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Israel's Energy Potential:
Securing the Future

Michael Hochberg

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Having finally cleared the major regulatory hurdles, once-energy-poor Israel is closer than ever to developing and exploiting its vast natural gas reserves. With natural gas projected to provide 68 percent of Israel's electricity generation by 2040, Israel could fortify its domestic economy, enhance its national security, and transform the energy order and economic ties of the Eastern Mediterranean and beyond. Israel is also poised to become a key energy exporter to its neighbors. However, if Israel seeks the large windfall gains that gas exports would bring, it must overcome geopolitics and maximize the potential for mutual gain in an increasingly convoluted web of regional relationships.

Key Points

- From 2004 to 2010, natural gas use as a fuel source in the country grew from almost non-existent to 40 percent of electricity generation
- Israel is projected to earn $20 billion from gas royalties and taxes by 2026, according to Noble Energy
- Israeli civil society lobbying for tighter gas sector regulations has resulted in significant changes to ensure that more revenue goes to the state, and that the nation's natural gas sector enjoys more competition
- Jordan, Egypt, and Turkey are the most probable candidates to receive Israel's first gas exports, but anti-Israel public sentiment will be a major obstacle for future energy deals
- The speed of verdict in resolving the stability clause issue, one of Israel's most consequential regulatory challenges of the last decade, represents a major win for Israel in terms of boosting investor confidence and paving the way for future gas exploration off Israel's shores

Introduction

With the recent approval of Israel's natural gas regulatory framework, the once-energy-poor state is now one step closer to further developing its vast natural gas reserves. If successful, Israel could fortify its domestic economy, enhance its national security, and transform the energy order and economic ties of the Eastern Mediterranean and beyond.

With the late May and early June decisions to approve the development of the Leviathan gas field, Israel has resolved the major regulatory hurdles that threatened to obstruct the sector's development and had already damaged investor confidence in its upstream (exploration and production) hydrocarbon sector.[1]

Investor Stability in Israel's Natural Gas Regulatory Regime

In March 2016, Israel's Supreme Court rejected a key component of the government's proposed regulatory framework to develop and export gas from the Leviathan field, which was discovered in 2010 and deemed the largest offshore natural discovery of the last decade. Allotting the Israeli government one year to revise the framework, the court objected to the proposal's stability clause, which sought to prevent regulatory changes impacting the project's profitability, including profit-sharing schemes and gas export quotas.[2]

Michael Hochberg

Michael Hochberg is an analyst in the Global Energy & Utilities practice of PA Consulting Group, a London-based management consulting firm. Hochberg has worked in both federal and state government, at the White House as an intern, and at the Delaware Department of Natural Resources and Environmental Control. In 2012, Hochberg was awarded a Fulbright scholarship to Spain.

Given recent regulatory uncertainty in Israel and low natural gas prices globally, the stability clause would have functioned as a measure for investors to access financing, confidently invest the $5-6 billion required to develop the field, and monetize their natural gas assets.[3] Four of the five court justices, however, ruled that the stability clause was illegal, as it impeded future governments from making changes in the regulation for ten years, regardless of unforeseen circumstances.

To provide certainty without compromising the decision-making power of future governments, the new deal stipulates a fixed-term regulatory review process to determine potential compensation for investors in the case of regulatory changes that impact project profitability. In the event of a change, the review process would consider O.E.C.D. and other international norms.[4] The deal appears to strike the appropriate balance between stability for investors and flexibility for the government.

The speed of the verdict in resolving the stability clause issue, one of Israel's most consequential regulatory challenges of the last decade, is impressive. Having secured a viable legal framework to develop the Leviathan less than three months after the Supreme Court's initial rejection represents a major win for Israel, in terms of boosting investor confidence and paving the way for future gas exploration efforts off Israel's shores. In the longer term, Israel could become a significant supplier of natural gas to energy-hungry neighbors like Jordan, Egypt, Turkey, and even the European market.

The success of Israel's nascent natural gas industry, however, is far from certain. It is not entirely clear how the consortium of investors in the Leviathan field will secure the country's gas has been fierce and could continue, with civil society groups arguing that terms favor investors too heavily and that the lack of competition in the sector creates a de facto monopoly, which could lead to increased domestic energy prices. Finally, If Israel seeks the large windfall gains that gas exports would bring, it must overcome geopolitics and maximize the potential for mutual gain in an increasingly convoluted web of regional relationships.

