Natural Gas Resources in the Eastern Mediterranean: Challenges and Opportunities

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The Eastern Mediterranean is on its way to becoming an important gas province. If developed in a timely and successful way, the region's resources may significantly change the energy picture in the wider Mediterranean region. Developing these resources will require overcoming numerous major obstacles with geopolitical implications. This article gives an overview of recent developments.

The Eastern Mediterranean: an Emerging Gas Province

The Eastern Mediterranean is, without question, home to large hydrocarbon resources, even though the countries in the region, excluding Egypt, have been quite slow to find them. While Egypt pioneered the discovery of offshore gas with the Abu Qir field in 1969, it was the start of drilling in deep waters in 2000 that opened a new horizon in the Eastern Mediterranean. To date, more than 2,000 billion cubic meters (bcm) of natural gas have been discovered in the Egyptian sector of the Mediterranean Sea. And yet, the Eastern Mediterranean remains under- or unexplored and has good prospects for additional reserves.

In March 2010, the United States Geological Survey (USGS) released an assessment concerning the undiscovered oil and gas resource potential of the Levantine Basin province in the Eastern Mediterranean. The area mainly covers offshore territories, including those belonging to the Gaza Strip, Israel, Lebanon, Syria and Cyprus. According to the study, the mean estimate of undiscovered technically recoverable oil and natural gas liquids (NGLs) resources in the Levantine Basin is about 5.3 billion barrels (Gb). However, what makes the basin important is the large estimated volume of undiscovered natural gas resources, around 3,450 bcm.

Two months later, in May 2010, the USGS issued another assessment. It was for the Nile Delta Basin province, which corresponds to the Nile Delta and Mediterranean Sea sectors of Egypt. According to the assessment, the Nile Delta Basin contains an estimated 6,320 bcm of undiscovered technically recoverable natural gas and 7.6 Gb of oil and NGLs, which is much more than the current proven oil and gas reserves in Egypt. By far, the largest resource is estimated to be in the Mediterranean Sea.

Although a few modest gas discoveries at shallow depths offshore Israel and the Gaza Strip (Noa, Mari-B and Gaza Marine) increased industry interest between 1999 and 2000, two large-scale discoveries since 2009 (Tamar in 2009 and the Leviathan in 2010, which are estimated to contain some 260 bcm and 480 bcm of recoverable gas respectively) have opened up the Eastern Mediterranean, and particularly the Levantine Basin, as a new deepwater gas province. These fields were the world's largest deepwater gas discoveries between 2001 and 2010. When these fields are taken in conjunction with other smaller-sized discoveries (such as Dolphin, Dalit and Tanin), a total of some 840 bcm of gas have been discovered in the waters of Israel and Gaza through March 2012.

In December 2011, the Eastern Mediterranean received more good news. US-based Noble Energy, the company that discovered most of the aforementioned fields, announced that it had discovered a large gas field (the Cyprus A) located on the south-eastern side of Cyprus, around 50 km from Israel's Leviathan field. The field is estimated to contain some 200 bcm of gas. Encouraged by this discov-

ery, on 11 February 2012, the Republic of Cyprus opened its second licensing round with 12 offshore blocks available. The closing date for the licensing round is 11 May 2012.

These discoveries and the two USGS assessments have not only significantly enhanced perceptions of the Eastern Mediterranean's gas potential but also raised expectations for further increases in the region's hydrocarbon reserves in the future. Naturally, the region has emerged as one of the most promising exploration markets. Today, all countries in the region are racing to secure their own slice of this lucrative market.

Offshore Syria is a virgin territory. In order to offset its declining oil output and reduce gas imports, Syria announced its first offshore exploration licensing round for three blocks in March 2011 with a closing date of December 2011. However, the round is currently on hold due to the present political tensions in the country.

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Lebanon has no domestic gas production and is reliant on imports to satisfy its energy requirements. The country started exploration activities in 2000 by acquiring seismic data in Mediterranean waters. With the hope that similar discoveries to those made offshore Israel and Cyprus will be made offshore Lebanon, Beirut is planning to hold its first licensing round for offshore gas exploration this year.

