



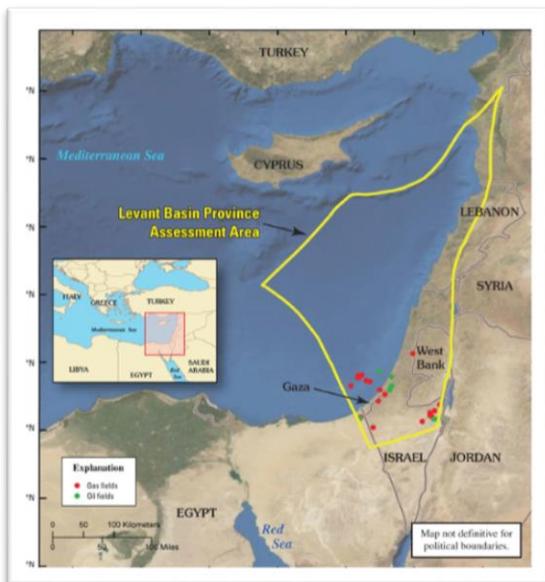
Gas Discoveries in the East Mediterranean Basin and the acquisition of EMG's pipeline in context:

A Review of Domestic and Geopolitical Challenges

Ira Ryk-Lakhman*

DAVA Analytic Brief No. 9, October 2018

On **26 September 2018** the 'most significant energy deal' in the Eastern Mediterranean Basin was **concluded**. Under this deal, Israel's Delek Drilling LP, Noble Energy Inc., and Egyptian East Gas Co. buy a 39% stake in the pipeline owner Eastern Mediterranean Gas Co. (EMG) for \$ 518 million, with Delek and Noble contributing \$185 million each and the remainder being paid by East Gas.



As further explained below, this deal grants the buyers exclusive rights to lease and operate EMG's subsea gas pipeline, which runs from Ashkelon (southern Israel) to Egypt (the Sinai Peninsula). Delek and Nobel, who are also partners in Israeli gas reservoirs (Tamar and Leviathan), designate this pipeline for the export of 64 million cubic meters of gas to Egypt over 10 years. This deal was welcomed and endorsed by both Egypt and Israel.

To properly grasp the significance of this deal and to better understand why two countries that rarely agree on regional issues put forth a uniform front on this matter, it is necessary to take a step back and review the broader normative and factual context in which this deal arises. That is the focus of the following review of gas discoveries in the East Mediterranean Basin (EMB).

The gradual demise of the 'easy oil' era and the declining productivity in mature regions, such as the North Sea, lead exploration firms to push their search for

hydrocarbons into deeper waters and into areas that traditionally attracted less attention. The EMB is one such area.

According to the first US Geological Survey **assessment** of the Levant Basin, the EMB is estimated to hold 122 trillion cubic feet (tcf) of undiscovered, technically recoverable natural gas.

While the massive gas discoveries in the EMB over the past years attracted an unprecedented flood of investment to the area they also raised an array of regulatory difficulties and a bouquet of geopolitical tensions.

This analysis offers a brief review of several pertinent milestones and developments of offshore gas projects in the EMB.

1. Israel (pre-2009): Hundreds of drills with no commercial success and dependence on Egyptian gas

Briefly **put**, exploration efforts for oil and gas started in Israel in the first decades of the 20th century and continued throughout the time of the British Mandate over Palestine with no significant success. After the establishment of Israel in 1948, the Petroleum Law (1952) was enacted and several exploration companies and governmental institutions were founded to enable further research.

The first well, Mazal-1, was drilled in the Dead Sea area in 1953. In 1955, the first oil was discovered in the Heletz field at the southern coastal plain area. This early success promoted further exploration activities. From the early 1950's to the late 1990's some 450 exploration wells were drilled in Israel in land and offshore. These have not resulted in commercial success.

During the 1970s – 1990s, several offshore wells were drilled in relatively shallow water in the Mediterranean Sea (10 – 20 km of the Israeli coast). No commercial success was reached. The Noa field, which is located 40 km west of the coastal town of Ashkelon, was the first large natural gas reservoir found offshore Israel in June 1999.

In February 2000, another gas reservoir was found in the Mari-B field, southeast of the Noa field. At the time of discovery, Mari-B field contained an estimated amount of 45 BCM of gas. In 2004, commercial gas production began. Almost all the gas reserves of Mari-B were used by the Israel Electric Company (IEC) to operate some of its power plants, which were converted from fuel oil to natural gas utilization.

In sum, as far as gas supplies go, until 2009, Israel relied on the neighboring Egypt to meet its national needs. This dependency was hardly ideal for Israel, who strived to cultivate self-sufficiency and minimize any possible strategic liability.

Moreover, the domestic unrest and hostilities in Egypt after the Arab Spring, which included attacks on the pipelines that exported the gas to Israel, threatened the stable

supply of energy. Eventually interrupted it in 2011. And so, Israel needed a quick solution.

2. Tamar (2009): The [first] largest gas discovery in the EMB highlights regulatory vacuum and sparks public protest

The Tamar gas field is located in Israel's exclusive economic zone (EEZ), roughly 90 km west of Haifa in waters 1,700 m deep. Its reserves are estimated at 10 tcf.