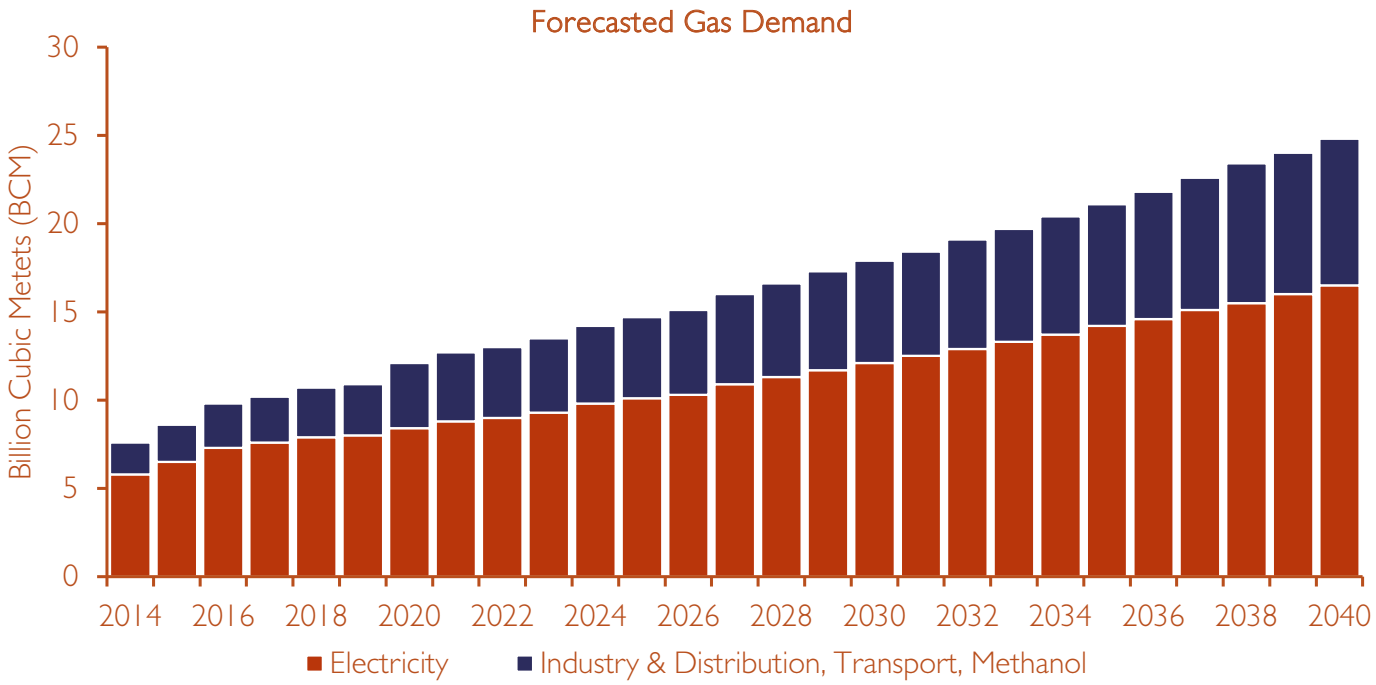
Israel's Principle Natural Gas Fields

Source: Noble Energy[5]

History of Gas Development and Regulation in Israel

Israel has been attempting to attract investment in hydrocarbon exploration through favorable investor terms since at least 1952, four years after it declared its independence. The 1952 Petroleum Law, which provides Israel's legal foundation for the upstream hydrocarbon sector, underwent amendments in 1965 and 1989, yet its underpinnings remained largely unchanged.[6] Regulation did not become an issue of serious public concern and national scrutiny until major natural gas deposits were discovered—and billions of dollars were at stake.

Israel's first commercially viable offshore natural gas find was made in 2000, when Texas-based Noble Energy discovered the Mari-B gas field. Brought online just four years later, Mari-B began supplying Israel with its first domestically produced natural



Source: Israel Ministry of National Infrastructures, Energy and Water Resources[7]

Note: Forecasts determined in 2010 – 2011. Real demand in 2014 and 2015 was 7.5 B.C.M. and 8.4 B.C.M., respectively, representing a negligible difference from forecasted figures.[8]

gas in 2004.[9] Noble Energy operated under Israel's 1952 Petroleum Law (among other legislation), which governed profit-sharing between upstream energy companies and the Israeli state. The Petroleum Law's long-standing 12.5 percent royalty created a favorable regulatory environment for upstream firms to venture into Israel's hitherto unproven offshore territory.[10]

The Mari-B field, coupled with the 2009 discovery of Israel's Tamar gas field (also a Noble Energy find) and several smaller gas discoveries, began to transform Israel's domestic energy scene and lay the foundation for its future.

