Israel's Natural Gas Challenges

by Simon Henderson **(/experts/simon-henderson)**

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Brief Analysis

A top-level Israeli government committee has produced a blueprint for exploitation of substantial natural gas reserves, but solutions must still be devised for a range of technical, commercial, and political problems.

In October 2011, following the discovery of large quantities of natural gas off Israel's Mediterranean coast, Prime Minister Binyamin Netanyahu appointed an interministerial committee to formulate policies for development of the new resources. Last week, the so-called Zemach Committee -- after chair Shaul Zemach, director-general of the Ministry of Energy and Water -- offered its recommendations. The panel's mandate was to offer suggestions on ensuring Israel's energy security, facilitating competition in its emerging domestic natural gas market, leveraging the environmental benefits of natural gas compared with other fuels, and maximizing the economic and political benefits.

BACKGROUND

Natural gas was first found in Israel's waters in 1999, when the Noa field was discovered off the coast of Ashdod. It was judged too small for commercial development, but in 2000, the Mari-B field was found nearby and has been supplying gas to Israeli power plants since 2004. In addition, Egypt began exporting gas to Israel in 2008, though it canceled that contract earlier this year after the pipeline was repeatedly sabotaged in Sinai. In January 2009, the Tamar field was discovered eighty miles off Haifa, with enough gas to supply Israel's domestic needs for fifteen years. And in December 2010, an even larger discovery was made in the Leviathan field west of Tamar. Although its full size has yet to be confirmed by further exploratory drilling, the finding led Israel to begin seeing itself as a significant gas exporter. Further small gas fields have since been discovered.

In March 2010, the U.S. Geological Survey estimated the extent of the area's potential hydrocarbon riches. Using published geological information and commercial data, it speculated that the so-called Levant Basin Province (stretching from the Jordan River to Turkey and out to sea toward Cyprus) could contain as much as 1.7 billion

barrels of recoverable oil and 3,500 billion cubic meters (bcm) of natural gas. These are significant numbers, though still small compared with the resources of OPEC members like Saudi Arabia and Kuwait or major gas players like Russia, Iran, and Qatar.

Israel has some prospects of finding viable quantities of oil onshore and developing the technology to exploit its reportedly large deposits of shale oil, but the offshore gas findings will likely be the focus of the government's energy policy and private-sector commercial interest for the next several years. When one includes a Cypriot discovery adjacent to the island's maritime border with Israel, the amount of gas found in the area thus far is estimated to be about 30 percent of the U.S. Geological Survey's assessment for the whole basin. Meanwhile, the energy companies currently prospecting offshore reportedly expect to find oil reservoirs beneath already discovered gas fields.

ZEMACH'S RECOMMENDATIONS

The committee offered its recommendations after estimating how much natural gas Israel had or might discover and projecting the amount of reserves that would be needed to meet domestic gas demand for the next twenty-five years. Following the large Tamar and Leviathan discoveries, it predicted that future finds would not be so large. Thus, while estimating that total gas discoveries could reach as high as 1,480 bcm, the committee based its policy recommendations on a smaller volume, 950 bcm. Its estimate for twenty-five years of domestic demand was 450 bcm, leaving 500 bcm for potential export.

The committee also recommended that all gas fields on Israel's territory or in its offshore exclusive economic zone (EEZ) should be connected to the country's natural gas transmission network. In other words, even fields producing for export should also be able to supply the domestic market. The question of who would pay for expanding this network -- the relevant energy companies involved or the state -- was left ambiguous. The committee did say that the government would be "involved" in the planning and construction of gas transmission and treatment facilities.

An interim report issued in April had stated that Israel's gas export facilities should be located on Israeli territory or within its EEZ, a formulation that seemed to block a joint liquefied natural gas (LNG) facility on the southern coast of Cyprus. The final report instead calls for an "absolute preference."

CHALLENGES AHEAD

Although the Zemach report sets a course for Israeli energy policy, there are many problems left to be resolved:

Financial. In order to facilitate further gas discoveries, Israel expects as many as twenty exploratory wells to be drilled offshore in the next two years. Each will cost $100 million and take three months to drill from a specially equipped ship, so Israel must attract $2 billion in risk capital. Improved seismic data and computer evaluation makes it easier to predict where hydrocarbon deposits might be found, but there is no certainty in the process, and even a significant discovery may not be technologically or commercially viable.

