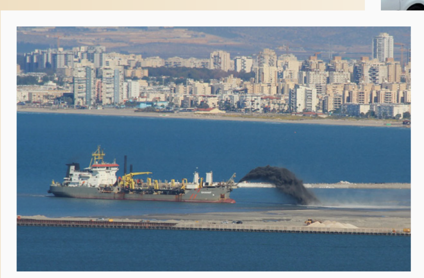
אוניברסיטת חיפה
University of Haifa
جامعة حيفا

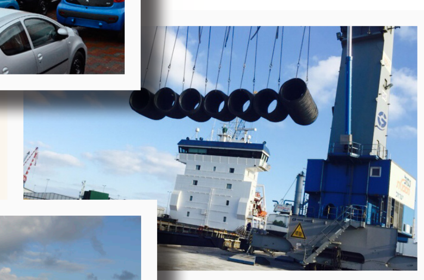
HMS
המרכז לחקר מדיניות ואסטרטגיה ימית
Maritime Policy & Strategy Research Center

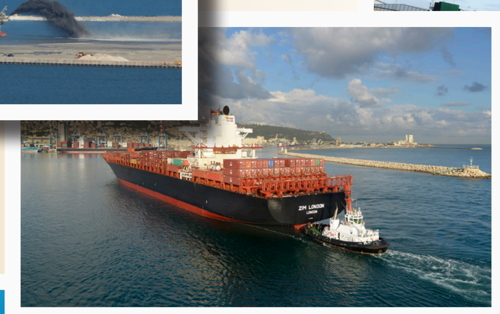
MARITIME STRATEGIC EVALUATION FOR ISRAEL 2018/19

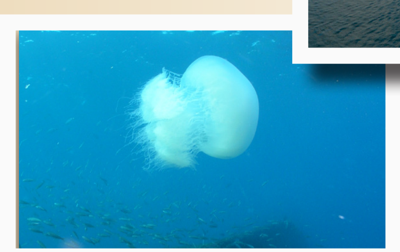
Chief editor: **Prof. Shaul Chorev**

Edited and produced by: **Ehud Gonen**









Developments in the Natural Gas Sector in Israel

Elai Rettig

During the past two years there have been important achievements in Israel's natural gas sector. These include the completion of important trade agreements with Jordan and Egypt, and the success of boosting domestic demand for natural gas. Nonetheless, the failure of the offshore exploration tender in 2017, coupled with the deterioration in relations with Turkey, have lowered public expectations for discovering more natural gas fields in Israel or for finding additional export destinations for Israel's gas. These developments are not necessarily negative, since they force Israel to focus on developing its domestic and regional natural gas market rather than search for distant markets where the political advantage of export is doubtful. These developments also force the State to collaborate with state and non-state entities in its vicinity, including Lebanon and Gaza, if it wishes to create a developed regional energy market that will attract investors and maximize economic benefit to the State of Israel.

The local natural gas sector: Growing demand alongside lower expectations of new discoveries

In June 2018, the Adiri Committee, headed by the Director General of the Ministry of Energy, submitted draft recommendations for the reexamination of Israel's export quota for natural gas, as the State is required to do every five years. The Committee concluded that the export quota established in 2013 will largely remain intact: Of the 878 billion cubic meters (BCM) of proven gas reserves in Israel's waters, 500 BCM will be saved for the local economy until 2042 (about 57 percent).[1] The decision not to change the export quota is the result of two main factors that point to a growing trend in Israel's energy sector: (1) The failure of the recent licensing tender issued by the Ministry of Energy for new gas exploration in Israel's waters has increased the concern that additional major natural gas deposits may not be discovered and therefore the State must be prudent with what it already has; (2) the actual domestic demand for natural has grown beyond the original expectation of the Tsemach Committee in 2013. Both these factors, together with the increasing sensitivity of the Israeli public to the sale of Israeli natural gas at the expense of domestic needs,

1 Note that the Adiri Committee's recommendations can still change and be revised, and the government can choose not to accept them and to change the quota established according to its discretion, as it did with the Tsemach Committee recommendations submitted in 2013.

are encouraging the Ministry of Energy to focus primarily on the local and regional markets (Egypt, Jordan and the Palestinian Authority).