At the time of discovery, January 2009, Tamar was the largest find of gas or oil in the EMB and the largest discovery by Noble Energy. The partners in the Tamar consortium are: Noble Energy (36%), Isramco Negev 2 LLP (28.75%), Delek (15.625%), Avner Oil Exploration (15.625%), and Dor Gas Exploration (4%).

The first commercial gas delivery from Tamar to the Ashdod reception terminal in Israel took place on 1 April 2013 after three years of development work. While Israel's Minister of Energy, Landau, and Noble's CEO, Charlie Davidson announced in 2013 that the project had been completed *in record time*, the road there was long and hard.

First, following the discovery, public figures in Lebanon contended that the Tamar and Leviathan fields are located in part in Lebanese territory. Hezbollah officials threatened Israel against developing the fields, and Israel countered with its own threats. In August 2010, despite having previously argued that around 30% of the field lay in its territory, Lebanon submitted a proposal for the maritime border with Israel, which excluded the Tamar and promising Leviathan developments. This proposal was endorsed by the US and it mostly resolved this particular territorial disagreement.

Additionally, the Tamar project had to overcome domestic and regulatory challenges. Public controversy mounted over the location of a plant to clean and process the gas from Tamar. The residents of the Carmel region, the designated area for such facilities, petitioned to the Supreme Court in March 2010, demanding that alternative sites be considered. In July 2010, the Court issued an injunction that required the Ministry of Energy to revise its decision. Eventually, the public protest succeeded, and the facilities were located in the southern costs of Israel.

Then, there was the issue of taxes and royalties. In 2010, members of the Israeli Parliament (Knesset) and civil society groups voiced concerns that the regime governing the State's revenues and taxes of oil sales, i.e., the 1952 Petroleum Law and the 1956 Income Tax Regulations (Deductions from Income of Oil Rights Holders), is obsolescent if not completely obsolete.

Roughly put, the old regime imposed a 12.5% royalty on oil revenues. For purposes of income tax, the taxpayer can deduct a depletion allowance from profits – amounting to 27.5% of revenues, but no more than 50% of profits. Alternatively, the taxpayer may deduct a depletion allowance based on the estimated quantity of oil reserves used up during the year. The depletion allowance is effectively an exemption for such amounts.

The taxpayer may also choose between treating exploration expenses as an ordinary expense, for income tax purposes, or as a capital expense. As regards the acquisition of land, land acquired for onshore drilling may be amortized over the holding period; undepreciated assets may be written off for tax purposes upon any abandonment.

While the opponents of the 1950s legislation argued that this regime reflects the old days when exploration risks were high and profits were low, the proponents of the pre-existing legislation maintained that any regulatory change in the taxation arrangement will halt the desired development of the gas reserves, for it will freeze existing projects and will deter potential investors. And so, another wave of public protests and controversy arose over the regulation of natural gas.

In April 2010, a special committee was established to review the State's existing fiscal policy of oil and gas resources (the Sheshinski Committee). In 2011, the Committee published its recommendations. Overall, the Committee proposed a new regime for oil and gas exploitation that aims to assure the continuance of gas development while guaranteeing reasonable consideration for the public good and fair incentives to operators.

More specifically, the Sheshinski Committee made several recommendations. First, the 12.5% royalty unchanged will remain unchanged. The Committee observed that in practice the arrangement is illogical, since the 12.5% royalty and depletion allowance largely balance each other out, which is illogical. Second, since the Committee's premise was that the depleted oil does not actually belong to the operator, there is no need for the depletion allowance for income-tax purposes. Further, it was proposed to eliminate the tax allowance for depreciation of a field's value as its gas and oil was produced. Next, the Committee proposed to impose an oil and gas levy on, but only after recovery of 150% of the amount invested in exploration and developing a project (recovery factor of 1.5 (R-Factor)).

These recommendations were mostly incorporated into the 2011 Petroleum Profit Taxation Law. The partners in the Tamar and Leviathan consortiums lobbied heavily against the 2011 law, claiming that it represented a breach of contract and would deter future investment in gas exploration in Israeli waters. These arguments were supported by members of the Minister of Energy, who opposed to the application of the 2011 Law and its tax regime on Tamar. These protests were mostly to no avail.

Nevertheless, most, if not all, the profit that was 'lost' due to the 2011 tax legislation was restored when the gas supply from Egypt to Israel ceased in 2011 and Tamar became the sole gas supplier to Israel. This allowed the partners in the Tamar consortium to raise the gas prices previously stipulated in its contracts with IEC.

In 2013, after a lengthy and heated debate, the Israeli Government allowed 40% of its natural gas reserves for export. This decision is rooted in the desire to foster regional cooperation and stability through trade in natural gas, while assuring that domestic needs are met.

On 19 February 2014, the first export deal of gas from Tamar was concluded. Under terms of the agreement, Noble Energy, through NBL Eastern Mediterranean Marketing, its American subsidiary, will supply natural gas from the Tamar field to the Jordanian companies, Arab Potash and Jordan Bromine, for use in their facilities near the Dead Sea. In January 2017, the supply began. Gross revenues are estimated at \$500 million, with actual sales dependent on final purchased quantities and oil prices at the time of sale.

