An Emerging Natural Gas Hub in the Eastern Mediterranean

What is required to bring the substantial gas reserves of the eastern Mediterranean to market?

Regional cooperation could be the deciding factor in unlocking the value lying beneath the sea

Since 2009, roughly 70 trillion cubic feet of recoverable gas resources have been discovered in the eastern Mediterranean off the coasts of Israel, Lebanon, Cyprus, and the Arab Republic of Egypt. But much of the gas is located in deep water, raising the costs of supply. The main challenge, then, is to identify markets in which the gas can be competitive. Some markets have been found in Egypt, Israel, and Jordan, but a significant share of the discoveries will be developed only if and when the cost of building the infrastructure needed to bring the gas to new markets can be justified. The signs are good that further exploration would yield even greater resources. A 2010 estimate by the U.S. Geological Survey, corrected for discoveries made since then, suggests additional undiscovered potential in the region in excess of 80 trillion cubic feet. But investments in further exploration and subsequent development will not occur until the competitiveness of the known resources is established.

The countries of the eastern Mediterranean are role models in the region for gradually expanding gas trade, having moved from meeting domestic supply to bilateral trade and now to initial planning for a regional gas hub. The January 2020 ministerial meeting of the Eastern Mediterranean Gas Forum (EMGF)—made up of Cyprus, the Arab Republic of Egypt, Greece, Israel, Italy, Jordan, and West Bank and Gaza—witnessed the historic step of approving an agreement that establishes the forum as an international intergovernmental organization. It will be based in Cairo. EMGF’s objective is regional energy cooperation, which is essential if the region’s natural gas is to become competitive in global markets.

The World Bank has been involved with the EMGF from its inception as a recommendation that emerged from the Pan-Arab Regional Energy Trade Platform. Founded in 2016, collaborative platform engages the World Bank Group (acting through the Energy Sector Management Assistance Program and the Public-Private Infrastructure Advisory Facility), the League of Arab States, the Arab Fund for Economic and Social Development, the Arab Coordination Group, and international financial institutions (Huurdeman 2016).

This Live Wire shares the Bank team’s perspective on the role of the EMGF in unlocking the value of eastern Mediterranean gas and enhancing regional economic cooperation and stability in the region.

Why is regional cooperation so important in bringing the area’s gas to market?

Achieving competitive prices is possible only through large-scale trading

The market-competitiveness issues faced by the eastern Mediterranean gas basin are not unique. Similar questions have been asked about many gas basins in the world—such as those of the North Sea, Western Siberia, and the United States. Gas value chains tend to originate around a large resource that can be commercially connected to a major market, thereby justifying investments in the infrastructure needed to transport the gas. Once the initial infrastructure is in place, options can be pursued to expand capacity along a corridor, as both supply and demand develop.
In certain cases, government intervention may be needed to catalyze the initial opportunity. These policy interventions range from establishing conducive fiscal frameworks, promoting the development of gas markets, promoting and enabling the use of shared infrastructure, and cooperating across borders to harmonize price regimes and remove trade barriers. Competitiveness can be further enhanced by the right government policies on production sharing, taxation, and infrastructure design, access, and costs.

Despite the well-known benefits of regional trade, only 10 percent of the gas exported by the countries of the Middle East and North Africa is presently traded within the region (World Bank 2017). Changing that picture is one of the chief aims of the Pan-Arab Regional Energy Trade Platform. The platform focuses on enabling regional electricity and gas trade, developing the necessary regional governance structures and institutions, and devising innovative financing solutions to advance regional electricity and gas investments.

Sophisticated modeling (World Bank 2018) for the Pan-Arab region has shown that the benefits of regionally coordinated investment and trade in electricity through 2035 include savings of $78 billion, 37 percent greater average utilization of existing infrastructure, a 30 percent greater share of renewable energy in total capacity, and $136 billion in catalyzed private investments in renewable energy technologies. The benefits of expanded gas trade require further modeling, but in addition to expected monetary savings, they are almost sure to include stronger economic and political ties, increased security of supply and stability of demand, gas-based economic diversification, and larger renewable energy projects with economies of scale to support a sustainable energy future.

Can eastern Mediterranean gas be competitive?

Yes, through phased deployment of a regional corridor served by a new hub

Many of the factors that determine the economic value of a natural gas chain from well to market are beyond government influence. Examples are the quality and quantity of the gas resources, their geographic location, global gas prices, and the factors affecting the volatility of prices.

