemented in the electricity sector in the first nine months of FY 2018/19 with a cost of EGP 68.23, down from 77 projects in Q3 FY 2018/19 with a cost of EGP 15.9 billion, accounting for 25% of the total amount.

EU PROVIDES EUR 20 MM FOR EGYPT'S ENERGY PROJECTS

The European Union (EU) has dedicated EUR 20 million to participate in financing energy projects in Egypt. The EU will also provide a grant that will be merged with loans provided by France, the European Investment Bank (EIB), and the European Bank for Reconstruction and Development (EBRD). Finances are provided to building and developing managerial capacities in Egyptian natural gas projects, as well as renewable and green energy projects, and smart meters that are being installed across the country. The EU has supported Egypt in obtaining about EUR 1 billion of soft loans from European financial institutions, including more than EUR 300 million in grants.

PM OVERSEES SETTLING INTERMINISTERIAL FINANCIAL RECORD

Prime Minister Mostafa Madbouly held a meeting on August 7 to follow up on resolving financial entanglements between ministries. During the meeting, ministers reviewed the outcomes of the technical meetings that were held with experts and government representatives over the last period to reach an agreement over arrears. Madbouly praised the ministers' flexibility as they work together to reach a proper settlement for the issue, ensuring that this strategy will enable some ministries to promptly collect receivables that would have otherwise taken at least several years. The Prime Minister further stressed that meetings will be held periodically to follow up on relevant progress until a final settlement is reached.

FUEL CONSUMPTION DECREASES BY 5% IN JULY

Fuel consumption declined by 5% during July, following the introduction of the automatic fuel pricing indexation mechanism. Total petroleum products consumption decreased to 2.2 million tons, compared with previous levels at 2.4-2.5 million tons a month. Diesel consumption shrank to 1.1-1.2 million tons, compared with 1.2 million tons a month at the beginning of 2019. Meanwhile, butane consumption stood at 330,000 tons. Misr Petroleum has pumped around 2.1 million liters of 92-octane gasoline per day, as the company's highest consumed product.

NATURAL GAS TO BE PRIMARY SOURCE OF FUEL

Minister of Petroleum and Mineral Resources Tarek El Molla revealed an integrated work plan that is underway to expand the use of natural gas as a primary source of fuel for cars. The Ministry of Petroleum and Mineral Resources aims to convert 50,000 vehicles to run on natural gas annually instead of gasoline and diesel, and motivate citizens to convert their cars to a bi-fuel system. El Molla pointed out that the government aims to provide consumers with different types of fuel to the local market, especially after natural gas has been widely accepted among citizens. The ministry is reinforcing its vision by establishing gas stations across various governorates and providing the needed facilities to supply and convert vehicles to run on natural gas.


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EGYPT INVESTS EGP 43 B IN ASSIUT OIL PROJECTS

Investments in oil production and refining projects in Assiut reached a total of EGP 43 billion. Projects include establishing a refining unit for producing high-octane gasoline, as well as a complex to produce gasoline and diesel. The ministry is building several new refining projects in Upper Egypt to meet the demand for petroleum products. Egypt is carrying out six refining megaprojects with around $9 billion investments, as a part of the oil and gas sector's Modernization Project. In May, Tarek El Molla, the Minister of Petroleum reviewed the situation of the mazut hydro-cracking complex at the Assiut National Oil Processing Company (ANOPC). The $1.9 billion project will use 2.5 million tons of mazut to produce higher-value products like diesel, naphtha, and butane.

ANRPC INCREASES GASOLINE PRODUCTION BY 700,000 TONS ANNUALLY

Alexandria National Refininig and Petrochemical Company (ANRPC) established two Naphtha refinery projects that aim to maximize the company's gasoline production with 700,000 tons per year to cover the local market's demand. According to the company officials, they established the naphtha processing unit to absorb the heavy naphtha and refine it accordingly, in addition to raising the refinery's production capacity to 100% instead of 75%, increasing the Gas Recovery Unit's production capacity and increasing the butane production with 10,000 tons a year. They also pointed out that ANRPC produces around 43% of the 92-octane and 95-octane across Egypt.

SIDPEC REACHES HIGHEST POLYETHYLENE PRODUCTION SINCE 2014

Sidi Kerir Petrochemicals (SIDPEC) has achieved its highest Polyethylene production rate since 2014. Mosaad El Kasaby, SIDPEC Chairman stated that the Ethylene facility in SIDPEC has stopped working for a while due to a regular procedure to purify the compressor's refinery, which only takes a very short period of time. This procedure has already been performed and the facility is now working normally, knowing that this takes place periodically in all Ethylene facilities in the world not only in SIDPEC.

AL MANAR GROUP PLANS 35% PRODUCTION HIKE IN 2019

Al Manar Group's factory in 6th of October City has reached a production capacity of about 5,500 tons per year. The group aims to increase its production by 35% by the end of 2019, by raising production capacities and expanding in product distribution locally and internationally. Al Manar Group has succeeded in increasing the share of exports in its overall sales to 10% in 2018, thanks to sales in North African markets and expanding to East Africa through Kenya.

PETROLEUM ARROWS TARGETS 24% MARKET SHARE

Petroleum Arrows Company is seeking to increase its market share in transporting and distributing petroleum products to 24% by the end of 2019. The company is dominating about 65% of the total butane transportation activity across Egypt's governorates at around 3,000 tons per day, as well as 20% of the transportation market of other petroleum products such as gasoline, ammonia, and mazut. It is also seeking to focus on other products like ammonia and high-quality propane. Petroleum Arrows transports around 8.5 million liters of petroleum products per day across the country.

QALAA HOLDINGS EXPLAINS REDUCED STAKE IN ERC

Qalaa Holdings has confirmed in a market statement that its stake in the Egyptian Refining Company (ERC) has decreased to 13.14% because other shareholders have underwritten additional equity. The company explained that its indirect ownership in ERC decreased because the Egyptian General Petroleum Corporation (EGPC) and Qatar Petroleum (QP) had underwritten the $192 million additional equity agreed in June 2012. Moreover, EGPC had underwritten $50 million in the last $70 million capital hike. The refinery will have the capacity to produce 4.7 million tons of refined products per year, including 2.3 million tons of Euro V diesel, representing more than 30% to 40% of Egypt's current imports, as well as 700,000 tons of jet fuel.

EL SISI MEETS US ENERGY MINISTER TO BOLSTER COOPERATION

President Abdel Fattah El Sisi met with the US Energy Secretary Rick Perry to discuss US investments in the area of exploration and production (E&P) and petrochemicals in Egypt. El Sisi underscored Egypt's interest in strengthening the bilateral strategic relations with the US across the various aspects. The President and Perry emphasized that the new gas discoveries help in transforming the region's latent resources into real investment opportunities for the benefit of the coming generations, as well as supporting Egypt's strategy to become a regional energy hub.

EL MOLLA DISCUSSES JOINT COOPERATION WITH EU

The Minister of Petroleum and Mineral Resources, Tarek El Molla has discussed with Ivan Surkos, the European Union (EU) Ambassador to Egypt enhancing cooperation in different forms, including a joint project with Belgium's Port of Antwerp. Egypt seeks to study international successful models in energy supply and trade, especially through petroleum ports, to serve the ministry's goal to transform Egypt into a regional energy hub. The EU ambassador also pointed to the technical and financial support to Egypt's energy strategies as a regional hub, noting that the EU is supporting the ministry's energy efficiency initiative with EUR 2 million, with a EUR 20 million grant dedicated to energy projects, and another EUR 50 million dedicated to project financing.

EGYPT DISCUSSES ENERGY COOPERATION WITH ALGERIA

Ayman Mosharafa, Egypt's Ambassador to Algeria discussed bilateral cooperation methods with Mohamed Arkab, Algeria's Minister of Energy. The meeting tackled the cooperation in new energy exploration projects in Africa, and exchanging training experiences and capacity building, in addition to the diplomatic relationships between the two countries. The two parties are looking forward to strengthening the partnership especially in electricity grid, energy sector, renewable resources like hydrocarbons and petrochemicals. Mosharafa ensured that the Egyptian firms are keen on cooperating by establishing projects either inside or outside Algeria.

EGYPT LOOKS INTO BILATERAL PARTNERSHIPS WITH KENYA

Egypt's Ambassador in Nairobi, Khaled Al-Abyad, met with Kenya's Cabinet Secretary for Energy and Petroleum, Charles Keter, as the parties are looking forward to creating specialized bilateral partnerships in electricity and energy investments. Underlining Egypt's commitment to promote cooperation and support African economic integration, the ambassador said that many Egyptian companies are currently exploring investment opportunities in the neighborly African state. That came serving the Egyptian President Abdel Fattah El-Sisi's plan to maximize the benefits of cooperation and consultation with Kenya.

MINISTRY OF PETROLEUM SETTLES WITH ALEXANDRIA PORT AUTHORITY ON FUEL SUPPLY AGREEMENT

The Egyptian Cabinet approved a deal between the Ministry of Petroleum and Mineral Resources and Alexandria Port Authority to supply fuel for the ministry. This came as the Cabinet held its weekly meeting to review the positive indicators of the country's financial performance, which the government succeeded in achieving during fiscal year (FY) 2018/19. The government has succeeded in implementing several economic programs and achieved their objectives with the best results.

EGYPTIAN STUDENTS WIN SHELL'S IMAGINE THE FUTURE COMPETITION

Shell announced that the team representing Zewail City of Science and Technology, named Sound Clash, won the first place in the "Imagine the Future" international competition for 2018/2019, which was held in Singapore on July 1-4. The Egyptian students' team presented scenarios that envision the future in 2050 from the technological, social, and environmental aspects. In the international competition, Sound Clash presented the "Orchestra Vs. Jazz" Scenarios for 2050, discussing two potential perspectives on the future, where either a systematic Orchestra-like world sees governments and big corporations control data and technology, or a more open liberated Jazz-like world, where small companies get the chance to prosper.


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EAST MEDITERRANEAN REGION AT A GLANCE

EMGF SECOND MEETING CONCLUDES IN CAIRO

The East Mediterranean Gas Forum (EMGF) held its second meeting in Cairo on July 24-25. The forum was attended by the Egyptian, Cypriot, Greek, Palestinian, Israeli, and Italian energy ministers, as well as a representative of the Jordanian Minister of Energy as per the invitation of H.E Tarek El Molla, the Egyptian Minister of Petroleum. Moreover, US Energy Secretary Rick Perry also attended the meeting as a special guest of honor, alongside the representatives of France, the European Union (EU), and the World Bank.

The ministers agreed on the forum's governing rules to enhance regional cooperation in the energy sector and to make the best use of available resources, paving the way for a sustainable regional natural gas market. Additionally, the forum's members revealed their commitment to transform the forum into an international organization that fully abides by the sovereign rights of its members in their natural resources, in accordance with the international law.

The participating delegations expressed their gratitude to Egypt and to the Egyptian President Abdel Fattah El Sisi for hosting the meeting. Through the forum, the seven members emphasized the transformation of Egypt into a leading center for natural gas trade and the region's energy hub. The next EMGF Ministerial Meeting will be held in Cairo during the second half of January 2020.

COOPERATION ASPECTS

EGYPT, US SIGN ENERGY COOPERATION MOU

Egyptian Minister of Petroleum Tarek El Molla signed a memorandum of understanding (MoU) with US Secretary of Energy Rick Perry to boost bilateral cooperation in the oil and gas industry. The agreement was signed on the sidelines of the second ministerial meeting of the East Mediterranean Gas Forum (EMGF) on July 26. According to the statement, the MoU is meant to facilitate the exchange of technical information, consultancy services and the transfer of technology in the fields of oil and gas exploration, production and refining, as well as petrochemicals.

El Molla said during the signing that the US participation in EMGF proves that the two countries are witnessing an era of strong mutual relations, stressing that the MoU will pave the way for more joint cooperation in the energy field between the two countries. For his part, Perry said that the US supports Egypt's efforts to become a regional energy hub, pointing out that under President Abdel Fattah Al-Sisi's leadership, the Egyptian oil and gas industry witnessed a boom and achieved self-sufficiency in a record time.

EGYPT DISCUSSES BILATERAL COOPERATION WITH GREECE

Tarek El Molla, the Minister of Petroleum, and Konstantinos Hatzidakis, the Greek Minister of the Environment and Energy, discussed the bilateral cooperation between the two countries in the petroleum and gas sectors during the arrangement of the second East Mediterranean Gas Forum (EMGF). The Greek Ambassador in Egypt Michael-Christos Diamessis, the ministry's First Undersecretary for Agreements and Exploration Ashraf Farag and the Chairman of the Egyptian Natural Gas Holding (EGAS) Osama El Bakly also attended the meeting. Kostis ensured that the gas explorations in the Eastern Mediterranean region will support the political and economic connections between the forum's countries and reveal new channels, as all the parties believe that the cooperation in exploring the Eastern Mediterranean will benefit all parties to utilize their natural resources. The next phase will witness an effective contribution from the International Oil Companies (IOCs) as well as attracting the Greek companies to work in Egypt, as a result of the recent gas explorations in the Eastern Mediterranean.

EAST MED SEVEN SEEK ENERGY COOPERATION

Following the East Mediterranean Gas Forum (EMGF), the participating energy ministers declared to increase cooperation to develop the region's gas reserves. Georgios Lakkotrypis, Cyprus Minister of Energy, Commerce and Industry announced during the second meeting of the EMGF that Cyprus has decided to pump natural gas to Egypt between 2024 and 2025. Lakkotrypis also stated that the pipelines connecting Egypt and Cyprus are expected to be established during the upcoming weeks to pump gas into Egypt's liquefication plants.

Meanwhile, the French Ambassador of Egypt, Stéphane Romatet, who was also invited to attend the forum, revealed ongoing discussions as France is looking forward to importing natural gas from Egypt and East Med countries, which is why France might consider joining the EMGF. French companies like Total and ENGIE are negotiating with East Med companies to import gas. Furthermore, the Ministry of Petroleum reached out to the European Union (EU) and the US support, stating that the private sector along with the Autonomous Corporations are to participate in the EMGF activities.

-IN CONJUNCTION WITH THE EMGF

GREECE, US, CYPRUS, ISRAEL TO FOSTER REGIONAL TIES

Greek Minister of Energy, Kostis Hatzidakis, said after the meeting in Athens that Greece, the US, Cyprus, and Israel have agreed on strengthening the cooperation ties among them in the fields of energy, cyber, and infrastructure security. The natural gas discoveries in the

East Mediterranean region have provided Europe with another alternative for energy. Cypriot Energy Minister Yiorgos Lakkotrypis said he had received assurances from his Israeli, Greek and US counterparts of full support over his country's right to search for natural resources.

EGYPT

SHOUKRY DISCUSSES ENERGY COOPERATION IN CYPRUS

The Minister of Foreign Affairs, Sameh Shoukry, met the President of Cyprus, Nicos Anastasiades, on July 31, and delivered a letter from President Abdel Fattah El Sisi to his Cypriot counterpart. The Presidential message emphasized the necessity to enhance bilateral cooperation between Egypt and Cyprus, as well as the cooperation between the two countries and Greece, as an example to follow for regional cooperation and coordination.

Shoukry met his Cypriot counterpart, Nikos Christodoulides, earlier and discussed cooperation between Cairo and Nicosia. The Egyptian minister further pointed to the role played by mega hydrocarbon discoveries in enhancing ties between the two countries, emphasizing the importance of the East Mediterranean Gas Forum (EMGF).

ISRAEL TO EXPORT GAS TO EGYPT IN 4 MONTHS

Israel plans to export natural gas to Egypt within four months, the Israeli Minister of Energy, Yuval Steinitz told Reuters on July 24. Exporting Israeli natural gas marks the implementation of a $15 billion export agreement between Delek Group and Noble Energy. It is worth noting that the agreement plays an important role in helping Egypt achieve its target to become a regional gas hub, exploiting its strategic location and upgraded infrastructure.

IDKU GAS EXPORTS RISE TO 750 MMCF/D

The Egyptian Natural Gas Holding Company (EGAS) estimated the quantities of natural gas exported through Idku gas liquefaction plant to be 750 million cubic feet per day (mmcf/d) compared to 500 mmcf/d in June, according to a source at EGAS. The exported quantities through Idku have increased after linking 250 mmscf/d of the Giza and Fayoum fields to the local production, increasing domestic production and reducing the consumption, making Egypt strongly return to international markets after achieving self-sufficiency locally. The contractual share of Idku is estimated at 1.13 billion cubic feet per day (bcf/d), operating 340 days each year and stopping production for a month for the maintenance of units, which costs $20 million.

EL SISI AFFIRMS SECTOR'S NATURAL GAS SELF-SUFFICIENCY

The oil and gas sector has succeeded in terms of self-sufficiency, manufacturing and exporting, President Abdel Fattah El Sisi said during the "Ask the President" session, as part of the National Youth Conference held on July 30-31. He added that he hopes this can be applied to the petroleum sector as well in the coming few years, noting that Egypt has set a price for oil barrels according to the current budget, at $68 per barrel.

ZOHR PRODUCTION REACHES 2.7 BCF/D

Tarek El Molla, the Minister of Petroleum, announced that the production capacity of Zohr gas field has raised to 2.7 billion cubic feet per day (bcf/d), five months ahead of the scheduled date.

This came after the establishment of the second submarine pipeline with a diameter of 30 inches and a length of 215 kilometer (km). The pipeline started being fully-functional by mid-August and connected the southern wells in Zohr to its total 12 production wells, indicating that the current production rate is eight times as two years ago. The completion and optimization of the pipeline, along with increasing the plant treatment capacity, paves the way to a boom by the year end, where the field's potential production could rate up to 3.2 bcf/d against the planned 2.7 bcf/d.

By this way, the production from Zohr field has surged by 3.6 times in H1 2019, compared to the production level recorded in the same period a year earlier.

Atef Hassan, Petrobel Chairman, stated that the company succeeded to add the production of the first phase and increase capacity after eight onshore treatment production units and an all-Sulphur production unit have been completed. In addition, an offshore control platform was developed to accommodate the 160 km long second electro-hydraulic cable that was completed last March to control Zohr's southern wells.

It is worth noting that the increase in gas production has helped raise condensate production from the field by 14.3% to around 4,000 tons per day, compared to 3,500 tons per day in 2018.

NATURAL GAS HITS HIGHEST PRODUCTION LEVEL

Egypt's natural gas production rose to its highest level, recording 6.8 billion cubic feet per day (bcf/d), as part of the petroleum sector continuous efforts to increase national oil and gas production and reserves.

Belayim Petroleum Company (Petrobel) announced earlier a new natural gas discovery in the Nile Delta concession area, with an expected production rate of 20 million standard cubic feet per day (mscf/d). An initial production of 17 mscf/d of gas is likely to exist during the connection of the well to existing production facilities in the area and the gas treatment plant in the Abu Madi fields. It is worth noting that the total production of petroleum products reached about 160 million tons of crude oil and condensates, about 192 million tons of natural gas, and 6.7 million tons of butane.