Another country in the Eastern Mediterranean that is heavily reliant on hydrocarbon imports is Turkey. Although Turkey started exploring offshore hydrocarbons in the Mediterranean decades ago, focusing on the Iskenderun Basin, its on-and-off efforts have not proved successful. However, a renewed interest for exploration of the still under- and unexplored offshore Mediterranean area has been taking shape in the country partially as a reaction to the Republic of Cyprus' offshore exploration licensing rounds.

The Arab Spring is likely to play a catalytic role in hydrocarbon exploration efforts in the region for three reasons. First, Egyptian gas supplies to Israel through the East Mediterranean Gas Company pipeline and to Jordan and Syria through the Arab Gas Pipeline have been interrupted 13 times (as of March 2012) due to attacks by militants in the Northern Sinai since February 2011. Second, following increasing public objections to the low price of gas exports, the Egyptian authorities have started to review the existing agreements. Third, several countries now see potential hydrocarbon resources in their Mediterranean waters as a remedy to improve their energy supply security and lessen their energy import dependence.

Potential New Gas Exporters Face Numerous Challenges

After making a series of significant gas discoveries, both Israel and Cyprus are now trying to figure out how to utilise them. One straightforward policy is to meet domestic energy demand, displace oil in the domestic energy mix, generate more electricity from gas and hence reduce reliance on imported oil and coal. Moreover, within a decade or so, these countries will have the possibility of exporting surplus gas to markets where they can fetch better prices. By becoming exporters they will also be able to contribute to European gas supply security in terms of diversifying both routes and sources.

However, the question of whether the discovered reserves can find their way to the domestic and international markets in a timely manner requires careful examination. First, meeting domestic demand and creating surplus for exports necessitates the development of the discovered fields, i.e., converting reserves into production capacity. Companies will carry out costly exploration and field development endeavours only if they foresee the ability to commercialise their discoveries with a favourable rate of return. In this sense, much will depend on the gas price the governments will be asking for on the domestic market, the stability of the countries' regulatory, fiscal and gas policies, and the political atmosphere.

Unfortunately, the countries in the region haven't yet developed a comprehensive and successful energy policy that takes into account the above-mentioned challenges along with the region's geopolitical changes. In the absence of the export option within an effective policy scheme, not only will they be

hard-pressed to attract companies for upstream business, but the development of the resources may be seriously delayed. This brings us to the future export potential of the countries in the region.

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Over the past decade, Egypt has emerged as a key gas producer and exporter. However, the impressive surge in production was restrained by a rapid rise in consumption. If demand-side management measures are not introduced and energy-efficiency improvements are not made, a small and shrinking volume of gas will be available for exports in future. The government has been planning to reduce and slow the rapid rise of energy consumption by gradually targeting subsidies, but any reform on this matter is unlikely to be a major priority to the new leaders in Cairo. In the short to medium term, the government is left with the option of increasing exploration and production. Whether the interest of international companies will continue will largely depend on the country's upstream policy. The upcoming gas exploration bid round, in which 15 blocks in the Mediterranean will be offered, will be a test ground.

Egypt is expected to remain the sole natural gas exporter in the Eastern Mediterranean up to the end of this decade, when it will potentially be joined by Israel and Cyprus.

Under a conservative scenario, reserves in Mari-B, Dalit and Tamar, in addition to the imports from Egypt, would suffice to cover Israel's domestic gas need. This means that Israel will have sufficient surplus gas to export. Similarly, the recently discovered gas field has the potential to comfortably turn the Republic of Cyprus into an exporter. The question today is how to bring the gas to customers beyond the domestic market. There are three possibilities: by pipeline, via liquefied natural gas (LNG), and through a combination of both.

A pipeline to Turkey and, from there, onwards to Europe might have been an attractive option a few years ago but seems less appealing in the current geopolitical climate. Similarly, the option to connect to the Arab Gas Pipeline is considered to be limited even though this option could, in theory, collect gas from other producers in the region including northern Iraq and even Lebanon, if gas is found there. A pipeline to Greece from Cyprus, although technically feasible, would be too costly and would heighten diplomatic tensions with Turkey.

Building an LNG plant in Israel – on the coast or offshore – would be quite a challenge for security and environmental reasons. The spare capacities at Egypt's Damietta and Idku LNG plants could potentially be used, but current political tensions between Israel and Egypt would make access to these plants difficult. Taking the gas from the Leviathan field and other offshore discoveries around by pipeline to Vassilikos, on the south coast in Cyprus, where the gas would be converted to LNG, seems to be a strong option so far. The LNG facility could be located on- or offshore. Another option would be to take the gas to the Israeli coast and send it by pipeline to Eilat and, from there, on to Jordan's special economic zone at Aqaba, where an LNG facility could be constructed.