3. Leviathan (2010): A largest discovery in the EMB raises domestic and regional tensions

If the Tamar discovery was a godsend, then the next discovery is hard to name. Roughly a year after Noble's largest discovery, it made an even bigger find: The Leviathan field. It is a large natural gas field located in the off the coast of Israel, 47 km south-west of the Tamar field, some 130 km west of Haifa in waters 1,500 m deep.

As significant as the Tamar find was, it was dwarfed by the subsequent discovery at the Leviathan gas field, which as of 2017, even by conservative estimates, holds some 22 tcf of recoverable natural gas, enough gas to meet Israel's domestic needs for 40 years. The partners in the Leviathan consortium are: Avner Oil and Gas (22.67%), Delek (22.67%), Ratio Oil Exploration (15%), and Noble Energy (39.66%).

The Leviathan consortium has adopted a phased approach for the project's development, with the first phase set to include four subsea wells, each capable of flowing upwards of 300 million cubic feet per day of gas. Development of the field is ongoing. The field is scheduled to come online by the end of 2019.

As with the Tamar discovery, the development of Leviathan encountered controversy. First, as noted, Lebanon made territorial claims that parts of Leviathan are located in its waters. These claims were waived in 2010.

Next, antitrust issues concerning the gas deal between the Israeli Government and the consortium over the revenues and royalties from the reservoirs (the Gas Deal) delayed the development of the projects. The Anti-trust Commissioner was concerned that the consortium's control over the natural gas in Tamar and Leviathan could harm Israeli natural gas and electricity markets and hurt competition and the consumers. The Commissioner **resigned** in May 2015 in protests of the Deal that was concluded.

Additional concern pertained to the stabilization clause that accompanied and formed part of the Deal with the consortium partners. As part of the Deal, and in response to tax reform that applied to Tamar, the Government adopted **Res 467, on 16 August 2015**. In this Resolution, the Government bound itself not to change its legislation in a manner that adversely affects the consortium's interests and to fend off any adverse legislation by the Knesset for *10 years*.

The anti-trust concerns and the wide stabilization clause, among other issues, led to public protests across the country and to a demand to change the Gas Deal. The US reportedly pressured Israel to carry out the Deal while Noble and Delek threatened to pursue claims in international arbitration if the country backs out of it.

In the face of these objections, PM Netanyahu, in his capacity as the Minister of Economy, invoked the national security clause that allows for decisions of the Anti-Trust Authority to be overridden in the name of security and international diplomacy. This was the *first time* this clause was ever invoked. This further fueled public protests.

Several different petitions were filed to the Israeli Supreme Court against this Deal and its ramifications. In an unprecedented move, PM Netanyahu testified, at his own request, in the Supreme Court to defend the Gas Deal. PM Netanyahu argued the Deal provided unique opportunities for Israel's regional and international relations and that any delay in its implementation could lead to the Deal's collapse and cause 'long-term significant damage' to the country's security and economy.

On 27 March 2016, the **Court struck down** Res 467. Deputy President, Justice Rubinstein, stated that the Government did not have the authority to make such a long-term deal, which would bind its successors, especially with respect to issues of 'real political controversy'. PM Netanyahu argued in **response** that, 'Israel was seen as a state with excessive judicial interference in which it is difficult to do business'.

In early 2017, Israel and parties to the Deal reached an agreement, allowing the consortium to make a final investment decision regarding phase 1 of Leviathan. The field will supply natural gas domestically to Israel and the Palestinian Authority (which counts as internal for the 60% domestic consumption law) and for export to Jordan.

In September 2016, the Leviathan consortium signed an agreement with the Jordanian National Electric Power Company (NEPCO) for the supply of some 45 BCM of natural gas for 15 years. This agreement expected to meet and address most of the needs of the Jordanian electricity sector, in particular following the cessation of gas flow from Egypt. From a broader perspective, this agreement represents an opportunity to improve Israeli-Jordanian bilateral relations, and further strengthen the geopolitical standing of Israel.

In February 2018, the Leviathan consortium and Dolphinus Holdings, an Egyptian State-owned company, signed an export agreement for the supply of up to 32 BCM annually for 12 years to the Egyptian domestic market. The export deal is estimated at \$15 billion.

PM Netanyahu **applauded** the deal, saying that it will 'strengthen our security, strengthen our economy, strengthen regional relationships, and most importantly, it will strengthen the citizens of Israel'. The gas supply should start as soon as the required pipeline infrastructure has been arranged, and will continue until the contract has been fulfilled, or by the end of 2030.

The idea behind this deal is to gain better grasp over the offshore gas pipeline between Al Arish Egypt and Ashkelon Israel. The new deal envisages (possibly) using pipeline infrastructure put in place years ago through the Sinai Desert by a different company, East Mediterranean Gas Co. (EMG), to import Egyptian gas to Israel. Notably, these pipelines are famous for being at the center of several **disputes** and **arbitrations** after they were reputedly attacked by terrorists the gas supply to Israel stopped (2011).

In July 2018 it was **reported** that, Delek and Noble, which are partners in Tamar and Leviathan consortiums, are planning to purchase a 37% share of EMG, by way of setting up JV companies in Cyprus and the Netherlands through which **Delek, Noble,** and East Gas, their Egyptian partner, would acquire shares in EMG from Zell, Maiman, and other shareholders.