SHELL STARTS DRILLING FIRST EXPLORATION WELL BY END OF AUGUST

Shell announced that the "Discoverer India" Drillship will begin drilling its first exploration well "Montu" at a depth of 6,000 meters below sea level in the West Delta Deep Marine (WDDM) concession by the end of the month.

"The Company has put a strategy to increase and sustain natural gas production in the Mediterranean through a series of steps, such as exploring investment opportunities in the concession, as well as using innovative ways to explore natural gas in an unconventional way in Egypt at a 20,000-feet marine depth", said Khaled Kacem, Shell's Chairman and Managing Director in Egypt.

Omar Hilal, Rashid Petroleum Company (Rashpetco) General Manager and Managing Director, said "the Montu Well, which will be drilled with huge investments, lies in a Pre-Messinian layer in 6,000 meters depth, which is equivalent to 20,000 feet in a High-Pressure, High-Temperature (HPTP) layer. Montu drilling process shall take around five months once they get started, as the well's reserves are around 4.7 trillion cubic feet (tcf), while the drillship will keep operating for a year as a part of the exploration process that includes another well that is fully owned by Shell."

Kacem stated that Shell supports Egypt in turning into a regional energy hub by taking several steps such as investing significantly to recover Rashid and Burullus gas plant's production capacity, which contributed with 40% of total Egypt's gas production.

NSCO BEGINS PRODUCTION IN NORTH SINAI GAS FIELD

NSCO Investments has completed the development of the first well in a North Sinai offshore natural gas concession. NSCO drilled the first well in the Kamos area at a depth of 1,698 meters with a cost of around $15 million. Production at the well began at a rate of 25 million standard cubic feet per day (mscf/d), which raised the company's entire production capacity to 40 mscf/d. The well is expected to generate revenues of more than EGP 500 million over the next two years.

The second well in Kamos concession, drilled at 2,664 meters, is expected to begin production during Q3 2019. Seismic surveys previously showed around 2.352 trillion cubic feet (tcf) of natural gas and 112 million barrels of condensates in reserves in the concession.

BP TO INCREASE NORTH ALEXANDRIA'S GAS PRODUCTION TO 1.5 BCF/D

BP is planning to raise gas production from North Alexandria to reach 1.5 billion cubic feet per day (bcf/d) by 2020. This will come as BP launches its third phase by the end of 2019, in which around 850 million cubic feet per day (mcf/d) of gas will be linked to the Ravin field, which will have an initial production rate of 350 mcf/d. A gas treatment unit is being established specifically for the Ravin field with a capacity of 900 mcf/d. In addition, the production from Giza and Fayoum fields will reach their peak of 680 mcf/d during this month, up from a capacity of 250 mcf/d, and 430 mcf/d this August and last February, respectively. The proven reserves of the gas projects from North Alexandria is estimated to be 5 tcf, while BP acquires 82.75% of these projects.

WINTERSHALL DEA STRENGTHENS ITS COMMITMENT TO EGYPT

Wintershall Dea strengthens its commitment to Egypt as Mario Mehren, CEO of Wintershall Dea, visits the country for the first time and meets with prominent government officials and industry leaders to discuss further cooperation.

Wintershall Dea is currently conducting a comprehensive work program for its Disouq onshore gas development project and the offshore oil fields in the Gulf of Suez. To achieve a significant ramp-up of production from the seven gas fields in Disouq, Wintershall Dea started an ambitious redevelopment program. To increase production from the mature oil fields in the Gulf of Suez, Wintershall Dea is currently carrying out a workover of existing wells, drilling sidetracks and replacing existing pipelines with new ones with greater capacity. Wintershall Dea currently produces about 40,000 barrels of oil equivalent per day (boe/d) in Egypt, with the plan to further increase this rate significantly by the end of 2019.

BP TARGETS 500 MMSCF/D IN SOUTH BALTIM GAS PROJECT

BP is aiming to produce 500 million standard cubic feet per day (mmscf/d) of natural gas from its new discovery in the Baltim South Development Lease. The Baltim SW-1 exploration well was drilled at a depth of 3,750 meters with a water depth of 25 meters, reaching sand layers holding excellent gas reservoirs.

The exploration plan includes drilling six wells in the Baltim South Development Lease in the Nile Delta and establishing a 2400-ton rig at a 23-meter depth, as well as a 35-kilometer sea line to transport the gas to the Abu Madi plant at a cost of $380 million.

EXXONMOBIL CONSIDERS LOGISTICS CENTER IN DAMIETTA PORT

Damietta Port Authority (DPA) Chairman Tarek Shahin has discussed investment opportunities with a delegation from ExxonMobil. ExxonMobil is reportedly considering establishing a logistics center in the port, which enjoys a strategic location near Egypt's recent offshore natural gas discoveries in the East Mediterranean, as well as a strong infrastructure.

UNICO TO ACQUIRE ROCKHOPPER EGYPT FOR $16 MM

United Oil and Gas Company (UNICO) declared its proposal to acquire Rockhopper Exploration Egypt for $16 million. The acquisition will deliver over 1,100 barrels of oil equivalent per day (boe/d) of net low-cost production with 2.64 million boe net 2P Reserves to UNICO.

The British Petroleum Company (BP) will provide $8 million to fund the acquisition after it entered an offtake agreement for UNICO's future oil and gas production. While BP is providing a significant portion of financing for the deal, UNICO will place new ordinary shares worth up to $5 million to Rockhopper.

DANA GAS CONFIRMS HIRING FINANCIAL ADVISORS TO SELL EGYPTIAN ASSETS

Dana Gas confirmed that it is studying the possibility of selling its Egypt asset portfolio and has hired financial advisors accordingly. Moreover, Dana Gas will instead shift its focus to further develop and boost production from its oil and gas fields in the Kurdistan region of Iraq, as it contains more than 90% of the company's 2P reserves.

Another statement earlier this week by Reuters said that investment bank Tudor, Pickering, Holt & Co. (TPH) will offer its advice for the sale of the company's $500 million Egyptian asset Merak-1 well, where no commercial discoveries have been made.

HALLIBURTON TO TRAIN 20 YOUNG INDUSTRY CALIBRES

The Minister of Petroleum, Tarek El-Molla has discussed with Joe Rainey, Halliburton's Eastern Hemisphere President, bilateral cooperation in light of the ministry's strategy to expand in the exploration and production (E&P) activities and professional capacity building. Osama Mobarez, the Ministry's Undersecretary for the Technical Office, and Colby Fuser, Halliburton's Vice President for Egypt and Libya signed an agreement for cooperation in applying the Modernization Project's HR Management Development Pillar, in which 20 young calibers will be trained by Halliburton for the course of six months.

RASHPETCO ISSUES FIRST LOGISTICS SAFETY BROCHURE

Rashid Petroleum Company (Rashpetco) has prepared a pioneering safety brochure for logistics services in the petroleum sector, to identify and manage risks associated with land, maritime, and air transport. The brochure is the first of its kind in the Egyptian petroleum sector, and it seeks to form a detailed reference case study that helps other companies in identifying, evaluating, and managing risks. Rashpetco managed to identify and prioritize the main points that need the most work, through an internal audit process in the logistics services system.

The logistics services safety brochure was prepared to align with the Health, Safety, and Environment (HSE) and environmental protection standards in Egypt and the UK.


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SAUDI ARABIA

Saudi Arabia's oil production fell to 9.6 million barrels per day (b/d) in July and is expected to stay below the 10 million b/d level in the coming months. The Kingdom's crude output decreased by around 200,000 b/d compared with June. Saudi production quota under the production cut agreement, sponsored by the Organization of the Petroleum Exporting Countries (OPEC), is at 10.3 million b/d. However, Saudi Arabia seeks to reduce oil inventories.

Saudi Arabia's crude oil exports to China soared to 1.74 million b/d in July, while shipments to the US tumbled to 161,000 b/d, compared with 1.03 million b/d a year earlier. Last month, Saudi oil shipments declined to 6.7 million b/d, about 200,000 b/d less than in June. Data shows that Chinese oil imports from Saudi Arabia reached a record level, while flows to the US decreased during the same time. The Saudi Kingdom has compensated China, the largest crude oil buyer in Asia, for the shortage of crude oil supplies that resulted from the US-imposed sanctions on Iran.

Saudi Arabia and Kuwait have discussed resuming crude oil production in jointly operated fields in the Neutral Zone. The output from the jointly run oilfields, namely Khafji and Wafra, was halted more than four years ago, cutting some 500,000 b/d. Saudi Arabia and Kuwait have reportedly achieved significant progress in negotiations over resuming production from the two fields. The Saudi–Kuwaiti Neutral Zone is an area of 5,770 square kilometers (km2) between the borders of Saudi Arabia and Kuwait that was left undefined when the border was established.

Saudi Arabia will continue with the production cuts until the end of Q1 2020. The OPEC and its allies, known as OPEC+, recently decided to extend the production cut agreement until the end of March 2020. The decision came shortly after Saudi Arabia and Russia agreed to extend the output cut deal by another six to nine months during a meeting between Saudi Crown Prince Mohamed Bin Salman and Russian President Vladimir Putin on the sidelines of the 2019 G20 Osaka summit in Japan.

Saudi Arabia plans to increase the capacity of the East-West Pipeline by 40% within two years in order to reduce oil exports through the Strait of Hormuz. The move comes in response to a number of incidents that included attacks on Saudi and Emirati oil tankers in the Arabian Gulf. Saudi Arabia aims at maximizing exports through the 5 million b/d East-West pipeline if required. Saudi Arabia has revealed that it is willing to further provide India with additional oil supplies as Indian crude oil imports from Iran were declined by more than half in April due to the US sanctions on Iran.

Saudi Aramco announced that the price of the Arab Light crude to Asian customers has been decreased by $0.75 per barrel for September delivery, compared with a premium of $1.70 per barrel to the Oman/Dubai crude average price. Moreover, the Saudi company raised its September Arab Light crude official selling price (OSP) for Northwest Europe at a discount of $0.05 a barrel to ICE Brent, increasing by $2.65 compared in August. On the other hand, the Arab Light OSP to the US remained unchanged from the previous month, after it was set at a premium of $2.85 a barrel to the Argus Sour Crude Index (ASCI) for September.

Saudi Aramco and Russia's Lukoil are considering a partnership for two natural gas projects in Uzbekistan. This partnership would come in line with a protocol that was signed by Saudi Arabia and Russia at the last meeting of the intergovernmental commission in mid-June to initiate joint projects in the fields of oil and gas, petrochemicals, and nuclear energy, according to S&P Global. The Saudi Public Investment Fund (PIF) and the Russian Direct Investment Fund (RDIF) are considering a $659-million project to produce equipment to mechanize oil production.

UAE

The Abu Dhabi National Oil Company (ADNOC) is planning an overhaul for its trading operations through the launch of a regional oil benchmark similar to Brent and the West Texas Intermediate (WTI). ADNOC is currently selling oil based on a retroactive pricing system, but it could soon launch full in-house trading for refined products and crude to trade freely on the open market to be more adaptive to market changes, as part of wider sector reforms. The UAE is planning to boost its oil output to 4 million barrels per day (b/d) by 2020, with most of this production expected to come from ADNOC.

Emirati and Indonesian companies signed agreements worth a total of $9.7 billion during a state visit by the Abu Dhabi Crown Prince Mohammed bin Zayed to Indonesia. Mubadala and Indonesia's Chandra Asri Petrochemical Company have agreed with OMV to explore the development of a naphtha cracker and petrochemical complex with about $6 billion in investments. Mubadala Petroleum also signed a farmout agreement with Premier Oil for a 20% participating interest in the Andaman I and South Andaman Gross Split Production Sharing Contracts (PSCs) in Indonesia. Meanwhile, ADNOC inked an agreement with Indonesia's PT Pertamina for cooperation in the fields of oil and gas transportation, trading, and storage, with a potential value of $2.5 billion. Maspion Group reached an agreement with DP World to develop a container terminal in Gresik in East Java, valuing the deal at $1.2 billion. The UAE and Indonesia also discussed investments in the tourism and construction sectors.

ADNOC has hired Bank of America Merrill Lynch and Mizuho Financial Group to manage the lease of its natural gas pipeline assets, which are worth an estimated $12-15 billion. The UAE-based company recently finalized an agreement for a pipeline infrastructure investment with BlackRock and KKR for a total of $4 billion, with the Abu Dhabi Retirement Pensions and Benefits Fund (ADRPBF) agreeing to invest $300 million. Under the agreement, a new entity is formed, named ADNOC Oil Pipelines. ADNOC dominates a 57% stake in ADNOC Oil Pipelines, while BlackRock and KKR own a combined 40% stake, and ADRPBF owns 3%. ADNOC Oil Pipelines owns 18 pipelines with a total aggregate capacity of approximately 13,000 million b/d.

Mubadala Petroleum has signed a farmout agreement with Premier Oil for a 20% participating interest in the Andaman I and South Andaman Gross Split Production Sharing Contracts (PSCs) in Indonesia. Moreover, Mubadala Petroleum is a partner with a 30% participating interest in the Andaman II PSC, which is operated by Premier Oil. The contracts have the potential to unlock gas reserves for domestic consumption in Indonesia and long-term export. Completion of the transaction is subject to customary conditions including government approvals.

ADNOC and China National Offshore Oil Corporation (CNOOC) have signed an agreement for collaboration in liquefied natural gas (LNG), as well as upstream and downstream sectors. This agreement aims at enhancing bilateral cooperation in the fields of exploration, development, production, refining, and petrochemicals. CNOOC's engineering arms will be considered for contracts for design, purchase, and construction, as well as oilfield service providers for ADNOC. Meanwhile, ADNOC could invest in CNOOC's existing refineries and petrochemical facilities in China. Under the agreement, both companies will share the latest experience in developing ultra-acidic natural gas fields.

Eni announced that it has acquired a 20% equity interest in ADNOC Refining as part of a $3.24 billion strategic partnership agreement. The deal will increase the Italian company's refining capacity by 35%. The agreement sets up a new trading joint venture (JV), between ADNOC, Eni, and Austria's OMV, with trading expected to begin in 2020. Eni will control a 20% stake in the new JV. ADNOC Refining has a refining capacity of more than 922,000 b/d at Ruwais and Abu Dhabi-based refineries.


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IRAQ

Dana Gas has announced a new oil discovery in its fields in the Kurdistan Region of Iraq (KRI) and the largest gas reserves in Iraq. The company revealed that its share of the proved plus probable (2P) hydrocarbon reserves at Pearl Petroleum Company's Khor Mor and Chemchemal fields in the region have increased by 10%, following the recent certification of reserves by Gaffney Cline Associates (GCA). This is translated to a gross increase in the share of Dana Gas in the field's reserves to 1.087 billion barrels of oil equivalent (boe). Over 50 million of oil reserves have been booked in the Khor Mor field for the first time. The two new gas production trains are expected to generate up to $350-400 million of annual revenues to Dana Gas in 2023.

The Iraqi Ministry of Oil announced that it will invest in associated gas after signing a memorandum of understanding (MoU) with Honeywell for gas processing from the Artawi southern oilfield. The first phase of the project's 36-month duration targets a capacity of 300 million standard cubic feet per day (mscf/d), as the ministry plans to invest in gas from many fields, as an important step to enhance production and resource utilization, and providing sufficient supplies of dry gas. The project is expected to later be developed to include five large oilfields, namely Majnoon, West Qurna, Luhaise, Tuba, and Saba. Iraq depends heavily on importing gas from Iran to generate power and meet the increased demand on electricity, especially during summer.

Iraq and Kuwait have reportedly agreed to appoint ERCE to prepare a study for the development of joint border oilfields. The Iraqi ministry expects a contract to be signed with the company in the coming days. There are several oilfields in the border area between Iraq and Kuwait, including Al-Ratqa, which is a southern extension of Iraq's giant Rumaila field. The study will set out the technical and legal mechanisms to invest in oilfields shared by the two countries, including examining reservoirs for Al-Ratqa and Safwan fields.

The Iraqi Ministry of Oil announced that oil exports rose from 3.52 million barrels per day (b/d) to 3.566 million b/d in July. During July, selling price averaged $61.156 per barrel, with total revenues reaching $6.76 billion. Exports from the southern Basra oilfields reached 3.435 million b/d, up from 3.39 million b/d in June, while shipments from Iraq's northern Kirkuk oilfields to the Turkish port of Ceyhan averaged 101,000 b/d. Iraq's production remains below the allowed quota of nearly 5 million b/d, as per the agreement sponsored by the Organization of the Petroleum Exporting Countries (OPEC). In June, OPEC's crude output fell to a new five-year low, reaching 29.6 million b/d, down by 170,000 b/d compared with May, recording its lowest level since April 2014.

Iraq has received a number of offers from international companies to establish petrochemical plants across the country. The ministry has developed a strategy to increase investment in gas through the Basrah Gas Company, as well as another investment agreement for the Nasiriyah and Gharraf fields. Moreover, the government is also working on consultation deals for investments in Basra and Maysan governorates.

LIBYA

Libya's crude oil revenues decreased by 11.2%, reaching $10.2 billion during H1 2019, compared with the same period last year. Oil revenues accounted for 92.8% of the Libyan total public income in the first six months of 2019. Meanwhile, subsidies represented 19.4% of public expenditure, while salaries accounted for 55.6% of the total state spending. Libya plans to increase oil output from its existing fields to reach 1.4 million barrels per day (b/d) by the end of 2019 and 2.1 million b/d by 2023.

Production at the Libyan Sharara oilfield has been resumed at half of its operational capacity. The National Oil Corporation (NOC) recently declared a state of force majeure on crude oil loadings at Zawiya port on July 20, due to the suspension of work in the Sharara since July 19, due to an unlawful valve closure of the Sharara pipeline between Hamada and the port. The closure resulted in halting 290,000 barrels per day (b/d) in production, valued at around $19 million a day. Akakus Oil Operations, a subsidiary of NOC, informed the General Electric Company of Libya (GECOL) that crude oil supplies to the Obari power station will cease following this production disruption.

Libya's NOC and Eni announced that they had completed the second phase of the Bahr Essalam offshore gas field project. The second phase of the offshore project, which is a joint venture (JV) between the two companies operated by NOC subsidiary Mellitah Oil and Gas Company, will increase the field production from 995 million standard cubic feet per day (mscf/d) to 1,100 mscf/d. The second phase completes the phased development of Libya's largest offshore producing gas field, according to NOC.

Libya's NOC has completed the maintenance work on the Bouri offshore oilfield, which produces around 30,000 b/d of crude oil. The field is a JV between NOC and Eni and is located approximately 120 kilometers north-west of Tripoli. It is operated by Mellitah Oil and Gas Company.