The future of gas exploration

The failure of the oil and gas exploration tender in 2017 was a signal to many that Israel will potentially have to make do with the gas it already discovered, at least in the near future. Despite the efforts of the Ministry of Energy to attract new investors, only two players responded. The first was Energean, a Cypriot/Greek company that already operates the Karish and Tanin licenses in Israel, and has no intention of investing in new exploration before it finishes developing its existing fields. The second company is an Indian consortium that apparently did not intend to explore in Israel and did not even bother to publicize a timetable for activity. The consortium likely participated in the tender as a personal political gesture made by the Indian Prime Minister Narendra Modi to Israeli Prime Minister Benjamin Netanyahu as part of the warming relations between the two countries. Although this is an impressive political achievement on its own, it is of no benefit to Israel's energy sector. The failure of the tender is the result of a combination of political, geopolitical and primarily economic factors, only some of which can be overcome. Apart from the fact that it is unclear to whom additional gas will be sold if it is discovered (since the local market is saturated and Israel's export destinations are diminishing in number, as will be described below), and apart from the reluctance on the part of international energy companies to invest in Israel (and thus arouse the ire of large energy-producing countries in the Middle East), the threshold conditions for participating in the tender were high and prevented local exploration companies from participating.[2] Despite the previous negative experience, the Ministry of Energy issued an additional tender for exploration licenses in November 2018 (which is expected to end in July 2019), and left the high threshold conditions in place. In addition, it specified that the owners of the Tamar and Leviathan fields, Delek and Nobel Energy, could not participate in the tender despite their proven success in finding gas in Israel's waters.[3] While the Ministry of Energy has an understandable interest in encouraging the entry of new investors to create greater competition in the domestic market, it appears that in this case the effort to "break the monopoly" has created more harm than good, since the local companies are among the only ones that agree to seriously get involved in

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2 The main requirement was equity of at least $400 million and a minimal holding of 25 percent in the drilling license.

3 Ministry of Energy, "Minister Steinitz announces the issuing of the second tender for offshore oil and gas exploration," November 2018 https://www.gov.il/he/Departments/news/bidround2.

exploration in Israel given the current conditions. If the State is seriously interested in finding additional reserves of natural gas, it must allow the energy companies that are already in the market to participate in new tenders, even at the price of strengthening the monopoly.

Growing local demand for natural gas

In parallel to the diminishing prospects of finding new gas deposits, local demand for natural gas is growing rapidly. The consumption of natural gas in Israel in 2018 is expected to total about 11 BCM in comparison to about 9.2 BCM in 2016 (an increase of 19.5 percent in only two years).[4] This increase is manifested primarily in the electricity sector and comes at the expense of coal consumption, which is part of the Ministry of Energy's effort to close coal-fired plants and thus reduce the emissions of greenhouse gases in Israel.[5] The high rate of growth in the demand for natural gas exceeds the original expectations of the Tsemach Committee in 2013, even though some of the predicted uses for natural gas have not materialized as expected. As of 2018, less than 10 percent of the factories in Israel that can potentially connect to natural gas have indeed done so. Although most of the largest factories in Israel have already connected to the gas (among them: Bazan, Haifa Chemicals, ICL, Machteshim, Hadera Paper, etc.), the pace at which additional factories are connecting is still very slow. This is partly due to the burdensome regulation and the slow progress in creating the transmission infrastructure.

In addition, the original expectation of the Ministry of Energy that vehicles in Israel would convert their engines to run on compressed natural gas (CNG) was not realized, due to, among other things, the global trend towards electric cars. The Ministry of Energy even announced its intention to prohibit the import of gasoline-powered vehicles starting from 2028 to encourage the import of electric vehicles.[6] Although these cars will replace the previously preferred CNG option, this trend is still expected to significantly increase the demand for natural gas in Israel since electricity for charging these vehicles will largely be produced from natural gas

4 Figures on energy consumption in Israel relative to previous years is taken from the 2018 BP Statistical Review of World Energy which is available at https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf.

5 On the other hand, the emissions of greenhouse gasses in Israel jumped by 2.3 percent in the last year (in contrast to an average rise of 0.4 percent only during the last decade). The rise is the result of the increased import of oil, apparently to be refined and exported to other countries.