As above noted, and as further explained below, on 26 September 2018, after adding East Gas as a buyer, alongside Delek and Nobel, a deal for the purchase of 39% share of EMG for \$ 518 million was concluded (not 37%, as originally intended).

Finally, the Leviathan project recently attracted other legal challenges concerning the location of Leviathan's production platform (true to August 2018). The gas from Leviathan is to be transported through two underwater pipes, 120 km in length, to a processing and production platform situated 10 km offshore. However, the residents of the Carmel shore region are battling the construction of the platform so close to their homes.

The opponents of its construction argue that operating the gas platform near the shore increases the likelihood of serious damage to the marine environment and the beach, in particular in the event of a malfunction or a hostile attack on the facility. Criticism is also directed at the decision making process, which is alleged to be predicated on partial information and tainted with a conflict of interest. Environmental activists also warn of malfunctions that could result in a large leak of condensate, a toxic by-product of gas production. They argue that impact assessments did not account for the all effects of a condensate leak near the coast.

On the other hand, the IDF supports the decision to build the platform 10 km offshore for security considerations. The Israeli navy argued in July 2018 that the regional threats justify the selected location. Further, the consortium partners argue, and the Israeli Ministry of Energy agrees, that environmental impact assessments accounted for all the relevant risks and, that the objections to the platform's location are nothing but a case of 'not in my back yard', not genuine environmental concerns. As of today, the platform will be built 10 km offshore the Carmel region.

Interestingly, the public debate over how far offshore the natural gas production platforms should be located and the security considerations that were invoked in this respect, raise another question: Why Israel's navy is spending some \$500 million to buy four corvettes from Germany to protect gas facilities, which were located 10 km

offshore? This question is the new public controversy over the operation and regulation of the Leviathan field.

Israel's **deal** with the German firm, ThyssenKrupp, to purchase 4 vessels was **announced** several years ago and approved in October 2017. In proper temporal context this means that what the Israeli navy had in mind at the time of the purchase was the protection of installations some 120 km offshore. The decision to locate the platform 10 km, however, is a game-changer in defense terms.



The response time to threats at 120 km is longer than to threat at 10 km offshore, since vessels move slower in deeper water. There is also a difference in terms of what international law permits the navy to do when operating in Israel's territorial waters (10 km offshore) and when operating in

Israel's economic waters (at 120 km) in the face of hostile forces or security concerns. If so, a platform located at 10 km can arguably be adequately defended in a manner that allows rapid response to threats using existing means.

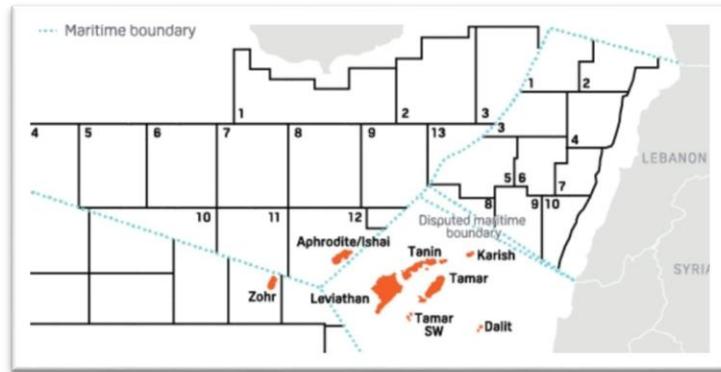
These are some of the arguments behind the growing public scrutiny of the deal with ThyssenKrupp. It is also noteworthy the relationship between Israel and the German company and its legitimacy are subject to **various** legal examinations.

4. Aphrodite (2011): The biggest gas discovery in the Cypriot EEZ gives rise to territorial tensions

As a preliminary remark, in late 2010, Israel and Cyprus reached an accord demarcating maritime borders. This agreement had important implication with respect to the Cypriot and Israeli hydrocarbon reserves. For sake of completeness, Cyprus reached similar agreements with Egypt and Lebanon in 2003 and 2007, respectively.

The Israeli – Cypriot border did not go unopposed. Turkey contended that Cypriot border, under the agreement, is invalid due to the unacknowledged claims of the self-declared Turkish Republic of Northern Cyprus.

Notwithstanding Turkish opposition, the maritime border agreement with Israel facilitated the drilling program at the Aphrodite gas fields, in particular in Block 12 of its exploratory drilling zone (EEZ). The license to Block 12 is held by Noble Energy.



A discovery in the Aphrodite field was announced in December 2011. Aphrodite is located in Block 12, 160 km south of Limassol, and 30 km northwest of the Leviathan field, in an area where the sea depth is about 1,700 meters. Today, the partners in the consortium are: Delek (30%), Noble Energy (35%), and Royal Dutch Shell (35%).

Being the first gas discovery in the Cypriot EEZ, with about 129 BCM of natural gas, the reservoir is expected to be a significant economic growth engine for Cyprus.

However, as with Tamar and Leviathan, regulatory and territorial hurdles delay the development of the project.