OMAN

Eni and British Petroleum (BP) have entered into a gas Exploration and Production Sharing Agreement (EPSA) for Block 77 in Oman. Eni and BP will each hold a 50% interest, with Eni acting as the operator. The deal follows a Heads of Agreement (HoA), which was signed on January 14 by the two companies with the Government of Oman. According to the EPSA, Eni says it is reinforcing its role as a vital player in the Omani market, bringing well-known experience in exploration and production (E&P) of new plays within existing oil and gas provinces.

Oman's crude oil and condensates production reached around 30.1 million barrels during July, with a daily average production rate of 970,682 barrels. The monthly report issued by the Omani Ministry of Oil and Gas pointed out that the total exported quantities of crude oil last month amounted to about 21.33 million barrels, with a daily average of 688,051 barrels. China's imports of Omani oil registered a rise of 7.98% of the total imports to reach 78.04%. Imports by India, Korea, and Tanzania also increased by 0.76%, 2.78%, and 0.22%, respectively, while imports by Japan declined by 11% compared to the month before.

Total and a South Korean oil company are being considered for a partnership in the Duqm Refinery and Petrochemical Industries. Duqm Refinery and Petrochemical Industries Company is a joint venture (JV) between Oman Oil Company (OOC) and Kuwait Petroleum International (KPI). The Duqm refinery was launched in April 2018 with $7 billion investments.

EAST MEDITERRANEAN GAS FORUM:

PAVING THE WAY TOWARDS A NEW AGE OF ENERGY DEPENDENCE AND COOPERATION

BY AMINA HUSSEIN, REHAM GAMAL, AND TASNEEM MADI

Natural gas importance has been rapidly increasing by time, becoming a part of the global politics and international economy through exports and imports. With new discoveries' expansion, their optimal utilization is securing energy in the region. The East Mediterranean has a great strategic importance due to its natural resources, and because of that, it has been attracting the surrounding countries' eyes to more exploration and production (E&P) opportunities.

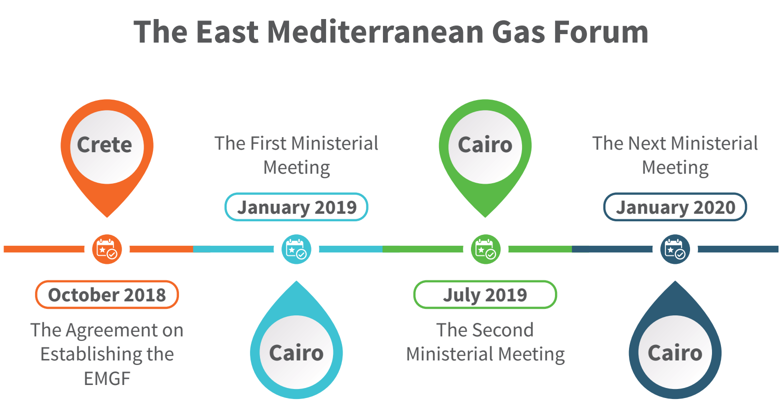
EAST MEDITERRANEAN GAS FORUM

The East Mediterranean Gas Forum (EMGF) was established due to the significant natural gas discoveries in the region that have a great impact on the region's energy and economic development. Egypt, Cyprus, Greece, Jordan, Palestine, Israel, and Italy are the founders of the EMGF.

The EMGF's first meeting took place in Cairo, in January 2019, allowing other countries, international organizations, observers, and the private sector to participate in its regulatory bodies. The forum's second ministerial meeting was held in Cairo, on 24 and 25 of July.

The EMGF's main objective is to increase the existing natural gas reserves, benefit from infrastructure, and encourage the private sector to participate in natural gas discoveries.

The next EMGF's ministerial meeting will be held in Cairo during the second half of January 2020.

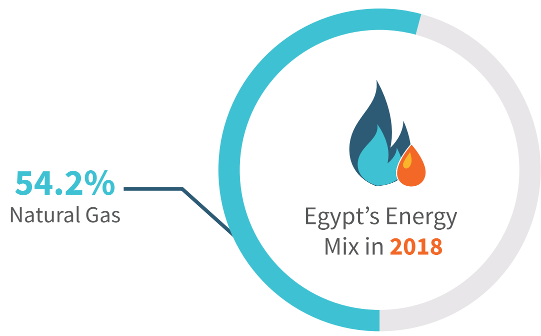


EAST MEDITERRANEAN GAS FORUM COUNTRIES' PROFILES

EGYPT

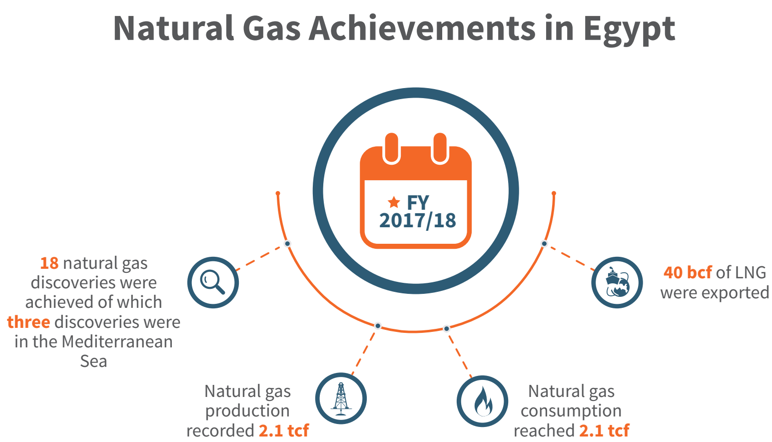
Egypt has a remarkable history of natural gas discoveries that started with the discovery of Abu Madi field in 1967 in the Nile Delta area. Two years after this discovery, Abu Qir field was announced as the first natural gas discovery in the Mediterranean Sea, according to Hamdy El Banby's book entitled "The Egyptian Crude Oil: Past Experience and Future Insights".

Since then, natural gas has become a main source of energy in Egypt as it represented 54.2% of the country's energy mix in 2018, according to BP's Annual Statistical Review of 2019.



The country is one of the significant natural gas markets in the East Mediterranean region. With the advantages of its geographic location, natural gas infrastructure, and continuous discoveries, the East Mediterranean country strongly competes with other regional players to be the main regional natural gas hub.

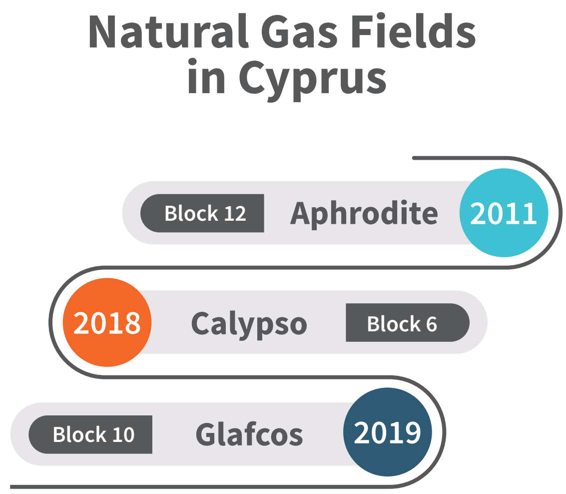
The recently discovered natural gas fields are expected to increase the potential for exports and thus, improve the utilization rate of the liquefaction infrastructure. Alternatively, Egypt can examine the quicker option of liquefying and exporting natural gas supplies from other potential natural gas producers in the region like Israel and Cyprus.



In fiscal year (FY) 2017/18, the Ministry of Petroleum and Mineral Resource (MoP) announced 18 new natural gas discoveries, three of which were in the Mediterranean Sea. This led the production level to reach 2.1 trillion cubic feet (tcf). Moreover, Egypt was able to export natural gas again the same year it exported 40 billion cubic feet (bcf) of liquified natural Gas (LNG), as stated in the Egyptian Natural Gas Holding Company's (EGAS) FY 2017/18 annual report. On average, the Mediterranean Sea fields acquire around half of the country's natural gas production. On the other hand, the consumption level reached 2.1 tcf in FY 2017/18.

CYPRUS

Cyprus is politically and territorially divided between the Greek Cypriot area and Turkish Cypriot area. Hence, Cyprus has the potential to export natural gas to neighboring countries and other east Mediterranean countries from the drilling in Aphrodite field. The field is one of the most significant natural gas fields off Cyprus' Southern Coast in the Exclusive Economic Zone (EEZ) discovered in 2011 by Noble Energy. It is followed by the recently discovered fields Calypso and Glafcos in 2018 and 2019, respectively.

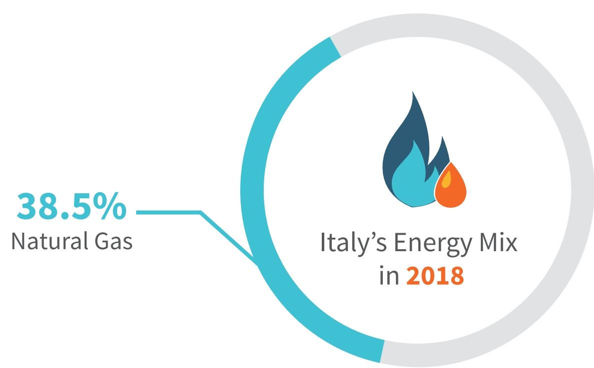


Over the past decades, Cyprus used to depend on crude oil for its domestic consumption where most of its electricity is generated by oil-fired power plants. For instance, in 2016, the country's consumption from petroleum products represented about 93% of the gross inland energy consumption. However, natural gas discoveries can turn the country into an energy exporter and a future East-Med hub, according to the Eurostat trade data 2016.

The long-term domestic demand of natural gas in Cyprus is fairly small. Accordingly, the majority of natural gas production will be exported to foreign markets. Despite the country appears to be surrounded by significant fields, it neither produced nor consumed natural gas; and hence, it had no proved reserves in 2017, as reported by the Energy Information Administration's (EIA) 2017 data.

ITALY

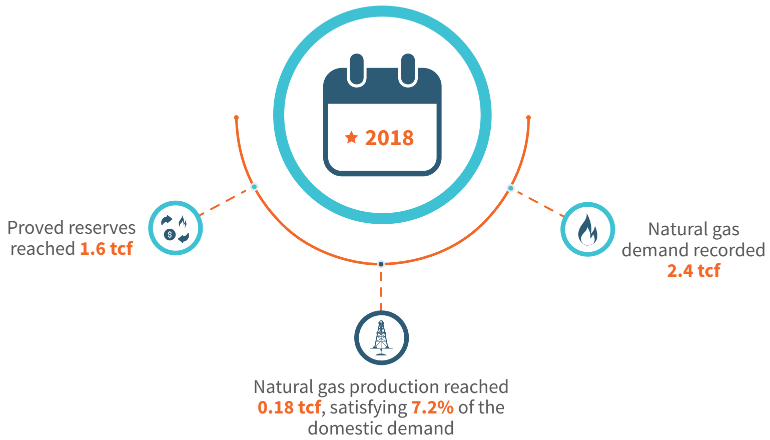
Italy is one of the largest three natural gas markets in Europe along with the UK and Germany. The natural gas represents a significant share of 38.5% of the country's energy mix. However, the country has relatively insignificant limited proven reserves, as they reached approximately 1.6 tcf at the end of 2018, according to BP's Annual Statistical Review of 2019.



The natural gas exploration activities reached the maturity over the period from 1944-2007. Starting from 2007, the natural gas activities started to slow down, the level of exploratory wells declined to less than ten wells annually, along with a historic decline in the upstream investments, according to a paper published by Search and Discovery in 2018.

The Italian production level annually satisfies around 10% of the total domestic demand, for example; in 2018, the Italian domestic natural gas production was 0.18 tcf, which satisfied only around 7.5% of the domestic demand, which recorded 2.4 tcf in the same year. Accordingly, the rest was met through imports either in the form of LNG or through pipelines. Hence, Italy imported 282.4 bcf of LNG, in addition to 1.9 tcf of natural gas pipeline imports, BP reported in its Annual Statistical Review of 2019.

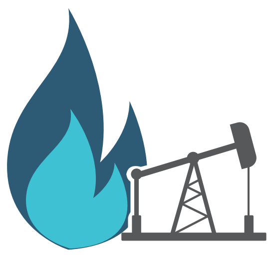
Natural Gas Achievements in Italy



GREECE

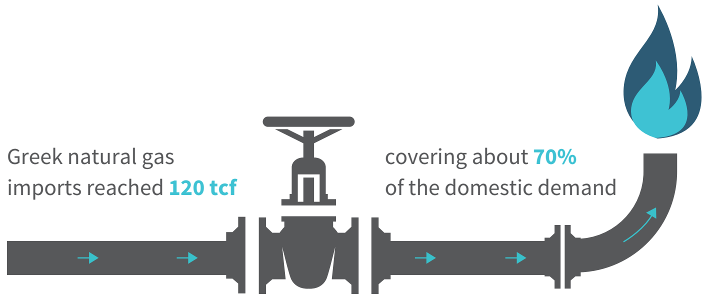
Oil and gas exploration in Greece started in 1969, when the country granted hydrocarbon exploration concession rights to foreign companies in the Gulf of Kavala. The first well drilling in the region came online at "East Thassos-1" in 1971. In 1972, the natural gas reservoir South Kavala was discovered followed by the discovery of Epanomi natural gas field in 1988.

Although Greece is a medium-sized economy with a natural gas consumption of only 14% in 2018, it has the potential of becoming an energy hub for natural gas as it has a unique position in the Southeast Europe. On the other hand, crude oil consumption is remarkably representing about 56% of the country's energy mix, as stated by BP's Annual Statistical Review of 2019.



In **2017**, Greece's natural gas production recorded **0.3 tcf** against a domestic consumption of **174 tcf**

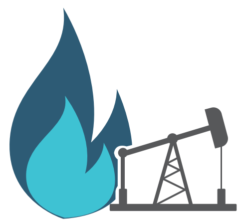
Natural Gas production of Greece is slim. In 2017, the production recorded only 0.3 tcf against a domestic consumption of 174 tcf. Accordingly, the country greatly depended on imports to meet its domestic need of natural gas. Besides, the country's natural gas proved reserves were almost zero. Hence, its natural gas total imports reached 120 tcf, covering about 70% of the domestic need for that year, as reported by the EIA's 2017 data and BP's Annual Statistical Review of 2018.



JORDAN

Jordan lies to the west of Iraq and Saudi Arabia, possessing some of the world's richest oil and gas reserves. Risha gas field in the northeastern corner of the country represented the major natural gas field discovered in Jordan in 1987.

Jordan's local sources of natural gas are very limited. Jordan's natural gas consumption recorded 3.5 tcf, which represents about 35% of the country's energy mix, increasing by 3.8%, in 2017, while Jordan's local natural gas production recorded 3.6 bcf, in 2017. There is a gradual decrease in natural gas production, according to the Jordanian Ministry of Energy and Mineral Resources' annual report, 2017.



In **2017**, Jordan's natural gas production recorded **3.6 bcf**

PALESTINIAN AUTHORITIES

Palestinian Authorities mainly manage "Marine A" field to provide Gaza Strip with the needed energy in Gaza plant.

The Palestinian energy demand is relatively small, increasing as population increases. Palestine's total petroleum consumption recorded 46.53 bcf, ranked as the 142th, while the total primary energy production reached 5.37 bcf in 2016, and ranked as the 148th, according to the EIA's data.

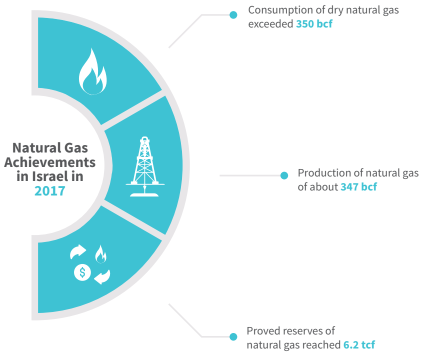
Gaza Marine-A Concession

ISRAEL

Since 1999, many natural gas discoveries have been taking place offshore Israel. However, the discoveries of Leviathan and Tamar fields in 2009 and 2010 in the Levant Basin have strengthened Israel's position to be a net exporter of natural gas, according to the Israeli Ministry of Energy.

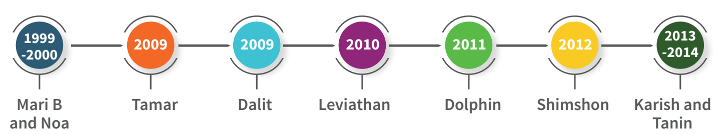
Natural gas in Israel is a primary energy source, mainly utilized for electricity production. In 2018, natural gas consumption represented 35% of the country's energy mix. However, oil possessed the highest share by 45%, as explained in BP's Annual Statistical Review of 2019.

In 2017, Israel's consumption of dry natural gas exceeded 350 bcf, 80% of which for generating electricity, which accounts for 60% of all electricity produced. On the other hand, its production recorded about 347 bcf. However, Israel's proved reserves of natural gas reached 6.2 tcf.



The East Mediterranean countries are taking firm steps to enhance cooperation. In the light of the Forum, Israel will start exporting natural gas to Egypt during November 2019. Likewise, Cyprus intends to export to Egypt's natural gas liquefaction plants by 2025/2024. Moreover, a memorandum of understanding (MoU) was signed between Egypt and the United States, where the two countries will exchange energy expertise and many American companies will invest in Egypt. Considering the East Mediterranean as a regional hub is a significant clear pace towards progress.

Natural Gas Discoveries in Israel



Since providing the petroleum industry's stakeholders with the full picture is our responsibility, Egypt Oil & Gas Research & Analysis division is offering a full report mainly covering the objectives of the East Mediterranean Gas Forum as well as illustrating the strategic importance of the East Mediterranean region of securing the European Union's energy supply. The full report will be available soon. To get your copy, please contact Ayman Rady, Egypt Oil & Gas' Business Development Manager: **Ayman@egyptoil-gas.com**

STRENGTHENING THE EGYPTIAN-GREEK TIES:

AN INTERVIEW WITH THE ENVIRONMENT AND ENERGY MINISTER OF GREECE, **KOSTIS HATZIDAKIS**

With an eye on consolidating the bilateral relationship between Egypt and Greece, especially under the umbrella of the East Mediterranean Gas Forum (EMGF), Egypt Oil & Gas had the opportunity to conduct an interview with the Environment and Energy Minister of Greece, Kostis Hatzidakis.

IN LIGHT OF THE EAST MEDITERRANEAN GAS FORUM (EMGF), TO WHAT EXTENT DO YOU BELIEVE THE FORUM WILL HELP DEEPEN THE RELATIONS BETWEEN EGYPT AND GREECE SPECIFICALLY AND AMONG THE EAST MEDITERRANEAN COUNTRIES IN GENERAL?