But governments do have the power to set policy, a major factor in determining economic value. Fiscal policies are an obvious example; others include policies to prevent monopolistic practices, to keep costs as low as possible through the efficient use of infrastructure, and to minimize nontechnical risks to investors. In the case of the eastern Mediterranean, where the gas chain will have to extend across borders, the EMGF’s role is to increase intergovernmental cooperation aimed at reducing costs and risks, attracting investors, and raising the market competitiveness of the region’s gas. It will fulfill that role by developing intergovernmental agreements that harmonize regulatory regimes across borders, share regional infrastructure, and provide mechanisms for arbitration and guaranteed payment related to gas supply contracts.

The recent gas discoveries present a major opportunity to consolidate the resource base and provide sufficient scale to export gas to neighboring countries and to Europe, reaching beyond the infrastructure already in place in Egypt, Israel, and Jordan. Yet expanded trade faces economic headwinds from two directions, one related to supply and the second to demand: (i) low-cost pipeline imports from the east and a growing supply of liquefied natural gas (primarily aggressively priced shale gas from the United States); and (ii) softening demand growth as Europe pursues a carbon-neutral energy system by 2050 (World Bank 2019, 2020). To overcome these forces, break-even prices of eastern Mediterranean gas at the well head need to be in the range of $1.5–3 per million British thermal units in order to justify further investments.

Several scenarios for bringing eastern Mediterranean gas to international markets have been considered. Because each has its opportunities and challenges, the EMGF and national policy makers will need to begin planning a regional corridor that can be expanded in phases while keeping the cost of supply at competitive levels.
Most of the offshore infrastructure—upstream, midstream, and downstream—can and should be built by the private sector, with the necessary investments facilitated through appropriate government policies. The fact that private and public stakeholders are already working together within EMGF’s Gas Industry Advisory Committee is an important step toward the necessary collaboration.

The combined EMGF member countries have historically been gas importers (Gaffney, Cline, and Associates 2020). On average, 6.5 billion cubic feet of gas are imported daily (Bcf/d), mainly by Egypt and Italy, through pipelines and shipments of LNG. That demand is projected to further increase by 40 percent to 20 Bcf/d in 2040, largely driven by demand in Egypt, Greece, and Italy. Even under the scenario of an accelerated shift to renewables, gas demand in 2040 would still be 17 Bcf/d.

With the recent gas discoveries in the region, a peak annual supply of 13.4 Bcf/d is projected by 2028—not enough to satisfy the region’s demand. A transition toward regional self-sufficiency will require more efficient use of existing infrastructure and spare capacity, such as gas pipelines and LNG export plants, in addition to some new investments to monetize the promising discoveries in Cyprus. Eventually, however, new pipelines will be needed to connect new fields to existing infrastructure in the most cost-effective way.

A gas hub for the eastern Mediterranean region could develop on the north shore of Egypt, based on the strengths of Egypt’s domestic gas demand and the possibility of using its transportation, processing, and export infrastructure to handle supplies from neighboring countries. But for Egypt to become the center of the new hub, the country will have to double down on the initiative it has shown within the EMGF by opening its gas market to competitive trading—a necessary condition for price discovery. Steps in that direction must include (i) sustained reform of energy subsidies so as to gradually introduce market-pegged prices; (ii) the restructuring of state-owned enterprises to achieve corporatization, clear accountability, operational efficiency, and financial viability; (iii) the phasing out of EGAS’s sales monopoly; (iv) effective market oversight by GASREG, the regulator; (v) the conversion of GASCO, the gas transportation company, into an independent transport system operator; and (vi) expansion of the capacity of the national gas grid so as to bring eastern Mediterranean gas to domestic markets.

What is the outlook?

Regional self-sufficiency, enhanced regional stability, and external export markets are all within reach.

The region’s significant undeveloped and undiscovered natural gas resources offer the enticing prospects of self-sufficiency for the region and, later, of exports to Europe. But in the medium term, meeting both goals will depend on further successful exploration, which in turn depends on regional cooperation. The immediate challenge is to find markets in which the region’s gas resources can be competitive. The EMGF and its member governments can facilitate this task through conducive policies, risk-mitigation measures, and shared infrastructure.

Farther out, regional cooperation in exploration, demand aggregation, and policy and regulatory support for new export infrastructure will be essential to deliver the cost synergies needed to bring self-sufficiency to the EMGF region and to compete in markets beyond.

In the meantime, the expanded economic ties represented by the new hub—in addition to enhancing the energy security of the region and Europe—will foster stability in the region.
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References