In 2012, the holders of the Ishai license, which is located in Israel's EEZ and which borders with Block 12 where Aphrodite is located, drilled a well that demonstrated that Aphrodite partly extends into their license. While the drill showed negligible quantities of natural gas, the Israeli Energy Ministry classified these findings as a 'discovery', in November 2015, a term implying a commercial value.

Exactly how much of these resources extend to the Ishai license and how to divide the potential profits from the field, are issues that have been debated by the States for some 7 years.

On 8 May 2018, following a visit to Cyprus, the Israeli Energy Minister stated that the territorial dispute over Aphrodite will be resolved amicably within six months with a mutually agreed arrangement. If such an arrangement will not be achieved, the States agreed to turn to an international expert, not to arbitration as previously suggested.

This territorial dispute is delaying development. Since Aphrodite is smaller than other gas reservoirs in the area, namely Leviathan, the partners in the Aphrodite consortium **hope** to combine the outputs of Aphrodite with Leviathan and pump both to liquefied natural gas (LNG) plants in Egypt. Otherwise, pumping just Aphrodite's output is perhaps too costly.

Aside from territorial disputes with Israel, there is also Turkey. While Aphrodite has not been the subject of **much** debate in the long-running Cyprus question, Eni's exploration activities in other blocks are closely monitored by Turkey. Specifically, the northern portion of Block 6 lies on the continental shelf claimed by Turkey.

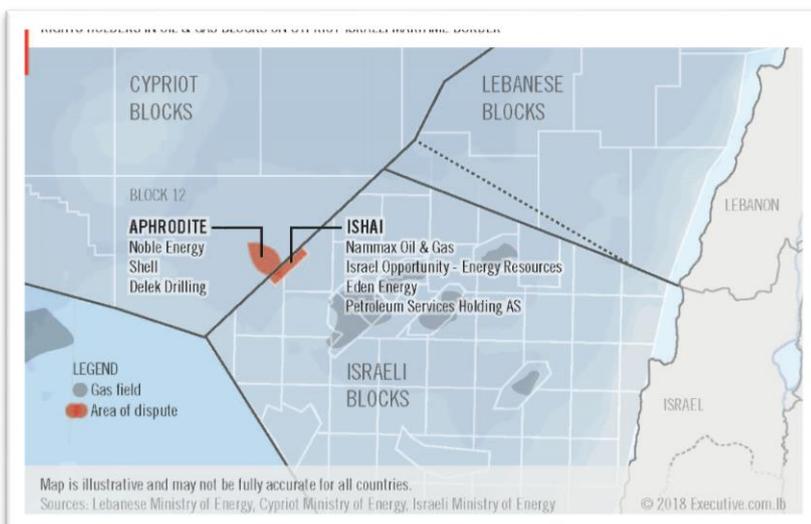
Additionally, with respect to Block 3, which is located in the southeast of the Island, Turkey argued that any exploration and exploitation activities in these waters should be administered by Turkish Cyprus rather than the Republic of Cyprus. Notably, Turkish Cyprus awarded the rights to a similar block overlapping Block 3 to Turkey's national oil company, Turkish Petroleum (TPAO), in 2011.

On 11 February 2018, the Turkish Government **condemned** Cyprus' 'unilateral' exploration activities and accused it of 'acting as though it was the sole owner of the island'. That same day, a Turkish military ship blocked an Eni drilling vessel off Cyprus. Two weeks later, Eni's ship's course was intercepted by the Turkish navy. Cyprus **accused** Turkey of issuing 'threats of violence' against Eni's ship. In March 2018, the American navy **allegedly** secured ExxonMobile vessels, which were operating off of Cyprus's shores, after Turkish warships tried to stop them from doing so.

The EU sided with Cyprus and its right to 'explore and exploit its natural resources'. As regards the Cypriot Turks' rights to natural resources on the island, Cyprus says the income will be divided equally after the island is united.

For sake of completeness, in February 2018 Eni announced that it made a lean gas

discovery in Block 6 Offshore Cyprus with Calypso 1. Details concerning Calypso are still examined.



5. Zohr (2015): The [first] biggest gas discovery in the Egyptian Mediterranean Sea promotes further investment inflows

The Zohr gas field is located more than 150 km from the

coast within Egypt's EEZ, in Block 9 of 15 exploration zones that Egypt put up for tender in 2012. The gas field was discovered in August 2015 by the Italian Eni. The

deepwater field is expected to hold approximately 30 tcf of lean gas, making it the (then) biggest gas discovery in the Egyptian Mediterranean Sea.

Eni reached a final investment decision on Zohr in February 2016, and production started in late 2017. By the end of 2019, the field is expected to produce a colossal 30 BCM per year.

Gas production in Egypt has fluctuated over the years due to political instability in the States while domestic demand has increased annually. To improve the energy sector, the Al-Sisi administration removed many of the subsidies related to the natural gas and oil sectors, thereby allowing State-owned companies to offer more attractive deals to international oil companies for any hydrocarbons they produced. The Government also offered lucrative prices to such oil companies for their natural gas production. The Al-Sisi administration **hoped** that, combined with these **various reforms**, the Zohr discovery will attract foreign investment.