The relationship between our two countries has always been exemplary. There are many historic ties that positively unite the two countries, as well as an important and vibrant Greek diaspora living in Cairo and Alexandria. Since 2014, we have further consolidated our cooperation by enhancing and deepening our dialogue in several sectors that also includes the Republic of Cyprus. More recently, both Greece and Cyprus enthusiastically endorsed and supported the idea of the Egyptian government to establish the East Mediterranean Gas Forum (EMGF). The EMGF has the potential to progressively evolve into the first ever energy organization of the Mediterranean Sea, not just its eastern part. It brings together many important countries and, within this context, its positive development will add another productive layer of cooperation between Greece and Egypt.

ONE OF THE MAIN TARGETS OF THE EMGF IS TO ESTABLISH AN INTERGOVERNMENTAL REGIONAL GAS MARKET. IN YOUR OPINION, WHAT ARE THE STEPS NEEDED TO REACH THAT GOAL?

The emergence of an integrated gas market in the Eastern Mediterranean, that will help to jointly monetize the region's natural gas discoveries in an optimal way, is a very complex and complicated undertaking, but one which is worthy to strive for. In this process we need to strike the right balance between the public and private interests, work together to identify the best possible monetization options and promote the projects which would have the highest common denominator of interest for all parties involved.

One such option is the utilization of the East Mediterranean Gas (EMG) pipeline connecting El-Arish with Ashkelon through which Israeli gas will flow to Egypt. Another option is the potential pipeline that will transfer the Cypriot gas to the Egyptian liquefied natural gas (LNG) terminal to Idku, which in turn could reach Greece and the European Union (EU) markets via the Greek Natural Gas Transmission System (NGTS). A third, if not more long-term option, is the construction of the East Med Gas Pipeline, linking the reserves of Israel and Cyprus with Greece and via Greece with the Italian market.

IN LIGHT OF YOUR MEETING WITH THE EGYPTIAN MINISTER OF PETROLEUM AND MINERAL RESOURCES, TAREK EL MOLLA, WHAT ARE SOME FUTURE COOPERATION OPPORTUNITIES THAT CAN BE CREATED TO DEVELOP THE BILATERAL TIES BETWEEN THE TWO COUNTRIES, ESPECIALLY UNDER THE UMBRELLA OF THE EMGF?

As I mentioned, our bilateral relations are already at a very productive level. Greek oil companies, such as Hellenic Petroleum, trade in Egyptian crude oil. Greek companies are actively participating in Egypt's booming upstream oil and gas sector such as Energean. There is a strong relationship between our Center for Renewable Energy Sources and Saving and its Egyptian counterparts. There are plans by Greek electricity companies, such as the Kopelouzos Group, to build several gigawatts (GW) of renewable electricity in Egypt and export some of them back to Greece through an underwater electricity cable. The EMGF is an excellent framework to further enhance these existing trends and find prospective new ways of cooperation.

THE EMGF MEMBERS APPROVED THE ESTABLISHMENT OF AN ADVISORY COMMITTEE FOR THE GAS INDUSTRY TO ALLOW FOR PRIVATE SECTOR PARTICIPATION. TO WHAT EXTENT IS THE PARTICIPATION OF THE PRIVATE SECTOR CRUCIAL FOR ENHANCING THE RELATIONS BETWEEN THE MEMBER COUNTRIES?

I believe it to be very important. We need to be able to assess how our decisions affect market players, how international oil companies (IOCs) and national oil companies (NOCs) best interact, how to best align different regulatory frameworks which is of particular significance for the members of the EMGF which are EU member-states. All successful international and regional energy fora and/or organization encourage private sector engagement in ways that of course would not infringe upon the powers of the member-states.

IN YOUR OPINION, WHAT ARE THE MAJOR STEPS GREECE INTENDS TO TAKE TO ENHANCE ITS EXISTENCE AMONG THE MEMBER COUNTRIES?

Greece intends to be a harbinger of cooperation and a promoter of synergy in EMGF. We would always strive to build consensus, although some aspects of the EMGF decision making processes, such as the question of new members, would be best taken through unanimity. Greece is emerging as an important transit hub between the EU and the Eastern Mediterranean, is an important gas consumer on its own right and maybe soon a hydrocarbons producer. As such, we perceive our energy security through several dimensions and we can bring this multidimensional approach to the EMGF.

GREECE IS AT A VERY COMPETITIVE EDGE, DUE TO ITS FACILITIES AND LOCATION, AS AN ENERGY HUB. WHAT ARE THE MAIN PHASES REQUIRED TO ACHIEVE THAT TARGET?

I believe the first step in this direction is the completion of commercial operations of the Trans Adriatic Pipeline, which is expected in 2020, and the Interconnector Pipeline Bulgaria Greece that we hope to commission within 2021. Both projects would highlight the role of Greece as a very important transit state for the EU's energy security strategy, since it would enhance the Union's and the region's diversification of import sources and routes. In the same context, I would also underline the role of our major LNG regasification facility in Revythousa and the potential for new LNG import facilities further north, such as the Alexandroupolis floating storage regasification unit (FSRU) project.

"SINCE 2014, WE HAVE FURTHER CONSOLIDATED OUR COOPERATION BY ENHANCING AND DEEPENING OUR DIALOGUE IN SEVERAL SECTORS THAT ALSO INCLUDES THE REPUBLIC OF CYPRUS. MORE RECENTLY, BOTH GREECE AND CYPRUS ENTHUSIASTICALLY ENDORSED AND SUPPORTED THE IDEA OF THE EGYPTIAN GOVERNMENT TO ESTABLISH THE EAST MEDITERRANEAN GAS FORUM (EMGF)."

AN EAST MED CENTER OF EXCELLENCE IN THE MAKING?

BY **MAI EL GHANDOUR**

As energy ministers from the East Med Seven come together, a plethora of new developments in the region is on the horizon. Country members have set up the East Mediterranean Gas Forum (EMGF) as a platform to manifest their strengths. The forum has been gaining momentum, so much so that countries outside the region have stated their interest to join. Can the EMGF possibly take a step further to leverage all interested parties' resources and establish an East Med Center of Excellence (CoE)?

A CLOSER LOOK AT PROMISING COOPERATION AND POTENTIAL EMGF CANDIDATES

Earlier in July, US Energy Secretary Rick Perry attended an EMGF meeting as a special guest of honor, alongside representatives from France, the European Union, and the World Bank, all of whom shared a common interest in the forum.

On the sidelines of the EMGF, Minister of Petroleum and Mineral Resources Tarek El Molla signed a memorandum of agreement (MoU) with Perry to boost bilateral cooperation and allow for the exchange of knowledge and expertise between the US Department of Energy and the Egyptian Ministry of Petroleum.

The MoU aims to streamline the exchange of technical information, consultancy services and the transfer of technology in the fields of oil and gas exploration, production and refining, as well as petrochemicals.

El Molla said that the US participation in EMGF proves that both the US and Egypt are witnessing an era of strong mutual relations, stressing that the MoU will pave the way for more joint cooperation in the energy field between the two countries. In addition, Perry said that the US supports Egypt's efforts to become a regional energy hub.

Meanwhile, the French ambassador to Egypt, Stéphane Romatet, who was also invited to attend the forum, revealed ongoing discussions as France is looking forward to importing natural gas from Egypt and other East Med countries. For this reason, France might consider joining the EMGF. French oil companies such as Total and ENGIE are already in talks with East Med companies to import gas.

The Ministry of Petroleum acknowledged the European Union (EU) and the US support, stating that they are welcome to participate in any EMGF activities.

EXISTING NEGOTIATIONS FOR AN EAST MED COE

Previously, there had been talks on the establishment of a US-Eastern Mediterranean Energy Center last March; the topic emerged when US Secretary of State Mike Pompeo visited the Eastern Mediterranean to explore new ways to integrate and secure energy development within the region. Pompeo was to report to Congress on a "plan to work with US businesses seeking to invest in the region's energy exploration, development, and cooperation."

The center is expected to be established by the Secretary of Energy in consultation with the Secretary of State. The center would not be based in the US, but rather located

in an East Mediterranean city with a university highly specialized in petroleum engineering.

According to its legislation, the center would bring together institutions of higher education, along with international oil companies (IOCs) to focus on offshore energy developments. The center would seek, in addition, to develop more widely "robust academic cooperation in energy innovation technology and engineering, water science, technology transfer, and analysis of emerging geopolitical implications."

New collaborations have been encouraged to take place between the region's high-tech companies and the global energy industry to explore the rest of the region's economic waters as all current discoveries remain to be just the tip of the iceberg.

Dan Brouillette, Deputy Secretary at the US Department of Energy, said in a statement that the CoE would be special in providing a great opportunity for the US as well as other governments in the region to exchange ideas and address mutual challenges in innovation.

To ensure energy security globally, he added, "we must leverage our collective expertise, experience and resources, and this includes collaborating with allies, which will foster dialogue focusing on water, energy and security."

However, the CoE has not been mentioned during the EMGF. Despite this, Robert M. Cutler and Theodora Karasik, advisors at Gulf State Analytics, a US-based geopolitical risk consultancy, argued in the International Policy Digest that such a center could be, in fact, complimentary to the Forum.

EASTMED PROJECT: MOOC

On the other hand, there are other efforts to create large-scale joint projects in the region. An East Med project was recently established to develop a HEI-level Massive Open Online Course (MOOC), focusing on the Eastern Mediterranean. The MOOC, entitled "EU and the Eastern Mediterranean: Prospects and Challenges", will emphasize on energy security in the region.

The East Med project is fully in line with the EU Foreign Policy Agenda, as it conforms with the Strategic Partnerships Call, an EU program that supports activities in the fields of education, training, youth and sport.

According to the project's website, to enhance regional education in today's digital era, MOOC promotes the digitization of quality learning content and the use of information and communications technology (ICT). The project is expected to improve the quality of education and digital content while expanding the East Med database.

The project shall facilitate digital learning, whilst promoting the needed tools of transparency and validation. In addition, MOOC encourages mobility and education beyond geographical obstacles and recommends that the countries in the region should act and be understood as one.

DEPICTING THE FRAMEWORK OF AN EAST MED COE

Sketching out the framework of what an East Med CoE should constitute, experts believe that the CoE should become a central hub where regional industry leaders share their expertise and know-how while working closely with world-class oil and gas companies. The CoE should cut down any distribution through decentralization and consolidate energy ties to cater to the growing need for mass production through domestic sources.

The center's main objective should be to gather and develop competence, provide solutions and consultancy on large scale projects and implementations, identify and provide trends in accordance with a Research and Development (R&D) team, encourage capacity building, and maintain contact with partners and third-party groups.

This will directly build on the region's collaborative research and resources in the areas of oil, gas and energy. It will work towards developing sustainable solutions and explore new frontiers in technology for future energy needs. The CoE would help in fostering innovations and pave the way for the future of the energy industry in the region.

UNLOCKING THE FULL POTENTIAL OF A DIGITAL TRANSFORMATION

Major tech companies should jump on the bandwagon and help in the digitization of the CoE and thus, the digitalization of the whole region. Doing so will not only bridge the information between all EMFG members in accordance to IOCs, but will also create a local ecosystem for technologies. IOCs should engage in the process, share the risks and know-how in order to ensure a digital transformation.

According to Torbjørn F. Folgerø, SVP and Chief Digital Officer at EQUINOR, establishing a Digital Centre of Excellence (DCoE) is a trend that is being adopted by an increasing number of oil and gas companies. Major oil and gas companies are starting to realize that the benefits of any cooperation outstrip any stand-alone digital project. Thus, oil and gas companies started altering their business models accordingly to realize the full potential of a digital transformation.

If a DCoE can bundle together digital capabilities developed within individual functions of companies and institutes in the entire region, then it can serve as an innovation hub driving the digital agenda of the region as a whole while supporting different business functions.

CHALLENGES OF A COE

In a 2013 interview with Greg Bussing, Director of Continuous Improvement at ConocoPhillips, it was debated whether or not to set up a Center of Excellence. Bussing said, "I agree that operational excellence has really got a very high level of focus right now - deservedly so. But we also have to think about execution excellence and planning excellence; it is really excellence in the whole business model that I think has become more and more important."

According to Bussing, as the oil and gas industry is a cyclical market, prices are often a challenge to predict because one never knows when the next downturn is. This should be the top concern when setting up a CoE. After the CoE is up and running, the focus should shift to content, visibility and capacity building, Bussing explained.

Bussing thinks his own experience with establishing a CoE was a huge success mainly because everyone knew what they were doing. After years of research, everyone was ready to take on the challenge, but just had to be aware of all the pros and cons before leaping into a CoE, he said.

"I think that having a level of process maturity really helps. You have got to take that Darwinian approach where you accept that people are going to learn as they go, so that there will be slight mutations to the program. We have to decide whether it is a good mutation or not," Bussing concluded.

OTHER COE CASE STUDIES

As Deloitte has always invested in the oil and gas industry latest investment, its latest oil and gas CoE in Rio de Janeiro truly demonstrates its commitment to the industry. The CoE aims to integrate the multidisciplinary work for which Deloitte is already recognized for. This synergy expands the solutions offered to the companies that operate in the sector, enabling clients to benefit from multidisciplinary and highly specialized operation, both on a local and global level.

The CoE acts as a center for research and operates together with other Deloitte oil, gas and energy CoEs around the world. The CoE also integrates its work with universities and research centers, as well as representative industry institutes in Brazil.

Likewise, KPMG offers global connectivity through its oil and gas CoE's that are strategically located around the world. One of these centers is also located in Rio de Janeiro and operates within a global network, providing fast access to the latest knowledge, capabilities, resources and technical developments in this industry.

On the other hand, Equinor has established a DCoE to sort out its digitalization efforts through six digital programs and three key enablers: developing digital capabilities and leadership, utilizing the external ecosystem of partners, and developing unified data platform (Capgemini). According to Equinor, the idea of centralizing digitalization efforts is a game changer as it encourages the emerging of new technologies such as advanced analytics, robotics, augmented reality and virtual reality. In Equinor's case, launching digitalization projects from the center has enabled exploration of new technologies without competing with other businesses.

These CoE's act as an immediate response to any challenge faced by the industry. To be able to fully grasp their experiences and take on any obstacles that might come in the way of an East Med CoE, other case studies should be examined.

'EGYPT': THE SECRET BEHIND PROSPERITY IN THE EASTERN MEDITERRANEAN REGION

BY DINA EL-BEHIRY

Thanks to the boom in natural gas discoveries during the last decade, the East Mediterranean region has imprinted its foothold as a natural gas key player. These discoveries have contributed greatly to boosting the region's potential reserves as well as intensifying its ability to meet the growing domestic demand and achieve a surplus for export.

This explains the national, regional and international interest in the region which has been bolstered after several regional gas field discoveries. Nevertheless, this interest was multiplied after the discovery of the game-changer Zohr field in 2015. From a business perspective, these discoveries have encouraged international oil companies (IOCs) to participate in the exploration and production (E&P) activities in the region. As a result, the proven reserves of natural gas are estimated to increase reaching 8 trillion cubic meters (tcm), which could make it comparable to the proven reserves in the US and Saudi Arabia, and larger than the reserves in Algeria, Nigeria or Iraq, according to a paper entitled "Natural Gas in East Mediterranean Basin - Changing the Energy Landscape."

Egypt is one of the top 20 countries in proven gas reserves, production and consumption worldwide, with natural gas being a key factor in the Egyptian energy equation. The Mediterranean Sea is considered as the main source of natural gas in Egypt, making up around 87% of the country's proven reserves. Besides, Egypt has over 40 producing wells in the Mediterranean Sea and in 2018, the country produced around 1,162 billion cubic feet per year (bcf/y), according to an Egypt Oil & Gas report entitled 'Egypt- The Future Regional Natural Gas Hub.'

EXPORT HINDRANCES

The recent wave of natural gas discoveries has been considered a strong spur to reinforce the cooperative ties between the region's states. Additionally, these continuing discoveries can be used as a promising mean for achieving greater stability in the region, according to the European Council on Foreign Relations' paper by Tareq Baconi, entitled 'Pipelines and Pipedreams: How the EU Can Support a Regional Gas Hub in the Eastern Mediterranean.' However, many hurdles are preventing regional countries from exporting natural gas.

One of these countries is Cyprus, which made one of the region's greatest discoveries, the Aphrodite field, in 2011, with estimated reserves ranging between 3.6 and 6 trillion cubic feet (tcf); an amount that could lessen the country's dependence on oil. According to Baconi, the Cypriot domestic demand of natural gas is relatively low, leaving large reserves for export.

However, Cyprus is facing a dilemma in exporting natural gas as it has to either transfer it through an onshore or offshore liquefied natural gas (LNG) terminal or through pipelines. Yet, Cyprus has no export infrastructure, and establishing it would require significant capital investments, according to Baconi, who noted that Aphrodite is too small to justify the investments needed. Furthermore, Cyprus is a new entrant in the gas world, thus, any trial to establish an LNG terminal will have large costs. At the same time, having a "new onshore LNG in Cyprus is a potential longer-term option, but only if explorers can find enough gas to fill it," according to Rob Morris, from the East Mediterranean upstream team at Wood Mackenzie.

Similarly, the construction of pipelines will hold many economic and political restrictions. It is worth noting that, according to Morris the Floating LNG (FLNG) terminals "could be an option in Cyprus, but only if the Egypt LNG option does not work out."

Therefore, Cyprus needs to consider regional options for jointly exporting opportunities.

With an eye on Israel, which shifted from being an importer to commencing production in 2013, after Tamer field's discovery, the country fulfils the rest of its gas needs from Egypt through a pipeline that crosses the Sinai Peninsula into Southern Israel, production commenced by 2013 to meet its domestic needs Subsequently, Noble Energy discovered the Leviathan field with estimated reserves of around 17.6 tcf, transforming Israel to a net exporter. This gave Israel the needed space to strengthen its relations not only with the region's countries, but also with Europe.

However, not far from Cyprus, Israel is a newcomer to the natural gas world, facing many obstacles, with two main hindrances; securing long-term buyers to facilitate production and identifying feasible export routes.

Other than exporting gas from pipelines, Israel has two other possibilities for exporting from Leviathan, both of which involve developing the country's LNG capacity, yet "an onshore plant is unlikely to progress in Israel because of the environmental opposition and potential security risks," Morris said, pointing out to another option which is the FLNG terminal, stating that "the FLNG technology is becoming more proven, and it is potentially cost-competitive. Noble Energy is once again looking at FLNG as a potential solution for Leviathan in Israel."

Another country in the region which does not export natural gas due to its small production capacity is Italy. According to a 2019 BP statistical review, the Italian natural gas production reached around 1.6 tcf. Thus, Italy is considered highly-dependent on gas imports, with 90.4% of its supplies from natural gas not enough to cover its domestic needs, according to a paper by the Oxford Institute for Energy Studies, entitled 'The Italian Gas Market: Challenges and Opportunities.'

