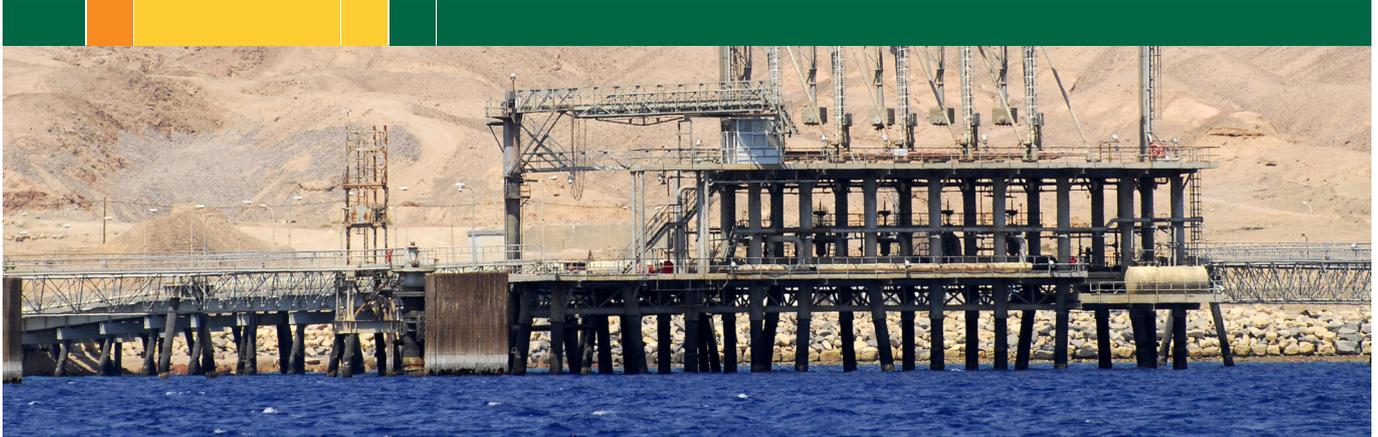


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A Leviathan problem: the future of upstream in the eastern Mediterranean

Economic advancement, population growth and with it, a sudden increase in energy demand mean that recent offshore natural gas developments in the eastern Mediterranean could engineer a power shift in the region, ultimately resulting in a new Eastern Mediterranean Energy Corridor.

However, continuing political tensions between the key players mean that actually moving gas from offshore platforms to Europe where it can be used and sold pose a serious threat to the success and even the very existence of upstream projects.

This article will examine the recent offshore natural gas discoveries in the region, with particular focus on Cyprus, Turkey and Israel to explore how energy infrastructure is the focal point upon which the entire success of upstream development in the region pivots.

Recent discoveries

In 2009, Texas-based Noble Energy announced the discovery of 250 billion cubic meters (bcm) of gas in offshore Israel: the Tamar field. Shortly afterwards, Noble then announced the discovery of the Leviathan field (worth 476bcm) in offshore Israel, as well as the Aphrodite field, which lies in offshore Cyprus. These findings were then supported by the United States Geological Society: in 2010 it published a report on the Levant Basin, which lies underneath Syria, Lebanon, Israel, Jordan, Palestine and the waters between those countries and around Cyprus and Turkey.

The report concluded that a total of 1.7bn barrels of undiscovered oil and 122 trillion cubic feet (tcf) of undiscovered

gas resources lay in the basin as a whole, adding a whole new angle to the investment interest in the area. According to a report by the U.S. Energy Information Administration (EIA), those discoveries “could meet current regional demand almost indefinitely.”

The fact that Israel alone consumed 90.5 billion cubic feet (bcf) of gas in 2011 but only produced 87.5bcf, thus forcing the country to import energy from its neighbors, means that both the financial and economic value of these discoveries is significant.