In December 2016, three separate exploration agreements were signed between Egypt and Total, BP, and a subsidiary of Eni, worth a total of \$220 million. Not only that exploration firms continued to flow into Egypt, but neighboring States, such as Cyprus, also witnessed substantial interest in its 2016 licensing round, leading to increased exploration activities in recent years. In 2017, ExxonMobil and Qatar Petroleum also **joined** the fray.

On 23 April 2018, Egypt and the EU **signed** a memorandum of understanding on energy cooperation. The agreement is for a period of 4 years. It covers cooperation on electricity, oil, and gas. In this MOU, the EU committed to help Egypt to realize its goal of becoming a regional hub for LNG exports through continued support and the adoption of new energy efficiency strategies.

At the same time, the Zohr discovery threatened the delicate power-balance in an already volatile region. Countries such as Israel and Cyprus, which sought to export their gas discoveries to Egypt so as to liquidate it and export it using Egyptian infrastructure, were required to quickly adjust their strategies, since Egypt, unsurprisingly, no longer required their natural gas.

6. Noor (2018): A discovery larger than Leviathan becomes a regional game changer

While the Zohr discovery is important, it alone, does not suffice to stabilize the Egyptian economy.

True, as of 2018, the Egyptian economy is regarded to be on a path of stabilization with GDP growth recovering, inflation moderating further, and fiscal consolidation on track. Nonetheless, Egypt **suffers** from chronic trade and current deficits. Egypt recorded a trade deficit of \$3842 million in May 2018.

Additionally, while in 2017 real GDP growth was 4.2%, with 5.0% being the World Bank's forecast for 2018, faster growth is needed. And, while the aforementioned reforms in the energy sector are a step in the right direction, more needs to be done. According to an **IMF report from February 2018**, there is need to 'to reform the regulatory framework, strengthen competition, improve access to finance and land, strengthen governance, transparency, and accountability of state-owned enterprises, and better integrate women and youth in the labor market'.

It is against this backdrop that the [now] biggest discovery in the EMB was made.

In late June 2018, it **was reported** that a massive natural gas field, Noor, was discovered by Eni off the coast of North Sinai. Noor's size is approximated at 90 tcf of proven reserves (to be confirmed August – September 2018).

Noor stands to significantly benefit Egypt's proven reserves, putting it on a par with the likes of Algeria and Nigeria (but still behind Qatar, Iran, or Russia).

Combined with the earlier discovery of the Zohr field in 2015, Egypt is expected to once again return to be a net gas exporter in 2019. In fact, in contrast to its neighbors, Egypt has developed the infrastructure necessary for the transformation of gas into liquid (LNG) that can then be shipped to other countries. It has two terminals built along the northern coast (Idku (Idco) and Damietta), which were dormant for years.

The Zohr and Noor discoveries coupled with the ability to produce LNG, alternate and complicate the regional relations in the EMB even more.

To recall, in February 2018, a \$15 billion agreement was put in place between Israeli gas exporters and an Egyptian company, Dolphinus, which allows Israel to use Egypt's liquefaction plants. This is pivotal for Israel's export to Jordan, since the Leviathan gas field requires an outlet, but Israel does not have a LNG plant.

Cyprus also lacks a liquefaction terminal for its gas. It too looked to Egypt for help.

7. September 2018: Delek and Nobel (with East Gas) acquire 39% of EMG: A move towards regional collaboration

The above-described discoveries in the Noor and Zohr fields raise the question whether Egypt needs Israel and Cyprus?



Until 26 September 2018, the Israeli market was **concerned** that the answer to this question is in the negative.

At the wake of the Noor discovery Israeli gas shares fell by about 4% on the Tel Aviv Stock Exchange, in mid-day trading. This reflects the concern of Israeli investors in the energy sector that developing Noor could stymie plans to export gas extracted from Tamar and Leviathan.

At a second glance however, Egypt's collaboration with Israel and Cyprus is precisely what Egypt needs.

Such a collaboration gets Egypt one step **closer** to becoming an international energy hub and a leading gas exporter to Europe or the Asia-Pacific region, where the demand for LNG is growing by 'leaps and bounds', as a World Bank expert **put it**. Regional collaboration also adds economic **depth** to a relationship that has been predicated mostly on security.

In the summer of 2018 Egypt made its position known when the acquisition was EMG by Delek and Nobel was concluded.

On 8 August 2018, it was **reported** that the deal to purchase 37% of EMG's share will go through. The Israeli market responded immediately with Ratio's shares, a partner in the Leviathan consortium (15%), rising by 3% and the Tel Aviv Oil & Gas Index gaining as much as 0.9% to 902.58.

As noted, on 26 September 2018, it was reported that the deal was finalized.

This acquisition is enabled through a JV between Delek (25%), Nobel (25%), and East Gas (50%) which will acquire a total of 39% of EMG's shares from mostly Israeli shareholders: Yossi Maiman's holding through Ampal (8.6%); Yossi Maiman's holdings through Merchav (8.2%); Sam Zell (12%); Israeli institutional investors (8.2%); and, the Egyptian businessman Hussein Salem (2%). The remainder of EMG's shares will continue to be held by Hussein Salem's company (28%), the Thai company PTT (25%), and the Egyptian Government (approximately 10%).