EGYPT IS THE WAY OUT

In 2015, Egypt has unveiled the "game-changer" for the East Mediterranean region after discovering Zohr field with estimated reserves of around 30 tcf, making it bigger than both the Cypriot and Israeli gas fields together, according to Baconi's paper. That is why, Egypt, with its needed natural gas export infrastructure, is considered the ideal way out from the region's export fiasco.

Egypt is enriched by its LNG exporting facilities, which is "the most economically attractive option," according to Morris. The first one is owned and operated by the Spanish Egyptian Gas Company (SEGAS), and the second one is managed by the Egyptian Liquefied Natural Gas Company (ELNG), according to Egypt Oil & Gas report, entitled 'Tracking Egypt's LNG Exports From 2010-2017.'

According to the report, the SEGAS facility, located in Damietta, came on stream by the end of 2014 with exports mainly directed to the European market. It was the first liquefaction facility built in Egypt as a single train plant with a capacity of 5.5 million tons per year (mt/y). On the other hand, the ELNG facility that was established in Idku in 2001 is a two-train facility on the Mediterranean coast with a capacity of 10 billion cubic meter per year (bcm/y) to export the Egyptian LNG to France, other countries in Europe, and the US.

However, despite having the export infrastructure capacity, Egypt is facing a major obstacle to grow domestic demand on natural gas, which is estimated at around 50 billion cubic meters (bcm), according to Baconi. Therefore, the North African country had to focus mainly on meeting that demand, yet all of these issues were balanced after the discovery of Zohr field, which provided the market with the needed gas and fulfilled the country's domestic demand. Baconi pointed out in his paper that the high production level from Zohr helped Egypt to resume its role as a regional exporter.

Baconi, however, raised a question in his paper about the amount of natural gas that Egypt will be able to export after meeting its domestic needs. According to Baconi, some experts suggest that Egypt has very high absorption capacity and the country will use its production to meet domestic demand instead of international markets. On the other side of the debate, government officials and international corporations have been optimistic about Egypt's resumed role as an exporter. Morris expects "a strong demand growth to 2020 at around 5% per annum as supply availability grows. However, a slowdown [will happen] afterwards as the government moves to lift all electricity subsidies by 2022." It is worth mentioning that Egypt could become a net gas importer again, yet "to avoid this, the government will need to make a good strategy of diversifying the energy mix within the power sector, increasing penetration of renewables, clean coal and - longer term – nuclear could help offset reliance on gas. But new discoveries will also be required and/or external gas from neighboring countries if Egypt is to meet increasing domestic demand and maintain LNG exports," Morris noted.

Furthermore, being a regional gas hub will help Egypt in its role as an exporter, taking into consideration the impact of the Egyptian economic health on its hub strategy. According to Morris, "continuing to unwind subsidies, progress gas market liberalization and maintain a buoyant upstream sector with regular bid rounds should put the country in good stead with investors and could help underpin gas availability," adding that "the country's current account is improving, in part, because it stopped importing LNG last year and has ramped up exports out of ELNG." Additionally, Morris clarified that the flourishing economy has also allowed the government to pay down receivables owed to IOCs; where currently less than $1 billion is owed.

As a way to strengthen ties among the Eastern Mediterranean countries, Egypt, Greece and Cyprus agreed in October 2018 to establish the East Mediterranean Gas Forum (EMGF) headquartered in Cairo. The forum includes seven countries which are Egypt, Cyprus, Greece, Jordan, Palestine, Israel, and Italy. The seven countries decided in January to create the forum, which underlined the transformation of Egypt into a leading center for natural gas trade and the region's energy hub. The ministerial meeting of the EMGF was held on July 24-25 in Cairo as per the invitation of H.E Tarek El Molla, the Minister of Petroleum and Mineral Resources. It was attended by the Egyptian, Cypriot, Greek, Palestinian, Israeli, and Italian energy ministers, as well as a representative of the Jordanian Minister of Energy. Additionally, US Energy Secretary Rick Perry also attended the meeting as a special guest of honor, alongside representatives from France, the European Union, and the World Bank.

During the meeting, the ministers decided on the forum's governing rules and procedures, and committed to achieving the goal of enhancing regional cooperation in the energy sector and make the best use of available resources, paving the way for a sustainable regional natural gas market. Furthermore, they discussed cooperation opportunities to gradually develop the natural gas infrastructure in the region in order to accelerate the economic utilization of current reserves and facilitate future discoveries. It is worth noting that the next EMGF Ministerial Meeting will be held in Cairo during the second half of January 2020.

The Egyptian LNG facilities remain the most attractive export option for undeveloped gas in the region. Therefore, new export infrastructure will likely only be established elsewhere if there were no available capacity in Egypt, Morris said, explaining that having insufficient export capacity is a challenge that can be tackled through cooperation as "any cross-border infrastructure such as pipelines will require close cooperation to ensure an optimal development and prevent delays." Moreover, Morris noted that "longer term, [having] an interconnected East Med regional market and trading hub could potentially develop. However, this would require close cooperation, significant market reforms and new infrastructure to be built."

UNDERSTANDING THE EUROPEAN NATURAL GAS MARKET

BY **MOSLEM ALI**

Europe largely depends on imports to secure its energy supplies. Reliance on energy imports exceeded 55%, two years ago, and the energy imports bill nears one billion euros a day. The European Union (EU) and its member states are all net importers of energy, especially of crude oil and natural gas, with the latter currently accounting for roughly a quarter of the European energy mix. More than 74% of this gas comes from outside of the continent.

Dependence on gas imports is only set to increase. Between 2007 and 2017, European natural gas production declined by 39.4%. Although European gas consumption is set to remain almost flat in the coming years, domestic production is expected to fall at an average rate of 3.5% per year, the International Energy Agency (IEA) Gas 2019 report showed. This is mainly attributed to the phasing out of the Groningen field in the Netherlands and the declining production in the North Sea. The falling production has pushed the EU not to rule out producing hydrocarbons from unconventional sources such as shale gas, provided that issues as public acceptance and environmental impact are adequately addressed.

RUSSIAN SUPPLIES

Russia is the biggest supplier of natural gas to Europe, dominating 40% of the EU gas imports, followed by Norway with 35%, Algeria and Qatar with 11.3% and 5.8%, respectively, as shown by the most recent eurostat data.

Russia will continue to be a major supplier of natural gas to Europe, especially to Germany, through the Nord Stream II pipeline that is expected to be completed by the end of this year, doubling the amount of Russian gas flowing directly to Germany through the Nord Stream gas pipeline under the Baltic Sea.

Germany is Europe's largest economy and natural gas importer. In 2018, it bought 78.9 billion cubic meters (bcm) of natural gas, roughly a fifth of the continent's total gas purchases, followed by Italy and France, with around 16% and 12%, respectively.

Reuters recently reported that the project is facing an eight-month delay and an additional cost of EUR 660 million ($730.9 million), as Denmark is yet to grant the needed approvals for the pipeline to pass through its territorial waters. Other sources expect Nord Stream 2 AG, a subsidiary of Gazprom building the pipeline, to divert the pipeline route altogether to avoid passing through Danish waters. Furthermore, the US has warned German companies they could face sanctions due to their cooperation with Russia in the Nord Stream 2 gas pipeline.

As Russia began halting major gas flows to Europe because of a disagreement with Ukraine over transit fees, the 2009 natural gas crisis has intensified European efforts to diversify energy supplies, according to a report by the Oxford Institute for Energy Studies.

SUPPLY DIVERSIFICATION

A report by the European Commission on the State of the Energy Union indicated that the EU's gas supply diversification strategy is based on three main lines of action: a transparent and flexible Liquefied Natural Gas (LNG) market, the Southern Gas Corridor, and the Mediterranean gas hub.

The Energy Union is an EU initiative launched in February 2015 to provide households and businesses across member countries with secure, sustainable, competitive, and affordable energy, through a fully integrated internal energy market and coordination in energy and climate policies.

LNG has become an integral part of Europe's energy mix, growing by nearly 19% over the last two years, according to a recent report by McKinsey & Company, titled "How did the European natural gas market evolve in 2018?".

The EU views LNG as a reliable backup in critical situations, during which insufficient gas is coming into Europe through pipelines. In 2015, the European Commission vowed to work to remove obstacles to LNG imports from the US and other LNG producers

Moreover, the commission believes an increase in LNG trade will help bring global natural gas prices closer together, as LNG prices have been higher compared to pipeline gas due to particularly high liquefaction, regasification, and transportation costs and demand in Asia, which account for 75% of the global LNG consumption. In 2018, around 50 bcm of gas was withdrawn from LNG storage and entered the European pipeline system, compared to 47.4 bcm in 2017 and 41.9 bcm in 2016.

Meanwhile, the Southern Gas Corridor (SGC) will deliver natural gas from the Caspian Sea directly to Europe for the very first time through 3,500 kilometers of pipelines. The SGC will transfer natural gas from Shah Deniz, the largest gas field in Azerbaijan, through three pipelines to Europe. SGC consists of three main pipelines, namely: the South Caucasus Pipeline (SCP), which will be expanded with a new parallel pipeline across Azerbaijan and Georgia, the Trans Anatolian Pipeline (TANAP), which will transport gas across Turkey, and the Trans Adriatic Pipeline (TAP) that will take gas through Greece and Albania into Italy. The $40 billion project will enable Azerbaijan and other Central Asian countries to export their gas directly to Europe. It is expected to create 30,000 jobs, with stakeholders including seven governments and 11 companies. According to BP, the Southern Gas Corridor pipeline system has been designed to be scalable to twice its initial capacity to accommodate potential additional gas supplies in the future.

More importantly, recent discoveries of large natural gas fields in the East Mediterranean region raised the region's profile as a gas producer and exporter. According to the European Commission, "it is in the EU's interest to assist the countries in the region in better exploiting their energy resources and to develop mutually beneficial commercial cooperation."

CHANGING SEASONAL DEMAND

For years, the northern winter season meant, ipso facto, that there would be an increased European demand with more energy needed for heating. On the other hand, due to climate change, warmer temperatures and heatwaves have led to a high demand for air conditioning in the summer. The seasonal peak demand is expected to shift from winter to summer in 19 European countries, as forecasted by a research paper published by the Proceedings of the National Academy of Sciences (PNAS) in 2017. The paper also projects significant demand increases in Southern Europe and demand decreases in the north.

On the supply end, climate change is seemingly playing an extra factor in boosting solar energy. During the 2018 heatwave, solar was the only over-performing energy source, with high pressure leading to minimal cloud cover across North Western Europe, according to "The European Power Sector in 2018" analysis report by Sandbag and Agora Energiewende.

DEMAND OUTLOOK

Unlike in African and Asian markets, demand for natural gas in Europe is not expected to grow over the coming decade. In spite of the depleting domestic gas production, increased share of renewable resources in the energy mix and energy efficiency measurements could help maintain current demand levels until 2030.

The European strategy to phase out coal, as part of a broader decarbonization, is boosted by lower gas prices and falling renewables' costs. This has increased the use of gas and renewable sources in power plants across Europe. Between 1995 and 2016, solar and wind energy capacity in the EU increased 100 times.

Gas is a low-carbon fuel, with its greenhouse gas (GHG) emissions estimated to be 40% less than coal and 20% less than oil. It is also cleaner and better for the environment, with nearly zero sulfur dioxide, nitrogen oxide, and particulate matter emissions. However, it is hard to see a greater role for gas in Europe beyond 2030, with renewable alternatives, including biogas, solar, and wind energy, considered as possible replacements.

Jonathan Stern, Founder and Former Director of the Natural Gas Research Program at the Oxford Institute for Energy Studies (OIES), affirmed to Egypt Oil & Gas that switching to gas in power stations is a major factor supporting gas demand in Europe.

"Renewables are leading the transformation in the energy mix. Gas will replace coal for the next several years and perhaps for the remainder of this decade. Gas for coal substitution may delay the decline in gas demand, but most projections are that from 2030 onwards, the decline in European gas demand will accelerate," Stern explained.

The EU has set a target to reduce GHG emissions by 40% by 2030, compared to levels in the 90s , raising the share of renewables in its energy mix to at least 32% by the same time, which comes in line with the Paris Climate Agreement target to keep global warming below 2 degrees Celsius. The ultimate goal is to decarbonize European energy supply and reduce dependency on third country suppliers.

Besides the goal of becoming "Climate-Neutral" by 2050, the EU also targets increasing energy efficiency by 32.5% by 2030. According to the EU, gas imports would be reduced by 2.6% for every additional 1% in energy savings. Nevertheless, energy savings above 35% are seen to have much less effect on reducing gas imports. Moreover, reduced demand for fossil fuels will lead, in turn, to lower energy prices, indicating that every additional 1% in energy savings will lead gas prices to being about 0.4% lower and oil prices about 0.1% lower in 2030.

Another determining factor in shaping the continent's energy outlook is its economic activity. When asked if another recession could curb European demand for gas, Stern responded, "the 2008 economic recession caused European gas demand to fall by 20% and demand has still not recovered to pre-2008 levels. Another severe recession could have a similar impact; this is most likely in the UK where the post-Brexit recession will certainly impact gas demand."

Meanwhile, the global gas demand is expected to grow at an average rate of 1.6% a year, exceeding 4,100 bcm in 2023, according to the IEA. "The current wave of LNG export projects will increase liquefaction capacity by 30% by 2023. This will be led by an increase in output from the US, which accounts for nearly three-quarters of the growth in total global LNG exports in the period, followed by Australia and Russia," the IEA noted in its 2018 report, noting that a lack of new LNG projects after 2020 could lead to the tightening of LNG markets. Thus, investment decisions will need to be taken in the next few years to ensure adequate LNG supply beyond 2023.

THE ENVIRONMENTAL BENEFIT OF FUEL SUBSIDY ELIMINATION

BY **YARA EL-MELIGY**

Fossil fuel subsidy reform (FFSR) is the missing piece of the climate change puzzle. The elimination of fossil fuels subsidies is believed by environmental experts to highly contribute to the goal of the Paris agreement, which builds upon the United Nations Framework Convention. The agreement aims to combat climate change by preventing the average global temperature from rising above 2 degrees Celsius from that of pre-industrial levels and limit the temperature increase even further to 1.5 degrees Celsius. It is estimated that FFSR could lead to carbon emission reductions equivalent to a quarter of the combined effort currently proposed by countries as part of the Paris Agreement.

On the local front, Ehsan El Hady, Chairman at Green Plus Environmental Solutions, a firm in the field of environmental management and quality, notes that Egypt signed the Paris Climate Agreement in April 2016. To El Hady, the country's motivation to do so goes beyond its contribution to greenhouse gas emissions. "Egypt is a developing country, looking for funds from other countries to implement the national, international laws as well as all regional and international agreements regarding the environment." Nevertheless, he still stresses that the country's "emissions are relatively high considering the GDP and population numbers, which have adverse impacts on the efficient use of natural resources, environmental protection, and human health," El Hady added.

ECONOMIC COST OF REMOVING SUBSIDIES

Environmental welfare goals are a matter of balance when mixed with the economic needs of developing countries. Therefore, energy subsidies are—theoretically—believed to be justified; however, the environmental benefits of reducing or removing fuel subsidies can be seen from two aspects.

At the G20 Leaders Summit in September 2009, summit leaders proclaimed that they would commit to rationalize and phase out the inefficient fossil fuel subsidies that encourage wasteful consumption, that commitment was conveyed after joint research by Organization for Economic Co-operation and Development (OECD), International Energy Agency (IEA) and World Bank on fossil-fuel and other energy subsidies: which had reached conclusions that the phasing out fossil-fuel subsidies in some non-OECD countries would reduce world Greenhouse Gas (GHG) emissions by 10% in 2050.

Secondly, as a result of fuel tends to have a distinct advantage over renewable energy sources. Phasing out fuel subsidy would level the playing field of renewable energy. According to report, reducing or removing fuel price subsidy would then allow for rapid transition from fossil fuel to renewable energy, that funds arising from fuel subsidy could be redirected to clean energy subsidy and other environmental programs designed to mitigate environmental degradation.

"Subsidy reduction will potentially affect social issues that will be reflecting on environmental issues as well, for example, some citizens will be forced to change their lifestyle to cut some costs especially in the power sector that will affect directly the environment through power consumption that will reflect also on the oil and gas field," explained Mohamed Labib; Senior Environmental Consultant.

While positive environmental impact is a byproduct to the state's efforts to eliminate subsidies, Labib thinks "the current subsidy-reform scheme addresses only budget [concerns] and does not take into consideration the social issues accompanying this decision, either on the long run or the short run."

Furthermore, Labib believes the impact of subsidies reduction will go beyond economic factors in Egypt. "These subsidies will rush citizens to reduce their costs," he explained, adding that this directly translates to a "negative social impacts for most families of the low- and mid- range economic classes."

According to a paper published by the National Bureau of Economic Research in 2016 titles "The Environmental Cost of Global Fuel Subsidies," fuel subsidies are inefficient as they lead to excess consumption, enabling purchases for which the private benefits are lower than private cost. Removing fuel subsidies helps balance government budgets, but it also yields enduring benefits in the form of reduced carbon dioxide emissions and other externalities.

According to a research paper in 2012 titled "Impact of Fuel Subsidy Removal on the Indonesian Economy." Fuel subsidy removal will certainly improve the government budget. The government will have more room for various fiscal policies from subsidy removal. It should reallocate this extra budget to each sector accordingly. Economic efficiency requires that households and firms pay energy prices that reflect their full cost to society, including both private and external costs.

ECONOMIC AND ENVIRONMENTAL COST OF KEEPING FOSSIL FUELS SUBSIDY

According to an article entitled "Reforming Environmentally Harmful Subsidies: How to Counteract Distributional Impacts," removal of subsidies would imply structural adjustment and improved efficiency in productivity and consumption. For example, it would lower subsidies to coal, gasoline and biofuels increase energy prices in general, reduce consumption and promote more efficient utilization of energy and substitution to non-subsidized energy sources. Since the subsidies are foremost targeted at fossil fuels, the emissions of greenhouse gases would be reduced. This represents a win-win situation, as it represents a cost efficient option of reducing GHG emissions. The different benefit estimates, dependent upon which countries are included, time period and subsidies.

Given the extensive support to energy consumption and production, removing the inefficient subsidies would dramatically affect the energy markets. Subsidies on certain energy production or consumption undermine the competitiveness of alternative energy sources and efficient energy technologies. Exemptions from environmental taxes can lock in polluting technologies and hinder low cost pollution reductions. This may hinder the development and deployment of environmentally friendly technologies and have negative environmental effects in the longer term. The longer a subsidy is granted, the more it will impact the lock-in effect and therefore on the environment.