Although all these options are technically feasible, the costs involved and the complexity of negotiating the necessary deals, as well as of overcoming the political barriers, pose serious challenges.

New Tensions Are Brewing in the Eastern Mediterranean with Major Geopolitical Implications

Large gas discoveries by Israel and Cyprus in the past three years and the prospect of substantial hydrocarbon resources waiting to be tapped beneath the Eastern Mediterranean waters have heightened political tensions, started to change the complex geopolitical balance of power and paved the way for new strategic alignments in the region.

One of the biggest challenges facing the region is the geopolitical environment, as witnessed in the debate and disputes over maritime boundaries. These disputes are in danger of escalating into full-blown diplomatic confrontation and friction.

The unresolved demarcation of maritime borders dating back to 1948 has heightened the diplomatic dispute between Israel and Lebanon since the discovery of the Tamar field in 2009. In 2010, Lebanon submitted to the UN its southern maritime boundary

with Israel and its south-western maritime boundary with Cyprus, which differed from the boundary established in Lebanon's 2007 agreement with the Republic of Cyprus. The 2007 agreement was ratified by Cyprus but not by Lebanon.
In July 2011, Israel sent a letter to the UN identifying its maritime boundary with Lebanon. The Israeli line runs north of Lebanon's proposed line in 2010, hence overlapping with what is claimed by Lebanon. The dispute relates to an area of 850 square kilometres. Settling the issue will require negotiations between the three countries. Although Cyprus and Lebanon are currently in talks, the absence of negotiations between Israel and Lebanon, which are formally at war, complicates the matter.

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An even more complicated problem in the region is the dispute between Turkey and the Republic of Cyprus. Turkey claims that maritime boundary agreements signed by the Greek Cypriots with countries of the region are null and void. Hence, Turkey opposed the drilling program in southern Cyprus and called on both the Cyprus government and Noble to halt exploration. When these calls were ignored, Turkey struck an agreement in September 2011 with the Turkish Republic of Northern Cyprus on continental shelf and offshore oil and gas exploration. It has yet to be seen whether this action will jeopardise the unification talks on the divided island or Turkey's accession talks with the EU.
How to manage and contain these disputes remains a challenge. After all, energy policy in the region cannot be separated from security considerations. Tripartite negotiations between Israel, Cyprus and Lebanon seem to be the best way to find a mutually acceptable solution. Otherwise, settling the issue through the International Court of Justice, the International Tribunal for the Law of the Sea or UN mediation would likely take a decade. The situation between Turkey and the other countries should be viewed less as a legal issue and more as a political and economic one. It is indeed centred on the Cyprus problem, which needs an urgent solution. The presence of gas discoveries may stimulate negotiations, but the lack of trust between the island's two communities and the absence of diplomatic relations between the Republic of Cyprus and Turkey will not make it easy in the foreseeable future.
Any unilateral action would only exacerbate the increasingly complex geopolitical situation in the region, which already faces formidable challenges. Although hydrocarbon resources could bring countries together, they could also fuel new conflicts and add anxieties to an already volatile region. Finding the common ground needed to turn the region into a booming hydrocarbon province will not be easy, but there is always hope.

Concluding Remarks

Recent major offshore discoveries in the Eastern Mediterranean indicate that the region has the potential to emerge as a significant hydrocarbon province. This potential, however, will only make real sense if the discoveries are turned into production capacity. Even then, further numerous challenges would need to be overcome. As perhaps the region's only common denominator, energy has become a main component of the geopolitical struggle in the region and its surroundings. Growing conflicts over the unresolved demarcation of maritime borders following Cyprus and Israel's gas finds are arguably the most sensitive challenge in the Eastern Mediterranean, one of the most entangled political regions on Earth.
The question is how to turn these pressing challenges into opportunities. There is no easy answer or solution. Until and unless these challenges are managed carefully and wisely, the myopic policies currently being pursued by the countries in the region without regard for their consequences will prevail. A genuine mechanism that would lead to joint projects, including development and exploitation of hydrocarbon resources, might offer an interim solution. In a perfect world, this would have the potential to change the entire region's political and economic scene for the better.