This acquisition will facilitate the aforementioned February 2018 agreement for the supply of 64 billion cubic meters of gas for \$15 billion over 10 years to Egypt, starting 2019.

In more practical terms, the gas will initially be provided by the Tamar field, which is already in production, and later from the much bigger Leviathan field, which is now in development stage. Noble estimates that at least 350 million cubic feet of natural gas per day, in gross terms, will be sold to customers in Egypt



The gas will be sold to Dolphinus, an Egyptian company that supplies gas to industrial and institutional users. Once the required infrastructure is in place, the EMG pipeline could be used to deliver gas to other customers in Egypt.

To that end, Delek and Nobel on the one hand, and EMG, on the other, also signed a letter of intent whereby the former will gain access to an additional pipeline that possess the ability to significantly increase delivery quantities.

If so, this acquisition agreement marks a breakthrough for the Tamar and Leviathan partners, who are in dire need for a major export market for their gas, certainly since they are already selling to Jordan and Turkey is not a viable option for Israeli discoveries.

At the same time, this is a very significant move for Egypt. First, because it puts EMG's pipes, which laid dormant for some years, back to use. Originally, these pipes were built to export Egyptian gas to Israel. But after a series of terror attacks on the pipes, in 2012 the deliveries were finally halted. These events were at the core of several disputes that resulted in an arbitration \$ 1.03 billion award in favor of EMG.

It is particularly important that, as part of the acquisition deal, the EMG shareholders that were bought out by Delek and its partners, namely Ampal and Maiman, agreed to **relinquish all national and international claims** involving EMG and its pipeline and (reportedly) the enforcement of this \$ 1.03 billion award.

Further, this agreement facilitates Egypt's plan to capitalize on its own Zohr and Noor gas discoveries and position itself as an energy (re-)export hub on the doorstep of gas-hungry Europe. It also puts to use Egypt's idle liquefaction plants (or at least possesses actual potential to do so). Overall, it puts Egypt on par with the world's largest energy markets. And, all while meeting Egypt's and Israel's national gas needs and promoting regional cooperation.

8. Lebanon (2017 –): Political instability and territorial disputes delay gas exploration

Lebanon, who has a **mounting** public debt around 150% of its GDP and an economy weighed down by the cost of supporting millions of refugees from Syria, relies on revenue and taxes from gas discoveries to improve its financial situation and respond to its national crises.

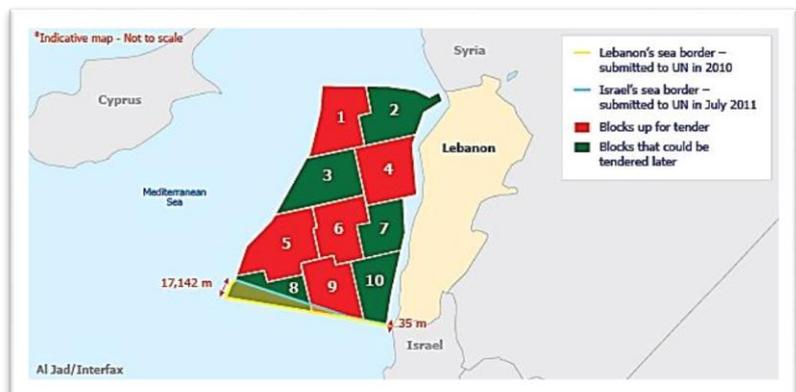
Seismic studies suggest that Lebanon's maritime region may have as much as 15 tcf of natural gas. It was not until 2013, however, when Lebanon first launched its licensing rounds that it attempted to realize this potential. The first round attracted at least 50 different companies. 46 companies qualified to take part in bidding, 12 of them as operators, including Chevron, Total, and ExxonMobil. However, the round was disrupted by political disputes in Beirut in 2013.

Once Michel Aoun assumed the post of President in October 2016, efforts were made to restart the bidding process.

In January 2017, Lebanon **passed** two executive decrees concerning oil and gas exploration in its EEZ. In September 2017, The Lebanese Parliament **approved** the oil and gas taxation law. These reforms allowed Lebanon to start a bidding process for five offshore blocks (1, 4, 8, 9, and 10) in early 2017. A total of 51 companies qualified to bid in this round.

The **only bidder** in Lebanon's first tender for five offshore energy blocks was a consortium made up of France's Total (40%), Italy's Eni (40%), and Russia's Novatek (20%).

The consortium signed an agreement with the State in February 2018. According to the agreement, the first exploratory well drill in Block 4 is scheduled for 2019. The second drill will be in Block 9.



But this process is not free of territorial disputes. Lebanon has an unresolved maritime border dispute with Israel over a triangular area of sea of around 860 sq km that extends along the edge of three of its blocks. Block 9, where the Total-led consortium seeks to drill, borders Israeli waters.

Israel referred to the agreement of February 2018 between Lebanon and the Total-consortium over Block 9 as a provocation. Hezbollah, in turn, threatened to attack Israeli offshore oil and natural gas infrastructure if Israel prevents Lebanese

exploration. Lebanese officials rejected the Israeli arguments, and Israeli official rejected the Lebanese opposition.