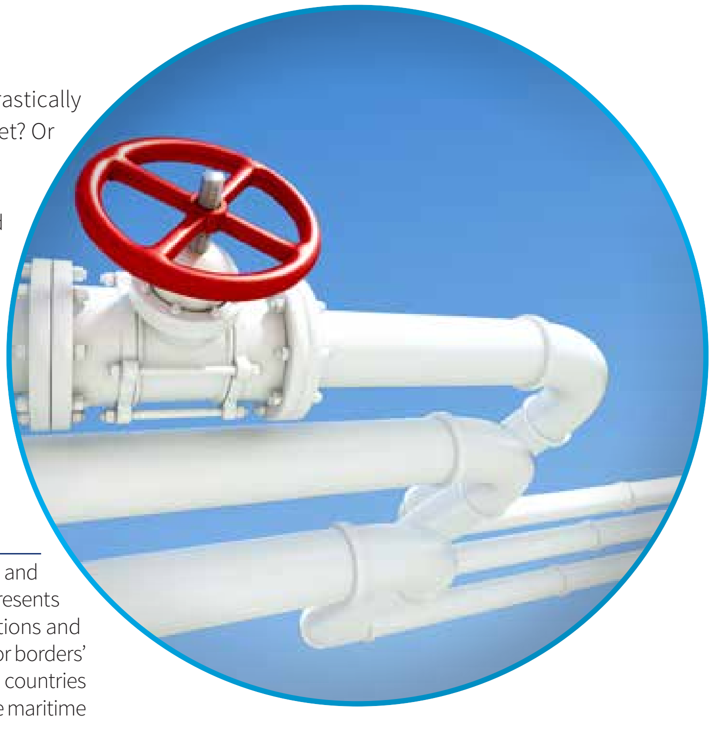
States should encourage the alternative fuel vehicles in countries that heavily subsidize gasoline and diesel.

"In my opinion, the government should begin to adopt the energy consumption and energy efficiency procedures in the governmental assets (especially in the transportation field) to reduce the gaseous emissions that will lead to pollution reduction," noted Labib.

GEOPOLITICS AND NATURAL GAS DEVELOPMENT IN THE EASTERN MEDITERRANEAN

BY: MAI EL GHANDOUR , TASNEEM MADI

Within the past few years, the context of geopolitics in the Eastern Mediterranean region has drastically changed. Is there a hidden agenda behind the fundamentals of this newly formed gas market? Or is it just the simple truth that peripheral power prevails when consolidated?



The geographical barriers between countries cause territorial restrictions in the gas supply. Thus, it is often said that one of the primary objectives of the East Med is to overcome these barriers and bring regional countries closer together to create an East Med gas hub.

However, according to a presentation titled by "the Geopolitics of East Med Gas: Hyped Expectations and Hard Realities", presented at the Middle East Energy and Geopolitics Conference, in Beirut, June 2019, although the East Med comprises neighboring countries, it is still not a unified region, as countries have different political agendas.

EMGF: A NEW INTERNATIONAL NATURAL GAS PLAYER

Since 2009, the East Med has emerged in the global natural gas market scene as a region with a high potential for hydrocarbon resources. It was estimated by the US Geological Survey that natural gas ranges from 122 and 223 trillion cubic feet (tcf) in Egypt, Israel and Cyprus, cited in article named by "Gas and Conflict in the Eastern Mediterranean", in February 2019. With new natural gas discoveries taking over the region, the prospects of liquified natural gas (LNG) exports was taking center stage at first. However, the focus recently shifted toward the development of regional projects. And because LNG global markets are less politicized, such a shift exposes the region to more politicized gas-related activities.

Regional forums and agreements are bound to provide new opportunities to resolve any disputes and maximize hydrocarbon resources utilization. Accordingly, the East Mediterranean Gas Forum (EMGF) was a suitable platform for such cooperation to take place.

MEMBER STATES' AGREEMENTS AND THE EMGF

The Greek Cypriots and Turkish Cypriots made a joint declaration to improve cooperation driven by the natural gas discovery in 2014, according to Anastasiades – Eroglu Joint Declaration. In February 2014. Cyprus, Egypt, Greece and Israel have signed an energy memorandum in 2017, where they discussed hydrocarbon resources development; that agreement became known as Tripartites. The "Energy Triangle" is also another agreement created between Cyprus, Israel and Greece to improve diplomatic relations, as cited in EuroMescaco Policy Brief in 2018. Consequently, the Greek Cypriots declared interest in promoting relations between Egypt and the European Union (EU) in 2017. In accordance to all these agreements, EMGF was formed to combine all its targets under the forum's umbrella.

GEOPOLITICAL DISPUTES AND CHALLENGES

The East Med is well known for its complicated disputes due to recent natural gas developments and discoveries. These disputes might negatively influence investments. However, the main geopolitical challenge in the region remains to be the unresolved territorial disputes and high geopolitical risks.

On the other hand, some experts argue that the East Med could face pricing issues as the needed utilities might not be affordable in regards to the market prices. In fact, experts expect that the economical impact would affect the entire region. The international market might stretch beyond the regional price realities, which makes it both unpredictable and out of reach of regional states. Meanwhile, international oil companies (IOCs) might continue to push for global LNG to reduce costs. According to a 2019 paper entitled "Eastern Mediterranean Hydrocarbons Prospects: In Need of a Pragmatic Geopolitical Assessment", the best thing that the regional countries can do is to boost energy cooperation and seek energy-related activities in the region to resolve conflicts and bridge differences.

Therefore, unless gas reserves enter the international market, the East Med would most likely be a game changer - but only for its country members.

THE LAW OF THE SEA

The international law provides different solutions and tools for coastal countries. The Law of the Sea presents and preserves the coastal states' rights, obligations and the usage of hydrocarbon resources. It is crucial for borders' delamination as well. The law states that coastal countries have the right to use hydrocarbon resources in the maritime areas that are adjacent to their coasts.

According to the international treaty UN Convention on the Law of the Sea (UNCLOS), the maritime areas are divided into six parts. Two parts are not governed by the Law of the Sea:(i) internal water, which is a part of a coastal state and the baseline landward, and (ii) territorial sea; which includes the seabed and the water column that is 12 nautical miles away from the baseline. The remaining areas that are governed by the law include: the contiguous zone which comprises the seabed and the water column, 24 nautical miles away from the baseline, the exclusive economic zone which covers the seabed and the water column 200 nautical miles away from the baseline, the continental shelf, which has the seabed only that is 200 nautical miles away from the baseline, and finally, the extended continental shelf which includes the seabed beyond 200 nautical miles. In both latter areas, other states have some rights as navigational rights or rights related to lay submarine cables and pipelines.

However, in case borders overlap, countries must involve a third party as an international court or tribunal to make a maritime delimitation agreement. If there were no delimitation agreements, a coastal state may identify its maritime areas' outer limits based on the rules for unilateral delimiting maritime boundaries.

INSIDE THE REGION – OUTSIDE THE EMFG

The region is composed of Turkey, Greece, Cyprus, Israel, Palestine, Jordan, Lebanon, Egypt, Italy and Syria. As EMGF is a new international natural gas player in the region, it derives its forces from the recent natural gas discoveries. The forum aims to overcome any political rivalries in the region. Nevertheless, there were some regional countries that chose not to join.

Because of disputes related to Cyprus' Exclusive Economic Zone (EEZ), turkey is unlikely to join. However, including Turkey's natural gas will improve the EMGF's position, according to the Atlantic Council. A resolution between both countries should be sought.

Likewise, Syria still suffers in the mire of conflict and war along the rest of its borders, thus, the reason behind not joining the EMGF.

Another country that did not join the EMFG is Lebanon. Yet, the first six months of 2019 saw an unusual series of meetings between Lebanese and Egyptian officials promoting energy cooperation. According to the Middle East Strategic Perspective, if Lebanon is abstaining from joining the EMGF, then it should strive to make it up by strengthening bilateral ties with the rest of its neighbors, especially Egypt.

OUTSIDE THE REGION – EYEING THE EMFG

According to the Institute for Security and Development Policy, April 2019, as the East Med is becoming increasingly interdependent in terms of energy, a "solid framework for political cooperation" is gaining momentum, which well extends far beyond the region's geographical location to attract other areas with mutual interest.

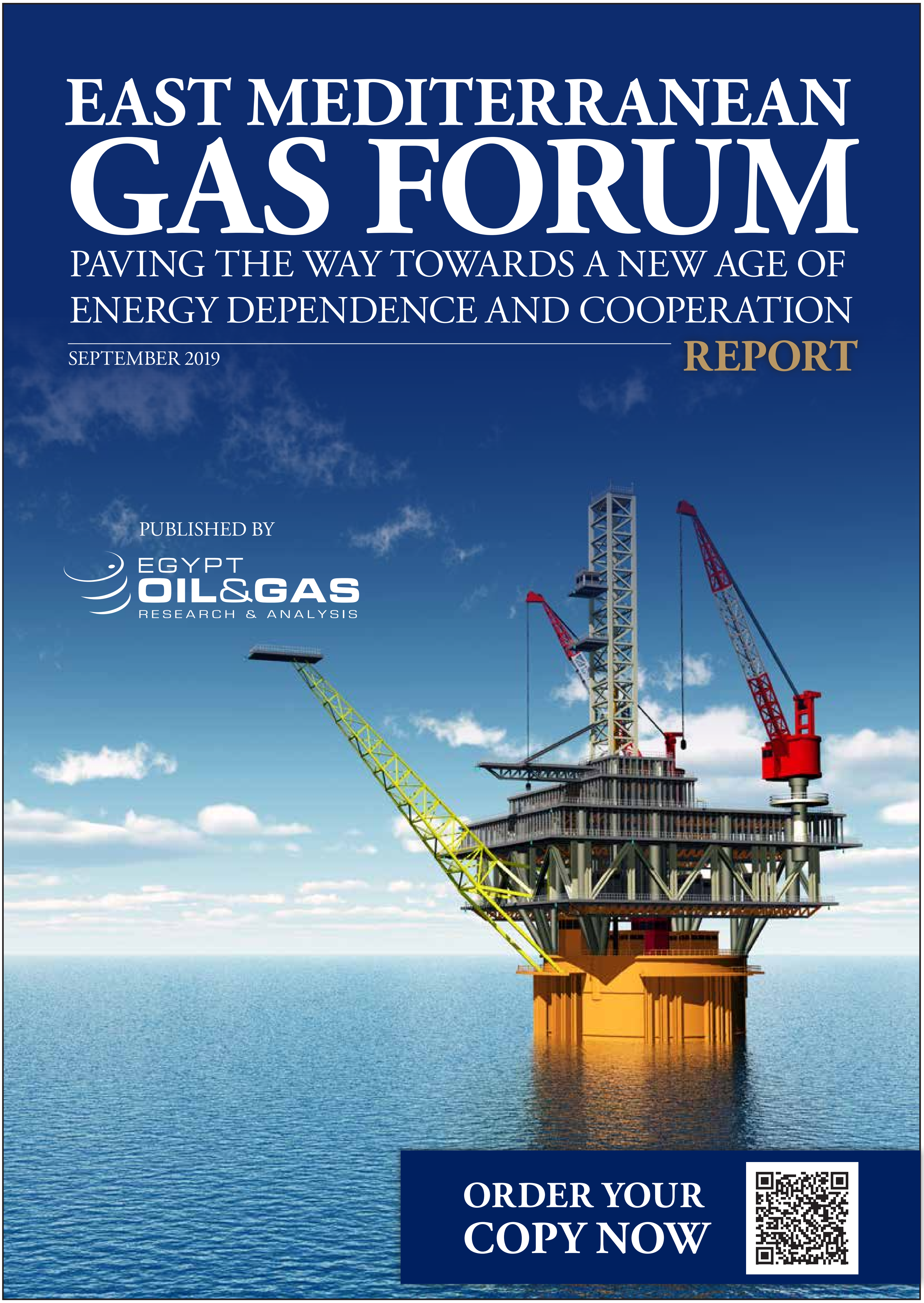
The US announced its support for the forum and its interest in continuous future investments in the member states. Charles Ellianas, Hydrocarbons Company CEO, previously stated that in an interview by New Europe website that Washington supports the EMGF to export natural gas to Europe in order to reduce the dependence on the Russian natural gas, in case the natural gas of the region was competitive with prices prevalent in Europe.

France is also looking forward to importing natural gas from Egypt and other Mediterranean countries, as cited in El-Ahram Weekly in July 2019. The EU finds it a suitable source for natural gas providence. The Hydrocarbons Company CEO also declared that LNG from Egypt's existing LNG plants at Idku and Damietta can be exported to Europe due to its very low liquefaction costs, making it commercially viable.

The EMGF is beneficial for IOCs such as Eni, Noble Energy, Total, ExxonMobil, Royal Dutch Shell; which already have their own exploration licenses in the region. However, Ellianas announced that such a forum is useful in a political context but still lacks practicalities where the region needs specific dispute resolutions.

PURSUING AN UNPAVED ROAD

Energy plays an important role in the national security of any country as fuel empowers the economic engine, but it can also become a source of friction and conflict. Accordingly, EMGF was formed among seven countries in the East Med. As per the forum, Egypt is planning to become a regional energy hub, Israel is looking forward to exporting its natural gas to Arab countries, and Cyprus is seeking additional offshore explorations in its economic zone, as stated by the Atlantic Council. Accordingly, disputes should be resolved in the future, reaping up the fruits of cooperation.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EAST MEDITERRANEAN NATURAL GAS:

AN ATTRACTIVE YARD FOR INTERNATIONAL COMPETITION

PREPARED BY: DINA EL-BEHIRY

The Eastern Mediterranean region has witnessed many discoveries, affecting not only the region's countries, but also the main global players such as the European Union (EU), Russia and the US.

While many research papers tackled this issue, one that stood out was a research paper entitled 'East Mediterranean Gas: A New Arena for International Rivalry', published in Review of Economics and Political Science by Ahmed ElBassoussy, a former Researcher and Policy Analyst at Ministry of Industry and Trade, and a current Assistant Professor of Political Science at The Egyptian Russian University (ERU).

This paper mainly aims at highlighting how international countries responded to the recent gas discoveries in the East Mediterranean basin. From a theoretical perspective, it is worth noting that the constant increase in demand for gas in developed and developing countries is directly proportional to the decline in hydrocarbon availability. Moreover, the paper focuses as well on defining specific key concepts including energy security, international conflicts, geopolitics, territorial sea, and exclusive economic zones.

GAS DISCOVERIES

The East Mediterranean region is enriched by vast strategic reserves that reached around 122 trillion cubic feet (tcf) of natural gas, according to USA Geological survey, 2010.

The discovery of a large number of gas fields began in 2000 when the gas field Mari-B, was discovered with estimated reserves of around 1.1 tcf. In the same year, the discovery of the Gaza Marine field was announced by the British Gas Company, BP affiliate, with total reserves of around one tcf of natural gas. However, there was political sensitivity towards this field due to Israeli oppositions. During the same year, Noa field was discovered with relatively small reserves at approximately 0.4 tcf of natural gas.

Explorations continued with a fast pace until 2009, in which Tamar field was discovered with reserves of around 9.7 tcf. Another discovery was Dalit field with total reserves ranging between 0.35 and 0.5 tcf. Additionally, December of the same year witnessed the discovery of Aphrodite field in Cyprus with total reserves of approximately 9 tcf of natural gas. Moreover, In November 2011, Dolphin field was discovered with estimated reserves of around 0.8 tcf of natural gas.

Consequently, Tanin field (Temash) was discovered in 2012, marking the seventh discovery by Isreal, with initial estimated reserves at 1.2 tcf. Then, in April 2012 Shimshon field was found to attain reserves of around 0.55 tcf. By June, Israel announced the discovery of Leviathan field, which is considered the second largest natural gas discovery in the whole region, with estimated reserves amounted to 17 tcf.

After such prominent discoveries, it is also worth acknowledging that Egypt announced the discovery of the giant Zohr field by the Italian Eni. The field has gas reserves of around 30 tcf.

GLOBAL RIVALRY

The recent discoveries in the region have encouraged key international players, particularly the EU, Russia and the US, to take part in exploring the wealth of the region.

In Europe, an Energy Union was established by the European Commission President Jean-Claude Juncker, called "The Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy" which mainly aims at achieving energy security, solidarity and trust. The framework targets establishing an integral European energy market by focusing on infrastructure, as well as achieving an efficient use of energy to balance demand and become a free- carbon economy. The European vision is to consider exploration as an opportunity to rely on multiple energy sources; by doing so, Europe will be able to overcome its prominent dependence on Russia. It is of great importance to also note that numerous of international oil companies (IOCs) have participated in the region's exploration activities.

Moreover, European companies are encouraged to invest in Egypt as it is considered to be one of the most resource abundant countries. An example of an IOC that invests in Egypt is BP. BP produces around 30% of Egypt's gas and 15% of its oil, in cooperation with other partners. Furthermore, some of the company's most prominent offshore projects are located in West Nile Delta and North Damietta. Another European leading company is Eni, which began its activities in Egypt in 1954 with 53 exploration licenses as well as discovering 59 oil and gas field licenses.

In Cyprus, BP is currently one of the most active companies on the exploration map. On the Palestinian level, the British Gas Company was the first company to succeed in settling exploration and investment agreements for offshore gas fields.

European countries have recognized that creating a strong cooperation ties among the region's countries is the right way to attain the maximum benefit from the region's natural gas wealth. While analyzing the European approach, it is noticed that the European side plans to manifest an area of interest with the region's parties.

Russia's strategy, however, is quite different from that of Europe. Despite the fact that Russia has no interest in the region's gas discovery, Russian officials have acknowledged the region's strategic impact as a result of the recent discoveries.

Russia has left its mark in the Lebanese market since 2013 when Rosneft, Gazprom, Novatek, and Lukoil announced their interest in investing in 10 blocks in the Lebanese Exclusive Zone. Additionally, despite Syria's unstable conditions, Russia signed an agreement with Syria in 2013 for exploration and production activities. Similarly, in spite of Palestine's political conditions, Russia spares no effort in establishing its place in the Palestinian gas sector; this could be useful if Palestine reached an agreement with Israel in the future.

Furthermore, the discovery of Zohr field in Egypt has propped-up Egypt's position as an area of interest for Russia. Even in the case of Israel, Russia planned to benefit from the Israeli massive gas reserves. In fact, in 2013, the two countries discussed an agreement to obtain liquefied natural gas (LNG) from Tamara and Dalit Fields for 20 years, However, this agreement is yet to be implemented in real life. Nevertheless, 2016 has witnessed the payoff of Russian efforts when Israeli Prime Minister Benjamin Netanyahu called on Russian companies to invest in Israel. One of the main reasons Israel decided to cooperate with Russia was not only related to energy aspects, but also for political visions.