6 Ministry of Energy, "Targets for the energy sector for 2030," October 2018. Accessible at https://www.gov.il/BlobFolder/news/plan_2030/he/2030summary.pdf.

anyway. According to the Ministry of Energy's forecast, by 2040 Israel's population will grow to 13 million and the number of personal vehicles will double (to about six million), resulting in a need to double the current quantity of electricity production.[7]

In addition to a larger-than-expected use of natural gas, the Ministry of Energy also predicted that by now there will be significant use of renewable energy for electricity production (about 10 percent of total production by 2020). However, Israel is far off from that goal (only 3 percent, as of 2018), and it does not appear to be making serious efforts to reach it. It is woefully behind in terms of preparing the necessary grid infrastructure to withstand the intermittent nature of solar and wind power generation, and it is somewhat reluctant to approve subsidies for new renewable projects. One argument is that the State is waiting for more efficient technologies to come to light, specifically those that utilize electricity storage technologies, before it seriously invests any further. Thus, this plan remains largely on paper and promises that gas will be the almost exclusive source of electricity in the foreseeable future, leading to more growth in demand for it.

While the plan to make Israel almost completely dependent on natural gas has implicit economic and environmental advantages, it also contains security risks. Energy security is based on energy diversity (in both the type of fuel that is burned and the source from which the fuel comes from) rather than from energy independence. In the case that Israel is totally dependent on a small number of natural gas deposits for all its electricity production, any serious technical malfunction or sabotage to these fields or to the pipeline can create prolonged electricity outages, even if these deposits are located within Israeli waters. Therefore, coal will continue to play an important role on the margins of the Israeli energy sector as an alternative fuel in an emergency, and the coal-burning electricity plants in Israel will likely not shut down completely.

More importantly, if Israel intends to depend on the accessibility of natural gas in such a complete way then the motivation to export gas to destinations beyond its close regional surroundings needs to be lowered accordingly. Export to Europe or to Asia will perhaps produce temporary profits but in the long run the State is liable to regret the move, especially if the technologies that are predicted to replace natural gas do not arrive as quickly as predicted.

7 Ibid.

The regional natural gas sector: Diminishing export alternatives for Israel's natural gas

During the last two years, the owners of the Tamar and Leviathan fields made two significant achievements: in 2016 they signed a deal for the export of 45 BCM from the Leviathan field to Jordan for a period of 15 years (the laying of the pipelines will be completed in 2019) and in 2018 they signed a deal to export 64 BCM from the Tamar and Leviathan fields to the Dolphinus Holdings Company in Egypt for a period of 10 years (which will begin from Tamar in 2019, on the condition that proper infrastructure for transmission will be available). Therefore, if all goes as planned, in 2019 Israel will become a major exporter of natural gas.[8]

Despite the media attention that has focused primarily on the importance of the Egyptian deal, the more important of the two deals is with Jordan. The Jordanian deal provides the Leviathan owners with the economic anchor they needed to develop the field, and the deal's economic logic is far more stable than that of the Egyptian deal, which increases the chance of contractual stability over the years. In contrast to Egypt, the Jordanians need Israeli gas and this need will only increase in coming years, despite the popular opposition to the deal coming from the Jordanian street. In contrast, Egypt no longer needs Israeli gas following a number of major discoveries of natural gas in its waters and additional discoveries that are expected in coming years. The Egyptian interest in Israeli gas is primarily based on broader political and strategic considerations. These include the Egyptian desire to become a regional gas hub, to strengthen security relations with Israel, and also to avoid the embarrassment of 2015 when Egypt was forced to import expensive liquified natural gas (LNG) from Qatar due to a rapid increase in local demand for gas.[9] While the new gas deposits in Egypt are expected to mostly meet the demand of the local economy, there is still a window of time that must be bridged until these fields are ready to produce. There is also some likelihood that the Egyptian demand for natural gas will exceed expectations, especially if it decides to connect additional industries to its gas infrastructure. Furthermore, it is possible that Egypt will designate the Israeli natural gas for its gas liquefaction plants in Idku or Damietta for the purpose

8 Apart from the negligible quantities that Israel already exports to Jordan at the Dead Sea.

9 The assumption that the natural gas deal with Israel is intended primarily for strategic, rather than economic purposes, is strengthened by a local reporter's investigation in "Mada Masr" which claimed that the Egyptian intelligence service is behind the Dolphinus company. https://madamasr.com/en/2018/10/23/feature/politics/whos-buying-israeli-gas-a-company-owned-by-the-general-intelligence-service/

of exporting to Europe and other markets, rather than for domestic consumption.[10] Therefore, there is still economic logic for Egypt to import natural gas from Israel, although it is not particularly solid and there is a danger that the deal will either not be implemented, will be partially implemented, or will be altogether cancelled a few short years after it begins. The government In Egypt also has a long history of not paying its debts to foreign oil and gas suppliers, which may eventually lead to the cancellation of the deal by the Israeli side.