Leviathan politics

While Israel has traditionally filled the gap between supply and demand of oil via imports, its gas needs had been accounted for by the El Arish-Ashkelon Pipeline running between Israel and Egypt, and owned and operated by the East Mediterranean Gas Company (EMG). However, following the 25 January revolution in Egypt in 2011, many Egyptians called for the ending of gas exports to Israel, some even accusing it of breaching its obligations and of having stopped payments a few months prior. In 2012, gas supplies to Israel were unilaterally halted, representing a new low in political relations between the countries.

As Israel has begun to receive supplies from its Tamar and Mari-B fields since the beginning of 2013, it no longer needs the El Arish-Ashkelon Pipeline. Indeed, according to current forecasts the Leviathan and Tamar fields together can meet Israel’s domestic needs for up to 25 years and may transform the country into a net exporter of gas. As Tamar is considered to be able to fulfill Israel’s domestic requirements alone, it is likely that Leviathan outputs will be pushed towards export.



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However, two obstacles currently hamper such a golden future for Israel. Firstly, the fact that the Leviathan spoils lie beneath more than 5,000 feet of water means that significant investment will be required in order to remove the oil and gas that lies there safely and profitably. That investment not only depends on the security of the region, but also on the clarity of Israeli policy towards exports.

Currently, the ownership of the Leviathan field is split between Texas-based Noble Energy, Israel's Delek Drilling and Avner Oil Exploration, Ratio Oil Exploration and Australia's Woodside Petroleum Limited, to whom the partners sold a stake earlier this February. However, following the \$2.3bn investment from Woodside, some uncertainty has prevailed over the future of the project, due largely to the reluctance of the Israeli government to clarify exactly how much of the recoverable resources they will allow the partners to export. In an Analyst Conference presentation given on December 17, 2013 Noble stated that the figure stood at 40% of the total, but the delays had already caused the company to postpone their production start-date for a year to Q4 2017.

A new energy axis

The resulting drop in partners' share prices that followed has no doubt caused some to carefully consider their investment, while further disputes with Lebanon over a maritime border between the two countries could lead to further instability. The risk that ongoing troubles in Syria could spill over into Lebanon exists and contributes strongly to the pressing need to find a way of transporting oil and gas from these fields safely to Europe. As the extension of the Arab Gas Pipeline through Syria to Turkey is unlikely to happen in the near future and taking into account the unrest in Egypt, not to mention the number of jihadist attacks on the pipeline in Sinai over recent years, another way of connecting the fields in the eastern Mediterranean sea to Europe is urgently needed.

This is where Cyprus, Greece and Turkey come into the picture. Noble, again a key player in the region, gained the exploration rights of Block 12 in Cyprus' Exclusive Economic Zone (EEZ) in 2008, where it then went on to discover the Aphrodite field. Following its finds there, Total of France went on to pay Cyprus €24 million for the license to explore Blocks 10 and 11, while Italy's ENI and South Korea's KoreaGas Corp. (Kogas) gained access to Blocks 2, 3 and 9. Production is not expected to start until 2018 for domestic use and 2019 for export, but that still leaves little time for the transport problem to be solved.

The first and most cost-friendly option would be to build a pipeline to Turkey in order to feed into existing infrastructure there, but Turkey claims the waters in which

Aphrodite lies as its own and therefore rejects the Cypriot claim to it. Cypriots worry that even if an agreement could be reached with Turkey as to ownership and use, Turkey would use it as a political tool against them.

As a result, in November 2012 Cyprus, Greece and Israel agreed to set-up an Eastern Mediterranean Energy Corridor, which would connect gas from offshore fields in Israel and Cyprus to a liquefying plant at Vassilikos, Cyprus and to ship it on from there to Greece. This project contains a number of advantages: firstly, Leviathan and Aphrodite are only 34km apart from each other, meaning connecting their supplies would not be too difficult; and secondly, it conveniently bypasses Turkey. Additionally, some domestic resistance in Israel against building LNG plants at Ashdod, Ashkelon and Eilat mean that building the plant at Vassilikos Cyprus handily gives Israel access to the EU without too many problems on home soil.