In terms of the US strategy in the East Mediterranean region, the US attitude towards the gas discoveries is affected by the region's socio-political conditions. Thus, the US strategy is based on three determinants. Firstly, gas discoveries should represent a source of peace in the region. Secondly, the US, Greece, and Israel should conduct naval military maneuvers to defend gas facilities in the region for security purposes. Thirdly, these discoveries help bring the US allies to the region.

The natural gas discoveries in the East Mediterranean region enable a way to lessen the EU's dependence on Russia. Moreover, Russia's pattern of work differs from the American and European style as Russia seeks to purchase shares in the already existing fields, while the US and Europe focus on accessing and obtaining exploration rights in concession areas.

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GAS REGULATION IN THE EMGF COUNTRIES

BY: **YARA EL-MELIGY**

Recent decades have seen a marked boom in the development of offshore oil and gas activities. Due to the increasing energy demand and new technological innovations, offshore drilling extended their activities in the deep water areas. As of today, almost a third of the oil and a quarter of the natural gas consumed in the world comes from the underwater. This rush to offshore oil and gas exploration and production is not about to end as forecasts show a continuing growth of production in traditional offshore regions and significant development in new areas, particularly the Eastern Mediterranean region.

GAS REGULATIONS IN CONSTITUTIONS AND LAWS

Non-renewable geological resources depletion rate exceeds the rate of production. That is why it is necessary to preserve the resources for future generations and not to consume or destroy. One way to do this is by legislation; in other words, the existence of laws to conserve natural gas. These laws protect gas regulations in areas including the East Mediterranean Gas Forum (EMGF) countries. The Forum was held on January 14 in Cairo at a meeting comprising energy ministers from Egypt, Cyprus, Greece, Israel, Italy, Jordan and the Palestinian territories. Headquartered in Cairo, the Forum is planned to ease exploitation of East Mediterranean gas reserves to further improve economic development in the region.

EGYPT

Due to new discoveries in Egypt, which has the potential to become a regional hub, Article 32 in the Egyptian constitution states that natural resources belong to the people. The state commits to preserving such resources and their exploitation, preventing their depletion and taking into consideration the rights of future generations. The state also promises to leverage renewable energy resources, encouraging investment and promoting relevant scientific research. In accordance to economic feasibility, the state supports the manufacture of raw materials and increases their added value, granting the right to exploit natural resources or a concession to a public utility for a period not exceeding 30 years.

On the other hand, in August 2017 Egypt issued law no. 196 for year 2017 on the "law for gas market activities regulation" as a milestone for liberalizing the gas market in Egypt. This legal framework aims at creating a liberalized gas market with the opportunity for competition in the downstream activities amongst potential market players. The Executive Regulation of the Gas Law was issued on Feb 14, 2018.

This law is a new stage to develop the gas market by allowing the private sector to sell gas in the domestic market and encourage new investment in activities such as gas shipping, transmission, distribution, storage, supply, marketing, trading and liquefied natural gas (LNG) activities. Many opportunities are now offered for the private sector, most notably is allowing third party access on a nondiscriminatory bases to the gas facilities.

ITALY

As for Italy, Article no. 8 of the decree declares that the "Ministry of Economic Development provides for the evaluation of risks affecting security of supply of national natural gas system as per Article 9 of the Regulation, and defines the preventive action plan and the emergency and natural gas system monitoring plan, keeping into account articles 5 and 10 of the Regulation, availing itself of the emergency and natural gas system monitoring Technical Committee, established by the Ministry of Economic Development itself."

Moreover, the Legislative Decree no. 93 of June 1st 2011, which relate to common standards for the internal markets of electricity and natural gas, and to community procedures on the transparency of prices of electricity and natural gas final industrial customers, delegates to the Ministry of Economic Development the preparation of the plans provided for by article no. 5 and 10 of the regulation.

GREECE

According to the Greek constitution Article 18, special laws shall determine questions relating to ownership and disposal of mines, quarries, archaeological treasures sites, subterranean waters, and natural resources.

The legal framework pertaining to hydrocarbons in Greece is mainly shaped by Law 2289/1995, which regulates the prospecting, exploration and production activities related to hydrocarbons in Greece and sets out the requirements for the licensing of the respective

rights. Law 2289/1995 was amended by Law 4001/2011, which also established the Hellenic Hydrocarbon Resources Management S.A. (HHRM) as the competent authority for the management of these rights on behalf of the Greek State.

The exercise of the rights of prospecting, exploration and production of hydrocarbons is regulated by Law 2289/1995. The law defines “prospecting” as any attempt to identify the existence of hydrocarbons in a given area using any appropriate method other than, drilling, while the concept of “exploration” refers to any attempt to discover hydrocarbon deposits using any appropriate method, including drilling. Finally, “production” is defined as any activities related to mining; processing of hydrocarbons for commercial purposes and storage and transportation of hydrocarbons and their by-products. These processing activities do not include refining.

The rights to carry out exploration and production activities belong exclusively to the Greek State. Hellenic Hydrocarbon Resources Management S.A. (HHRM) is entrusted with the management of the respective rights on behalf of the State, and is vested with the authority to license them.

CYPRUS

Cyprus petroleum regulations are based on a production sharing contract (PSC) system where the terms are negotiated before a license is awarded and therefore vary from one license to another. The generic PSC terms and conditions are defined by the Council of Ministers which is the executive branch of the Cypriot government.

The exploration and production (E&P) activities in Cyprus are governed by the Hydrocarbon (Law no. 4(1)/2007) and the Hydrocarbon Regulations of 2007 and 2009 (no. 51/2007 and 113/2009). Hydrocarbon activities are subject to general Cypriot laws and regulations on health, safety, and environment (HSE). The European Union Directive, on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons (directive 94/22/EC) and other relevant EU legislation, applies to oil and gas activities in Cyprus.

ISRAEL

The natural gas authority in the Ministry of Energy acts according to the Natural Gas Sector Law and promotes the law's goals such as developing the natural gas sector, ensuring regular and reliable supply, encouraging competition, ensuring the maintenance of safety and setting suitable tariffs. Authority ensures all consumers, without prejudice, must be connected, as Section 31 of the Natural Gas Sector Law, which provides services to every consumer and any person wishing to become a consumer (according to the license’s conditions) without discrimination and on an equal basis. Services cannot be conditioned.

The authority promotes long-term strategic planning, grants licenses in the field of natural gas and supervises licensees, sets tariffs and standards for the provision of services, clarifies disagreements and determines arrangements between the players in the market and handles consumers' complaints.

JORDON

In Jordan, the oil and gas industry is governed by the Constitution of the Hashemite Kingdom of Jordan adopted in 1952 (Article 117: Constitution) and the Law of 1968, No. 12, on Management of Natural Resources (Natural Resources Law), which mainly addresses the mining industry. Any concession granting a right for the exploitation of mines, minerals or public utilities must be sanctioned by law. Under the Constitution, all mineral resources within the territory and the territorial seas of the Kingdom are under state ownership. For a party to obtain the rights for E&P activities of oil and gas and other mineral resources, consent must be given by the government. The constitution also provides that such rights must be granted under a concession or other special agreement authorized under the legislation. The government's consent is granted through the Cabinet. After consent is given, the Natural Resources Authority may enter into a concession agreement with the contracting party (Contractor). Under the supervision of the Ministry of Energy and Mineral Resources, the Natural Resources Authority is authorized to act on behalf of the government to explore, develop and produce of hydrocarbons and other mineral resources of the country.

PALESTINE

According to the Palestinian constitution (Article 20), natural resources in Palestine belong to the Palestinians. The State shall preserve citizen’s rights, which are recognized by the resolutions and rules of the international law.

Order No. (389) effectively annexed Palestinian natural resources transferring sovereign rights over Palestine’s natural resources to the appointed competent authority substantially exceeding the limitations imposed under Article 55 of the Hague Convention on the use of immoveable natural resources. Additionally the amendment granted the competent authority the right to revoke any mining rights previously issued and dispose of the area covered by the mining right.

Regulation of oil and gas operations has existed in various forms for over 100 years. Regulation has several objectives: protecting the environment, protecting cultural resources, protecting workers’ and the public’s health and safety, and reducing wasted resources. State governments regulate various aspects of oil and gas operations according to their resources. Who regulates what depends on land ownership and whether federal regulations or state laws apply. In general, most drilling and production is regulated by the states.

TRANSGLOBE PAVES THE WAY FOR ORGANIZATIONAL, CULTURAL IMPROVEMENTS

BY: **DINA EL-BEHIRY**

In light of moving its operations from Canada to Egypt, TransGlobe is training all of its leaders, executives, and employees to raise awareness on the necessity of improving organizational culture, as well as diving deeper into identifying key behaviors fit for different roles.

"TransGlobe is all about safely finding, developing and producing onshore oil and gas, and in today's market, more than ever, we need a high performing team to make that happen. Our success and growth depend on the skills and competency of our team here in Egypt and we are committed to developing our staff further, particularly in the area of soft skills. I also believe that personal development plans are essential to making my staff's ambitions become a reality," Craig Robertson, Country Manager and Director at TransGlobe said.

Agreeing with Craig Robertson's opinion, Shymaa Elhamy, HR Manager at TransGlobe commented, "TransGlobe strongly believes that its success is connected to its employees' success, and because of that, we are dedicated to developing their career path."

Wolfpack Holdings has been leading the cultural improvements in Egypt and the Middle East, helping leaderships create an environment of thriving mindsets, helping employees to be more productive.

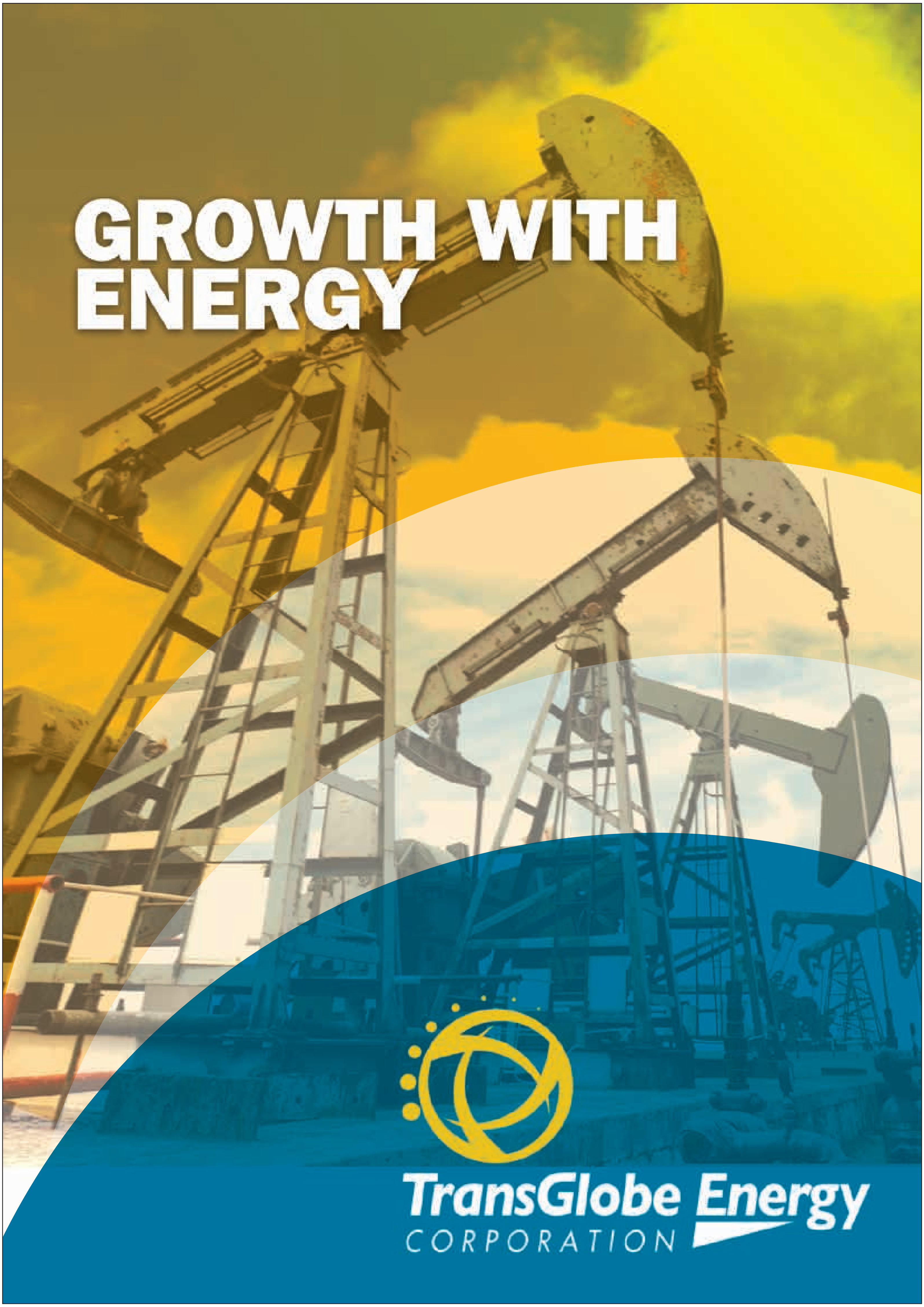
TransGlobe reached out for Kelly Bone, Wolfpack's CEO and Co-founder, in order to provide her consultation and vision in cultural enhancement sessions at TransGlobe's premises in Maadi and workshops at Katamiya Heights as well as online sessions.

"To support all the initiatives, I felt that the process of self-development, self-reflection and soft skills improvement required an energized third party. I am confident that working with Wolfpack Holdings, Transglobe will be pioneers within our peer group in the Egypt oil and gas industry for team motivation and team development and ultimately people excellence ," Craig Robertson said.

Kelly Bone expressed that "working with TransGlobe has been an absolute life experience pleasure. It has been really nice working with leaders in the Middle East who really care about their employees."

Additionally, Kelly Bone pointed out that "it has been clear that TransGlobe's focus in Egypt is all about creating a foundation for success as they bring their center of excellence from Canada to the Middle East," adding that "after working with them, I have really noticed that they have an open mind when it comes to leadership. I also noticed that employees are aligned with the direction that the leadership wants to go in, which is really exciting."

Craig Robertson concluded "TransGlobe is considered an industry leader when it comes to low cost onshore oil and gas development and production, and organizational culture improvements are a key component of continuing to meet that challenge".


GROWTH WITH
ENERGY
TransGlobe Energy
CORPORATION

PETROLEUM CONTRACT MODELS AND THE DEVELOPMENT EGYPTIAN AGREEMENTS

Despite the long history of petroleum exploration in Egypt and its place as the largest non-OPEC oil producer in Africa, little work has been published on the development of Egyptian petroleum agreement models. Furthermore, Egypt is the second largest dry natural gas producer in the continent following Algeria.

The history of petroleum agreements for exploring and exploiting of oil and gas in Egypt has developed gradually over a long time. It started with the stage of royalty, rent and taxes, which offer a specific period of licenses that does not exceed 30 years and is renewed for 15 years in an area of maximum 5,000 acres for annual rent. In addition, a royalty payment of one penny coined is due for each barrel of oil in case of production.

The Law of Mines No. 66 of 1953 that was issued after the revolution of July 23, 1952 introduced a big step in the development of the petroleum agreements history in Egypt. It required the exploration areas to be submitted in international bid rounds, while the first agreement was issued in 1954. According to this agreement, foreign companies must relinquish 25% of the exploration area after certain duration.

In the mid-1960s, the Indonesian government introduced production sharing agreements (PSAs) in response to criticism and hostility towards the existing concession system. According to this model, the oil is owned by the country which invites international oil companies (IOCs) to explore and, in case of commercial discovery, develop the resources. The IOC operates at its sole risk and expense, and receives a specified share of production as a reward. The share of production given to the IOC can be regarded as a payment or compensation for the risk taken and services rendered. PSAs spread from Indonesia to Egypt, Libya, Algeria and many other countries. This model is still working in Egypt. The main difference to concessions system is the ownership of the resources. Whereas in concessions, all crude oil produced belongs to the IOC.

In service contracts, the government seeks to exert greater control over the exploration and exploitation of its resources. In this case, the host government is only contracting in the foreign company to perform a carefully delimited service. The company does not generally share in the revenue produced. Under the service contract, the host government must have the requisite technological know-how and access to capital. In the joint venture (JV) model, both the IOC and the government, or one of its entities, participate actively in the operation of the oil field and acquire ownership of a specified part of production. Therefore, in addition to royalties, taxes, and profit oil, the government is entitled to a share of profits. However, this benefit comes at a cost since development and operating costs are shared between the partners.

AHMAD MOSTAFA
EXPLORATION SECTION HEAD
Ganoub El Wadi Petroleum Holding Company (GANOPE)

DEVELOPING INDUSTRY STANDARDIZATION CONCEPT, SYSTEMS TO ACHIEVE HIGH PERFORMANCE

Standardization systems creation and development is an old idea. The American National Standards Institute (ANSI), for instance, oversees the development of voluntary consensus standards for products, services, processes, systems, and personnel. The organization also incorporates US standards with international standards so that American products can be used worldwide.

ANSI accredits standards that are developed by other organizations, government entities, consumer groups, and other companies. These standards ensure that the products' characteristics and performance are consistent. Accordingly, people use the same definitions and terms, and products are tested in the same way. ANSI also accredits organizations that carry out product or personnel certification in accordance with requirements defined in international standards.

ANSI was originally formed in 1918, when five engineering societies and three government agencies founded the American Engineering Standards Committee (AESC). In 1928, the AESC became the American Standards Association (ASA). In 1966, the ASA was reorganized and became United States of America Standards Institute (USASI).

Other organizations in the petroleum industry were created and developed for standardization in the US that can be used worldwide. American Petroleum Institute (API) and International Association of Drilling Contractors (IADC) are the most famous of these standardization organizations. API is working for creating and developing standard rules, procedures and specifications for all oil and gas equipment, operations, tests and materials. Meanwhile, IADC is working for determining standard rules, specifications and procedures for all drilling equipment and operations worldwide.

Due to some differences and exceptions that are relevant to geography, climate and environment, I see that in Egypt, we are in need of new technical scientific institutes, specialized in the oil and gas industry, in addition to engineering colleges and other research centers. These institutes shall be a tool for progress and performance enhancement, setting new standards according to international ones.

The research institutes shall work on developing the petroleum industry by creating new means, equipment and materials needed to improve the performance and

provide outstanding technical training for the staff in the oil and gas industry in Egypt.