Realizing that diplomacy ‘is preferable to threats’, as put it the Israeli Energy Minister, the States turned to negotiations. In June, 2018 it was **reported** that, David Satterfield, acting assistant US secretary of State, travelled to Israel and Lebanon on a mediation mission.

Since the issue is still under dispute, Total announced that any exploratory drilling in Block 9 will be carried out *more* than 25 km from the maritime border claimed by Israel.

The territorial dispute with Israel to one side, additional geopolitical challenges will arise if and when a gas discovery is announced. First, like Israel and Cyprus, Lebanon does not have liquidation terminals. It is likely to rely on Egypt. Second, like Cyprus with Aphrodite, a small discovery will bound export from Lebanese fields with other gas reservoirs to make a costly export project economically viable for the consortium. And there’s the rub.

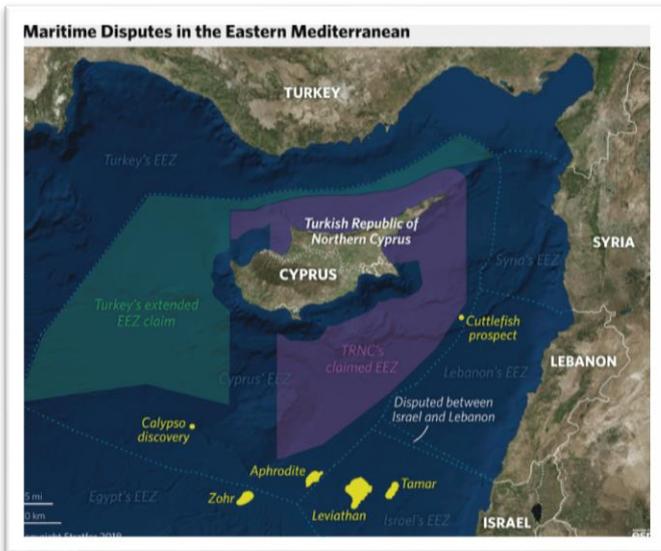
Aphrodite and Leviathan outputs may be principally combined due to the partial overlap of the partners in each consortium (Nobel and Delek); the same cannot be said of outputs from Lebanese waters, which cannot be combined with any initiative that comprises Israel, an enemy State.

Even if these hurdles are overcome, regulatory environment remains an issue. Lebanese legislation does not clearly regulate the taxation of revenue and royalties from gas. It is also not clear how will any such revenues be divided between the State and the consortium.

If the Israeli experience over Tamar and Leviathan is any indication, then these regulatory issues can significantly delay the realization of any discovery.

9. The long and winding road to revenues from gas discoveries

The natural gas potential in the EMB has attracted newfound interest by investors. The discoveries that were made over the past 10 years bolster this trend. However, the road to the gas riches is long, and it passes through a maze of, often conflicting, geopolitical considerations and several instable regulatory frameworks.



In some EMB countries, the regulation of licenses, bidding, taxes, and royalties of gas discoveries is inadequate. Practice evinces that these issues deter, delay, and even prevent the development of projects.

Regional tensions and territorial disputes also affect the development of projects.

In the case of Aphrodite (Block 12), the territorial dispute with Israel tempers with the development of the discovery. In other Cypriot blocks,

Turkey's opposition deters exploration firms from conducting surveys and drills. Likewise, the territorial dispute with Israel conditions the ability of license holders to conduct exploratory drills in Lebanon's Block 9.

Past experience with respect to Tamar and Leviathan demonstrated that such territorial disputes, at least between Israel and Lebanon, can be resolved amicably. It is hoped that the same is true for the current controversies.

Further, the lack of liquidation plants and the existence of two such facilities in Egypt results in a fragile regional co-dependence. At this stage, and with the signing of the September 2018 deal for the purchase of EMG's shares, it seems that the delicate regional equipoise will foster collaboration in the EMB. At the same time, given that the EMB is the EMB, other regional tensions continue to threaten this professed ideally.

Finally, while EMB countries dispute the exploration and exploitation of gas, worldwide demand for gas is ever-growing. On 5 December 2017, Cyprus, Greece, Israel, and Italy agreed to back the 2,000 km East Med pipeline at a cost of \$7.4 billion.



The pipeline will be able to transfer between 9 to 12 BCM annually. Reportedly, an agreement between the four founding States of the East Med pipeline will be signed, if at all, in late 2018.

Europe's desire to lay the East Med pipeline is linked to its will to reduce dependence on Russia, which can compete with lower gas prices. While other non-Russian gas markets are

available, not all are as viable. For instance, the Iranian gas market, which Russia is gradually entering, is again under sanctions by the Trump administration.

Unsurprisingly, Russia is eager to prevent the entry of any new large sources of natural gas to the Continent that stand to reduce the price of natural gas or to deter investments. Additionally, Turkey and its territorial claims, stand to detract from various options to bring natural gas to market.

In sum, it is safe to say that oil companies will continue to operate in the EMB, an area where each discovery stands to become 'the largest'. The EMB, on its part, will continue to make their operation interesting, if nothing else.

Ira Ryk-Lakhman is a PhD candidate at UCL Laws and Associate (temporary leave) at Tadmor - Levy & Co.