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.

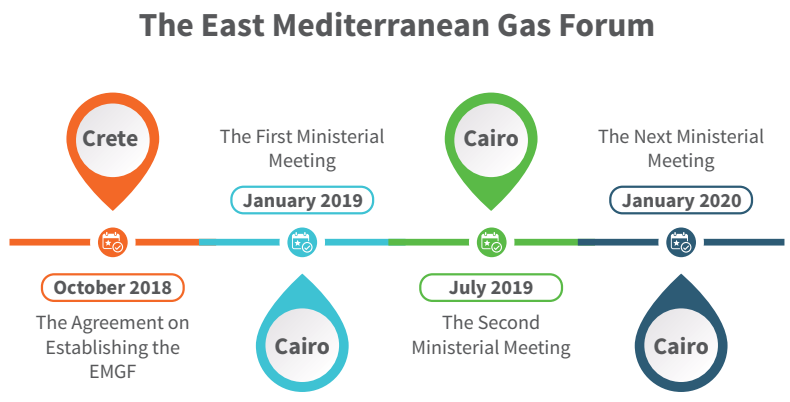
EAST MEDITERRANEAN GAS FORUM

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.

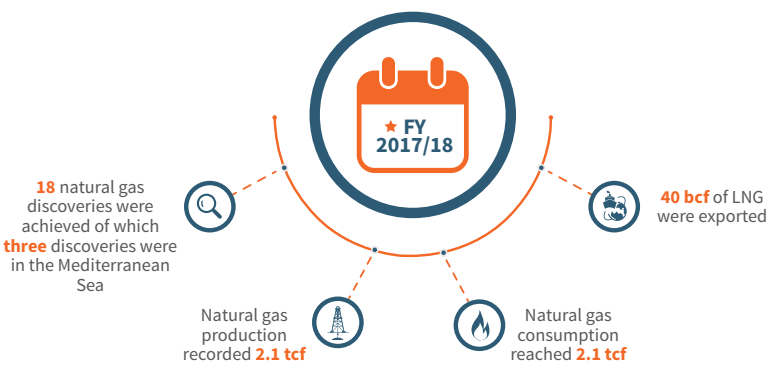


The country is one of the significant natural gas markets in the East Mediterranean region. With the advantages of its geographic location, natural gas infrastructure, and continuous discoveries, the East Mediterranean country strongly competes with other regional players to be the main regional natural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

Natural Gas Achievements in Egypt

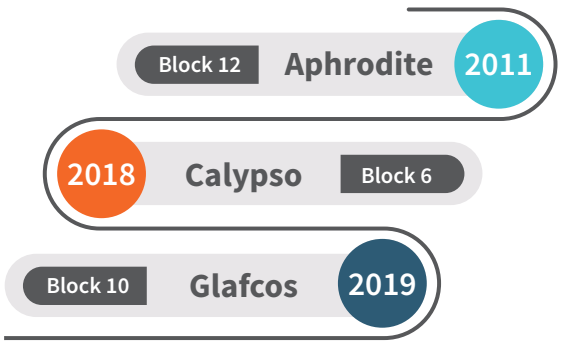


In fiscal year (FY) 2017/18, the Ministry of Petroleum and Mineral Resource (MoP) announced 18 new natural gas discoveries, three of which were in the Mediterranean Sea. This led the production level to reach 2.1 trillion cubic feet (tcf). Moreover, Egypt was able to export natural gas again the same 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.

Natural Gas Fields in Cyprus



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.



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.

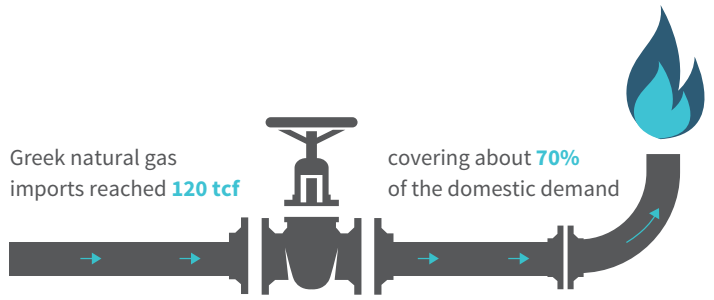


Although Greece is a medium-sized economy with a natural gas consumption of only 14% in 2018, it has the potential of becoming an energy hub for natural gas as it has a unique position in the Southeast Europe. On the other hand, crude oil consumption is remarkably representing about 56% of the country's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

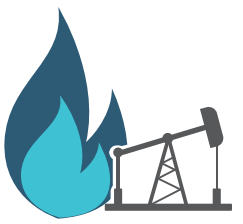


JORDAN

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.



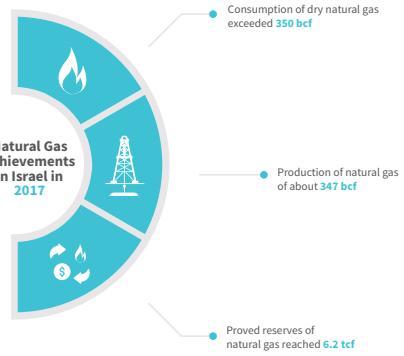
ISRAEL

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.



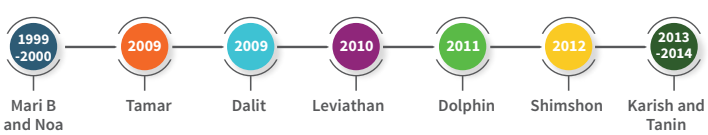
Natural gas in Israel is a primary energy source, mainly utilized for electricity production. In 2018, natural gas consumption represented 35% of the country's energy mix. However, oil possessed the highest share by 45%, as explained in BP's Annual Statistical Review of 2019.

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**