Commercial. With the worldwide discovery of large quantities of shale gas, prices have fallen. Unlike oil, gas prices tend to vary in different parts of world. Yet the general trend of decreasing prices introduces uncertainty about the commercial viability of new gas projects like Israel's given the need to invest huge sums in pipeline infrastructure and processing plants.

Diplomatic. Some reserves are likely to be found near or astride maritime borders. Although Israel has reached agreement with Cyprus on such issues, its maritime boundary disagreement with Lebanon is unlikely to be resolved soon. Additionally, Israel is under international pressure to allow exploitation of a small offshore Palestinian gas field, Gaza Marine, but does not want the revenues to benefit the local Hamas administration. And Turkey, which regards parts of the Cyprus EEZ as its own, has signaled its opposition to any Israeli-Cypriot cooperation.

Domestic politics. The Israeli public generally welcomes natural gas exploitation but is concerned about the

environmental impact and the comparatively small volumes reserved for the domestic market, which might endanger Israel's future energy security. (Within Israel, the gas is slated for power generation and industrial use, not for people's homes.) In addition, some believe that the Zemach recommendations call for too much of the gas to be exported, unduly favoring the Israeli tycoons who are the main investors in several of the exploring energy companies.

Export. There are two ways to export natural gas: by pipeline or by special LNG tanker (after cooling and conversion to liquid form). The most obvious destinations for a pipeline are problematic: financially crippled Greece or diplomatically hostile Turkey. Israel has also emphasized its willingness to supply gas to the Palestinian Authority as well as Jordan, which is currently looking to import comparatively expensive LNG from Qatar. The alternative to pipelines -- LNG conversion -- would require construction of a multibillion-dollar plant close to the sea. Proposals have already been made for such plants on the Mediterranean coast and on the small Red Sea coast adjacent to the tourist resort of Eilat. In a perfect world, Israel could use spare capacity from Egyptian LNG plants, but this seems politically unlikely and diplomatically risky at present.

Security. All oil and gas facilities are difficult to protect, often vulnerable to even a single well-aimed rocket-propelled grenade. The Israeli navy has already requested funds to expand its capabilities given the potential for significant offshore facilities. Another export idea is to moor a floating LNG facility over the Leviathan field, but the cost (several billion dollars) and huge size (equivalent to four aircraft carriers) would make it a security nightmare.

A more short-term problem for Israel is the temporary shortage of natural gas caused by depletion of the Mari-B field and the cancellation of supplies from Egypt. Although this difficulty will be overcome when the Tamar field comes onstream in April or May of next year, tapping the small Noa field has proven insufficient in the interim, and Israeli power stations are having to burn expensive and dirty fuel oil. Arrangements are also being made to import LNG via a floating facility to be moored off Hadera, between Tel Aviv and Haifa.

U.S. ROLE

Commercially speaking, the United States is already involved in Eastern Mediterranean natural gas exploration -- Houston-based Noble Energy is the main player in the Tamar and Leviathan fields as well as Cyprus's Aphrodite field. Israel is also looking for LNG expertise, and the few companies in the world with any competence on that front are mainly American.

Diplomatically, Washington should leverage its relations with Israel, Cyprus, Turkey, Egypt, and Lebanon to ensure that differences over maritime borders do not become major squabbles. Lately, for example, Israel has been dragged into the long-running dispute between Cyprus and Turkey, whose forces occupy the northern part of the island. Yet earlier this week, Secretary of State Hillary Clinton asserted that Washington "does not take a position on competing territorial claims." Although she was referring to the South China Sea, such statements likely cause consternation in both Cyprus and Israel.

Finally, President Vladimir Putin used his recent visit to Israel to see whether Russian energy giant Gazprom might play a role in the new discoveries. His motive was probably narrow self-interest -- to ensure that Israeli supplies have zero effect on Russia's dominance of the European natural gas market. Therefore, Israel may need to be reminded that, diplomatically as well as technically, its best options are to work with the U.S. government and U.S. companies.

Simon Henderson is the Baker fellow and director of the Gulf and Energy Policy Program at The Washington Institute. His recent publications include the German Marshall Fund study **Energy Discoveries in the Eastern Mediterranean: Source for Cooperation or Fuel for Tension? (http://www.washingtoninstitute.org/policy-analysis/view/energy-discoveries-in-the-eastern-mediterranean-source-for-cooperation-or-f)** ❖

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