There are however, some drawbacks to this project. The cost of building the LNG plant at Vassilikos is estimated at \$6 billion, which Noble, Delek, Avner and the Cypriot government will share in parts, perhaps supported by ENI, Kogas and Total at some point in the future. The area at Vassilikos is, though, only approximately 2 square km and some question whether it will be able to support the level of exports the investors plan. For Israel, there is some concern as to how to control export revenues, which as mentioned above, is a key issue for the Israeli government. Equally, should Cyprus become further entangled in deeper political tensions with Turkey, the security of the plant and the whole project could be jeopardized.

Perhaps the most appealing option of all until tensions in the area relax is a Floating Liquefied Natural Gas (FLNG) installation. The Tamar FLNG project, which attempts to draw on volumes from the Tamar field is estimated to cost around \$5 billion, but would allow the export of almost 144 bcf per year.

The skills required not only to make such projects materialize but to function safely and profitably demand a high level of staff expertise and advance planning though, which can sometimes mean huge cultural barriers need to be overcome. Operating in an area riddled with political and religious dispute and occupied by military forces which are sometimes hostile towards one another makes employee safety perhaps the most important issue. This factor alone will likely deter the influx of skills from abroad, adding handsomely to the cost of employment and employee protection. Where skilled workers can be recruited locally, the probability that deep cultural tensions would exist between them is high and could require some nifty managerial footwork to keep operational peace.

Furthermore, the inherently dangerous nature of working offshore with resources which lie so deep means that particularly stringent safety operations and transport logistics processes must be put in place. External factors such as wind speed, direction and currents must also be taken into account, while traffic concentration and helicopter or boat utilization will need to be regularly scrutinized. If space is limited, poor platform and deck space organization can further add to costs: operators will need to be extremely vigilant if blocks are to be made – and kept – profitable.

Worldwide influence

Taking into all of these aspects into account, it is likely to take some time before any of the fields connect with EU soil. The EU has a vested interest in the development of the Eastern Mediterranean Energy Corridor due to its current dependence on the Russian Federation, Norway and Algeria for gas. Obviously, the Russian Federation is keen to remain prominent in the area and has so far been the largest foreign direct investor in Cyprus, bailing out the island's banking sector at the end of December 2011. It has also been actively collaborating with Israel, with whom it signed an initial agreement to export LNG from Tamar early last year.

The entire issue as well as all of the projects associated with these discoveries depends fundamentally on the growth of demand for gas in the EU and the willingness of Israel to cooperate in terms of exports. While some predict gas demand to continue to increase steadily after a sudden decrease following the financial crisis, the EIA expects demand growth to slow to levels seen before the recession. If the latter scenario occurs, then the viability of any of the projects outlined above will be crucially undermined.

Equally, if Israel decides to change its policy towards the amount of gas that it allows to be exported, the return could prove to be too low for key investors, without whom the fields will remain untapped for an indefinite period of time. Even if policy remains stable, the delays that Leviathan has already suffered are estimated to be costing the country almost \$1 billion a month in savings, according to estimates from Mr. Silvan Shalom, Minister of Energy and Water Resources in Israel.

Wider impact

Regardless of the above speculations as to what form the Eastern Mediterranean Energy Corridor may take, the fact that energy majors such as ENI and Total are willing to invest such large sums means that the risk is likely, at least in their eyes, to be worth taking. As long as the key players can find a way to work together without becoming embroiled in the many and varying

regional conflicts in the area, the corridor could provide a way for Cyprus and Greece to climb out of debt and for Israel to take on a new role as energy supplier. That in itself could have a major impact not only on relations between Israel and its neighboring countries, but also on the wider energy market.

Dependence on Norwegian imports and the impending vote in September as to Scottish independence from the United Kingdom (implicating obviously the natural reserves of the North Sea at the same time) could all lead the EU to lean favorably towards supporting growth in the eastern Mediterranean. That so many factors affect the development of the Levantine fields and that their development in turn has such wide-reaching effects – both politically and economically – makes it an unusually unique case. Whether it actually materializes though remains dependent on the ability of all parties to work together: a Leviathan task.