MOHSEN AHMED FARHAN
Drilling Department Head
General Petroleum Company (GPC)

Annual Inflation Headline CPI

JUN 2019	JUL 2019
9.40%	**8.70%**

Net International Reserves ($ billion)

JUN 2019	JUL 2019
44.35	**44.92**

Non-Oil Private Sector PMI (Points)

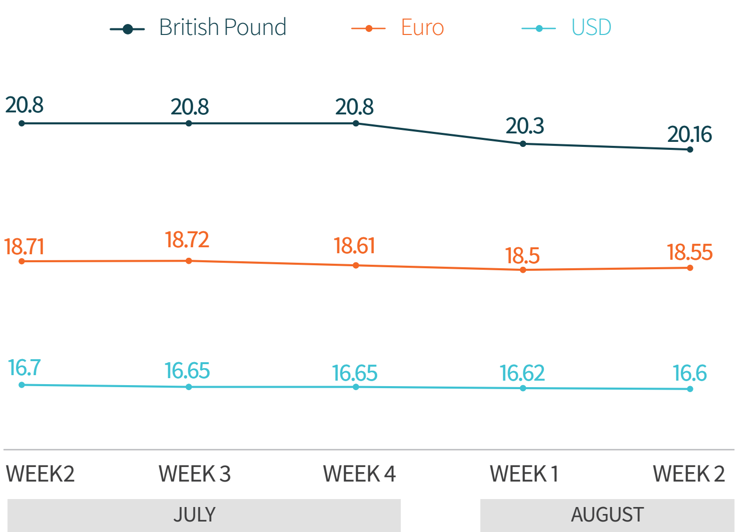
JUN 2019	JUL 2019
49.2	**50.3**

CBE Monetary Policy Committee Meeting on 22nd of August 2019 Decreased Interest Rates by 150 Basis Points

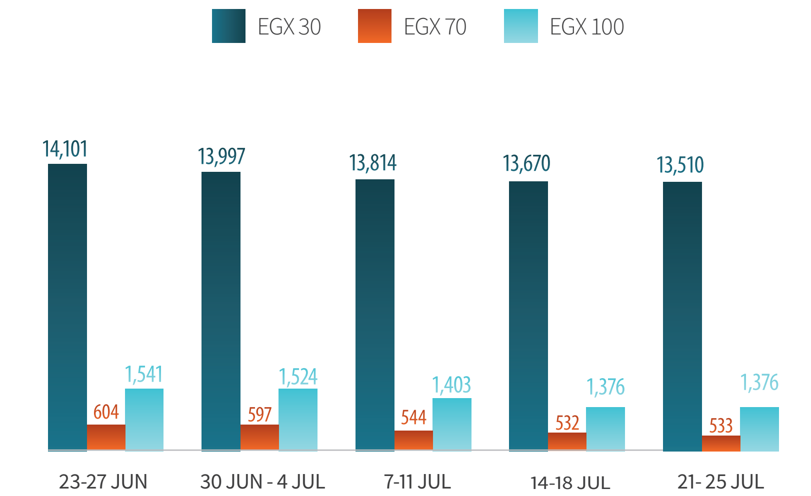
OVERNIGHT DEPOSIT RATE	OVERNIGHT LENDING RATE
14.25%	**15.25%**

RATE OF THE MAIN OPERATION	THE DISCOUNT RATE
14.75%	**14.75%**

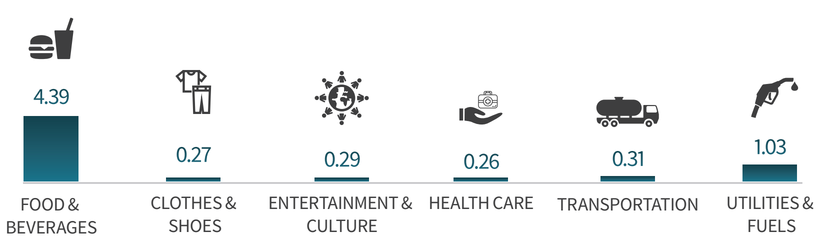
Exchange Rates



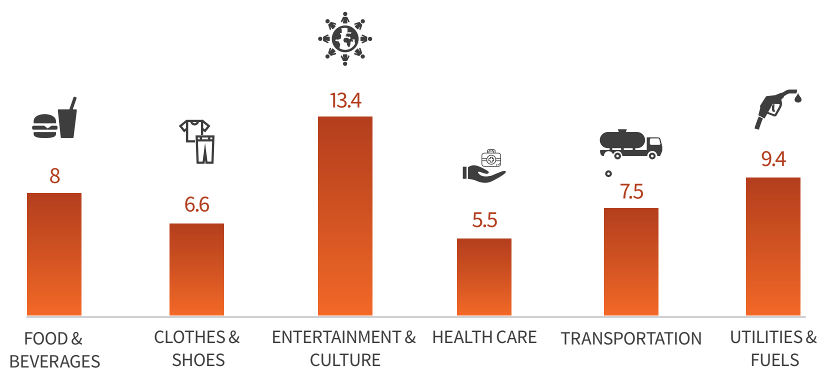
Capital Market Indicators



Sectors' Share in Annual Inflation Headline CPI in July 2019 (Points)



The Change in Sectors' Annual Inflation Headline CPI in July 2019 (%)



Source of Raw Data: CBE, CAPMAS, Egyptian Exchange, Emirates NDB.

EGYPT OIL&GAS
RESEARCH & ANALYSIS

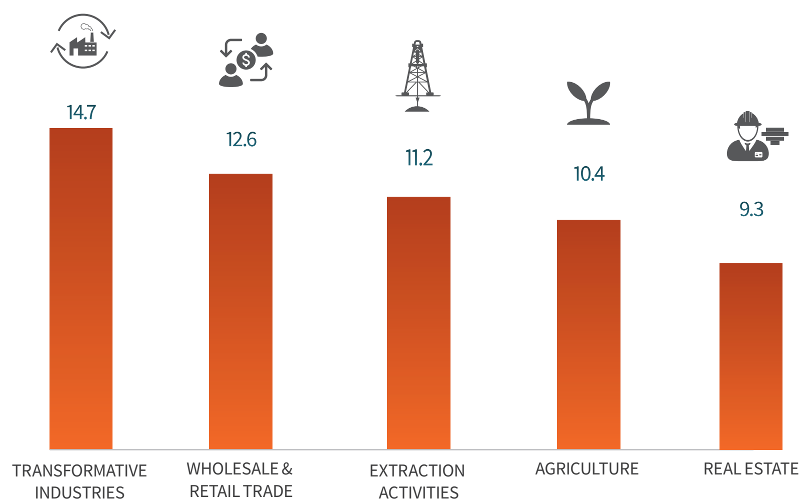
Egypt has successfully received the last **$2 billion** tranche of the **$12 billion** IMF loan in August.

The unemployment rate has decreased to **7.5%** in **Q2 2019**.

The Egyptian non-petroleum exports have recorded **$13.037 billion** during **H1 2019**.

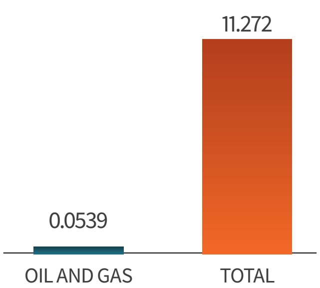
The Suez Canal revenues increased by **5.3%**, reaching **EGP 104.3 billion** in **FY 2018/19**.

Sectors' Share in GDP Growth Rate in FY 2018/19 (%)



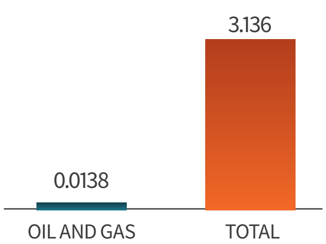
Value and Volume of Shares Traded for Petroleum Sector in July 2019

VALUE TRADED (BILLION EGP)



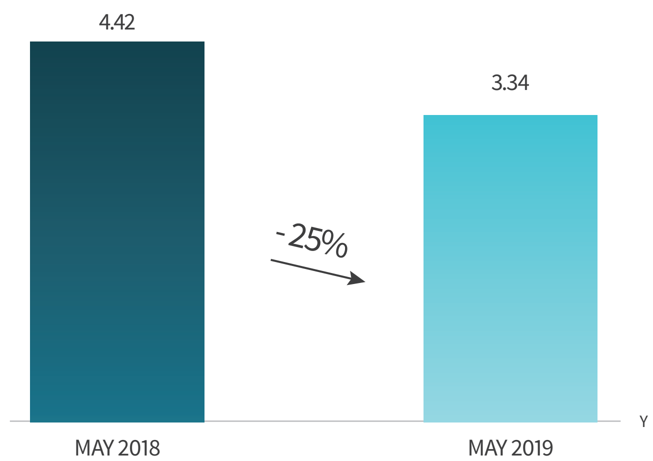
% OF TOTAL VALUE TRADED | 0.5

VOLUME TRADED (BILLION SHARES)



% OF TOTAL VOLUME TRADED | 0.44

Trade Deficit ($ billion)(YoY)



Performance of Petroleum Companies in the Egyptian Exchange in July 2019

	National Drilling	Alexandria Mineral Oils Co.	Egypt Gas	Sidi Kerir Petrochemicals
CURRENCY	USD	EGP	EGP	EGP
CLOSE PRICE	4.96	3.65	62.37	8.31
YTD PRICE CHANGE (%)	▲ 9.01	▼ 41.51	▼ 14.77	▼ 51.46

Source of Raw Data: Ministry of Finance, The Egyptian Cabinet.

Zohr Field Updates

- Production capacity increased to **2.7 bcf/d**, four months earlier than the planned due date
- Production increased **3.6** times, reaching **11.3 bcm** in H1 of **2019**
- The second pipeline was completed with **30 inches** diameter and **215 km** length
- Producing wells increased to **12**
- The potential production is estimated to reach **3.2 bcf/d** by the end of **2019**

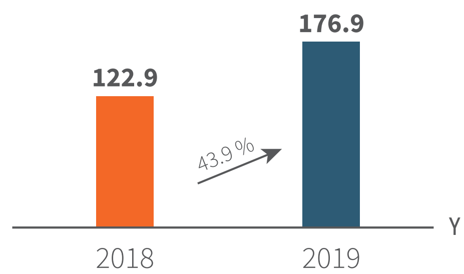
Zohr Field Production Units' Operation Timeline

- Dec. 2017 — **First Production Unit**
- Apr. 2018 — **Second Production Unit (T-1)**
- May 2018 — **Third Production Unit (T-2)**
- Sep. 2018 — **Fifth Production Unit (T-4)**
- Q1 2019 — **Sixth & Seventh Production Units**

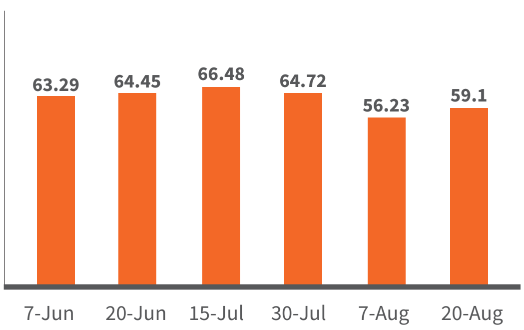
267,000 vehicles were converted to natural gas fuel by the end of **July**.

NSCO started production from its natural gas well in North Sinai, in **July**, with a capacity of **25 mcf/d**.

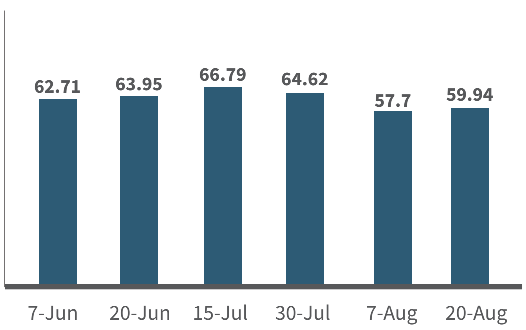
Petroleum Exports to the US ($ million) (YoY)



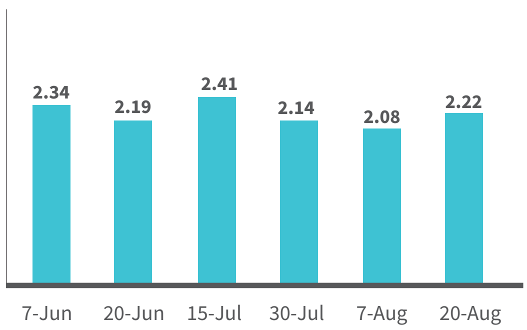
BRENT PRICES



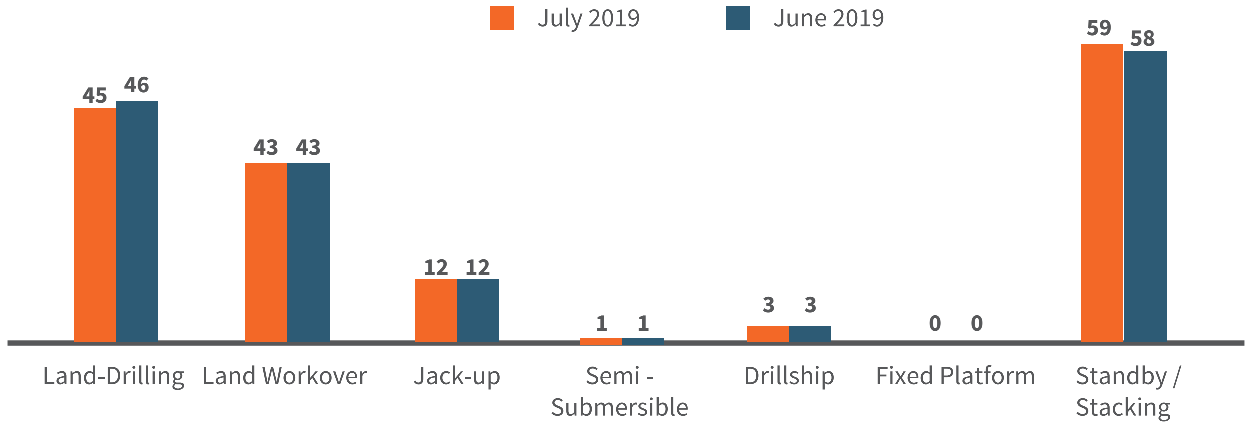
OPEC BASKET PRICES



NATURAL GAS PRICES



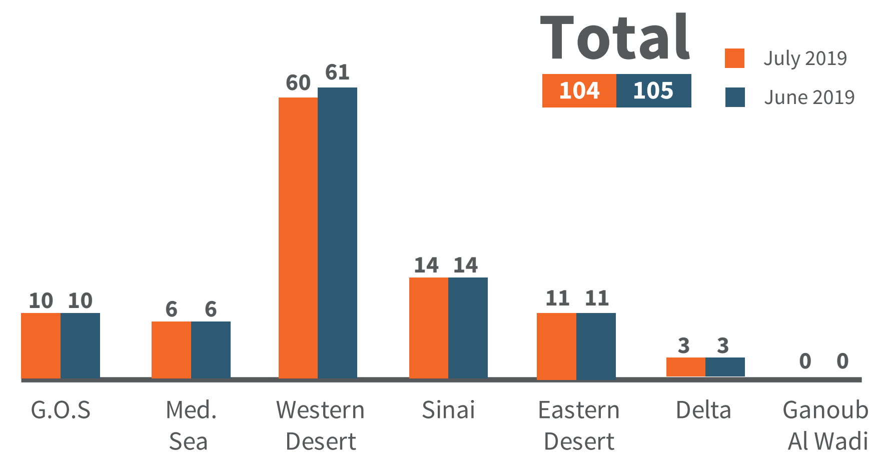
EGYPT RIG COUNT PER TYPE July 2019



Total

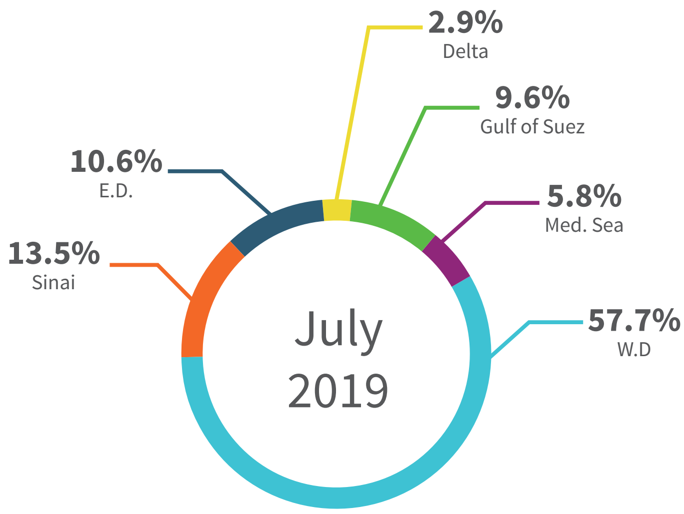
July 2019	June 2019
163	163

EGYPT RIG COUNT PER AREA July 2019



The difference between the total of rigs per area and per type is due to the Stand By / Stacking number.

Distribution of Rigs



Egypt Production July 2019

Total

551,679	B/D
6.7250	BCF/D
6561	MCF/D
79,875	B/D

Numbers are calculated per day on average.

	CRUDE OIL	GAS	SOLD GAS	CONDENSATES
MEDITERRANEAN SEA	432	4.1990	4097	28,243
EASTERN DESERT	68,371	0.0117	11	77
WESTERN DESERT	308,647	1.2082	1179	37,404
GULF OF SUEZ	125,127	0.0881	86	1,909
DELTA	154	1.2180	1188	11,728
SINAI	48,755	0	0	513
UPPER EGYPT	192	0	0	0

Drilling Update July 2019

REGION	COMPANY	WELL	WELL TYPE	RIG	DEPTH	WELL INVESTMENTS
EASTERN DESERT	GPC	HNW- 4	Development	ST-9	5,250	1.098 M$
WESTERN DESERT	PETROSANAN	WHG 1/1 ST-1	Development	ST-8	11,516	1.300 M$
	QARUN	BOLT-J16-1X	EXP	EDC-63	6,500	1.700 M$
	APACHE	WKAL-BUCHIS-FW-1X	EXP	EDC-54	16,050	3.800 M$
	BAPETCO	BED 18-K	Injection	EDC-50	11,516	1.100 M$
	KHALDA	SIWA X-1X	EXP	EDC-54	15,416	3.200 M$
		TANGO N-1X	EXP	EDC-58	15,897	3.310 M$
		SIWA P-1X	EXP	EDC-11	13,645	2.050 M$
	GPC	NES - 14	Development	EDC-16	8,038	1.020 M$
		NES - 15	Injection	EDC-16	7,832	1.004 M$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EGYPT OIL&GAS NEWSPAPER

COMPETITIVE ADVANTAGE THROUGH THE GAS VALUE CHAIN

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We can provide a portfolio of integrated solutions across the full gas value chain, from finding and producing gas through to the marketing of products. Shell technologies can help a country boost its economy by building up local gas-based industry. In addition, we bring skills transfer and people development which are key for creating in-country value. Shell plays a role in supporting the natural gas industry in many countries and is proud of how these strong, mutually beneficial relationships have developed.