There is major political benefit for Israel from the deals with Jordan and Egypt. The deals create an additional channel for strengthening the strategic and economic relations between Israel and its neighbors. They also transform the gas deposits from simply an “Israeli” asset into a “regional” asset that several countries have an interest in securing. Thus, for example, a terrorist attack on the Leviathan deposit will lead to electricity outages in Jordan and the Palestinian Authority and will harm the Egyptian economy, which will create an incentive for them to cooperate with Israel in preventing incidents of that type. Nonetheless, the limits of the power of natural gas should be kept in mind. Israel is not able to “turn off” supply to Egypt, which does not need gas from Israel, nor does it have an interest in doing so in the case of Jordan if it wants to create the image of a reliable natural gas supplier in the region. There are few countries that cut off the supply of natural gas for political reasons and they in general cause economic and political harm to themselves in the long run. Furthermore, the sale of natural gas does not guarantee political stability between countries and is also not expected to induce Jordan or Egypt to weaken their criticism of Israeli policy or change their voting against Israel in the UN.

Apart from Israel’s close neighbors, the options for exporting Israeli gas are few and hold little promise. As of now, the owners of Leviathan and Tamar have obtained foreign commitments to purchase only 115 BCM of natural gas, out of about 400 BCM that was approved by the State for export (about 30 percent). Several political and economic constraints are preventing them from finding additional large markets for their gas. The export of gas to Turkey by way of an underwater pipeline is the most logical economically in view of Turkey’s growing demand for natural gas, but politically it is not feasible. The victory of Erdogan in the last Turkish elections and his success in consolidating political power after the failed military coup has made it possible for him to be more confrontational towards Israel. It appears that most of

10 It is possible that the deal for bringing Israeli natural gas to the liquefaction plants in Egypt will be implemented separately, as part of a plan to establish an underwater pipeline from Egypt to the Aphrodite deposit in Cyprus, to which the Leviathan field can then connect.

the benefits that were expected from a "normalization" of the relations between Israel and Turkey in 2016 were misplaced.

In view of the deterioration of relations with Turkey, Israel is making efforts to solidify an "Aegean alliance" with Cyprus and Greece. To this end, Israel is using natural gas as a way of attracting interest and creating collaboration by promoting an ambitious project to lay an underwater pipeline from Israel all the way to Italy and Greece (nicknamed the "East Med Pipeline"). Israel has also been promoting the connection of an electricity and fiber optic infrastructure with Cyprus. But while there is plenty of political goodwill between the sides to build a gas pipeline, there is almost no economic logic behind it. The creation of a pipeline along such a long and complex route involves major engineering and economic obstacles and will not facilitate the sale of gas to Europe at a competitive price. Furthermore, the growing dispute between Cyprus and Turkey regarding energy exploration in the island's economic waters is preventing progress in this channel. Turkey has even sent warships to the area to signal that it does not intend to back down from its demands. Therefore, it is more likely that the planned natural gas pipeline serves as a potent "excuse" for Israel to deepen relations with Cyprus and Greece. In case the ambitious pipeline project does not happen, Turkey can be blamed, and in the meantime the Aegean alliance will only grow stronger through other channels.

The third option of finding new markets is to liquefy the gas. However, in current market conditions international corporations have little interest in building new liquefaction plants in the region. Therefore, it is reasonable to assume that the liquefaction of Israeli gas will be limited to small quantities in the existing liquefaction plants in Egypt.[11] Israel will gain little political benefit from this option since it will not have any control over the destination of the export of liquefied gas. The customers for liquefied gas in Europe or Asia will not care if the gas is originally produced in Israel since their connection is only to the private company operating the facility in Egypt.

Conclusion

Given the growing demand for natural gas in the Israeli market in coming years, combined with the Ministry of Energy's ambitious domestic plans for its electricity and transportation sectors, it may be that the lack of export options for Israeli gas is not

11 On the situation of the liquefied gas markets in Israel's vicinity, see: Elai Rettig, "Economic challenges to natural gas exports from Israel's maritime gas fields", in Shaul Chorev (ed.), *Maritime Strategic Evaluation for Israel 2017/18*, January 2018, pp. 227-236.

a bad turn of events. The economic and political conditions in the region are forcing Israel and the owners of the gas fields to focus on increasing domestic demand and developing a regional market rather than searching out distant markets for which the political gain is unclear. This reality will also promote the realization that Israel must cooperate over exploration and pipeline projects with the State entities in its vicinity, including Lebanon and Gaza, if it wants to encourage additional investment in its waters and to promote its economic interests.