From 2004 to 2010, natural gas use as a fuel source in the country grew from almost non-existent to 40 percent of electricity generation, helping Israel reduce environmentally harmful coal consumption.[11] Israel's natural resource regulator, the Ministry of National Infrastructure, Energy and Water Resources, forecasts that natural gas as a fuel source for electricity generation will reach 60 percent in 2027 and 68 percent in 2040.

Accordingly, gas discoveries led to a joint venture between Texas-based Noble Energy, Israel's Delek Group, and several minority partners to help bring these projects to fruition.

At the time of its discovery, the Tamar field was much larger than any previous find, containing 282 billion cubic meters (B.C.M.) of gas. Tamar currently provides Israel with more than half of its electricity needs, through a gas sale and purchase agreement (G.S.P.A.) between the Noble-Delek part-

nership and Israeli generators, including Israel Electric Corporation (I.E.C.), the state's largest provider of electricity. In 2010, within a year of the Tamar find, Noble Energy discovered the Leviathan gas field.[12] The Leviathan is nearly double the size of Tamar, with enough gas to meet Israeli domestic demand for decades and turn Israel into a major regional gas exporter.

As Israel's proven natural gas reserves increased, so did its prospects for enhanced national security, economic power, and deeper regional cooperation and influence. Accordingly, Israeli civil society and government sought to reevaluate the sector's structure and the state's take in natural gas windfall gains, revisiting regulation that had been largely intact for 60 years.

Upheaval in Israel's Natural Gas Regulatory Regime

Israel's Profit-Sharing Scheme: The Sheshinski Committee

Following the Tamar and Leviathan discoveries, the Israeli government commissioned a committee, led by economist and Hebrew University professor Eytan Sheshinski, to reexamine its natural gas regime through comparative regulatory analysis and corresponding policy endorsements.[13] Dubbed the "Sheshinski Committee," the group found that hydrocarbon extraction revenues granted to the Israeli state were low compared to international standards, which led the committee to recommend an overhaul of Israel's natural gas regulation. These recommendations were approved by the Knesset in March 2011 under the Petroleum Profits Taxation Law.[14]

In addition to the 12.5 percent royalty, the new law created a progressive tax on gas profits, beginning at 20 percent of total profits following the recovery of 150 percent of investment. The tax increases to a cap of 50 percent of profits after recovery of 230 percent of the investment.[15] The law also rescinded Noble Energy's depletion allowance, which allowed for the deduction of 27.5 percent of gross revenues from taxable income. According to the Sheshinski Committee, in practice the depletion allowance would offset the 12.5 percent royalty, leaving little or no royalties for the state. The new law did not contain any grandfather clause and would accordingly apply to prior discoveries, yet it would leave prior revenues intact.[16] Overall, the take of the Israeli state rose to 52-62 percent of net profit on gas.[17]

The Petroleum Profits Taxation Law represents the first major change to profit-sharing under Israel's hydrocarbon regulatory regime. It also set a precedent for further ex post facto amendments to natural gas regulation, and correspondingly set the stage

Gas Field	Year Discovered	Estimated Reserves	Status
Leviathan*	2010	500 B.C.M.	Development Stage
Tamar*	2009	282 B.C.M.	Producing
Shimshon	2012	5 B.C.M.	Development Stage
Mari B and Noa*	1999-2000	33.5 B.C.M.	Produced 25 B.C.M.
Karish and Tanin*	2012-2013	55 B.C.M.	Not Developed
Dalit*	2009	8 B.C.M.	Not Developed
Aphrodite/Ishai	2012	7-10 B.C.M.	Not Developed

* Fields in which Noble Energy is the operator

Source: Israel Ministry of National Infrastructures, Energy and Water Resources, Delek Group[18]

for investors to pursue regulatory stability preemptively to thwart future attempts to retroactively modify regulation.

Gas Export Quotas: The Tzemach Committee and Other Regulatory Proceedings

A second critical issue impacting project profitability is investor capacity to sell gas to a diverse client base through international exports. For Israel, a country that has enjoyed little or no native energy resources throughout the majority of its short history, this meant balancing the need to maintain Leviathan gas for domestic use (for energy security purposes), while incentivizing the investors to develop the Leviathan field. In 2011, the Israeli government appointed Shaul Tzemach, then director general of the Ministry of National Infrastructures, Energy and Water Resources, to evaluate the country's export license policy for natural gas (among other energy policies).[19]

The investor group argued that the I.E.C. is responsible for the majority of electricity generation in Israel, which effectively creates a single buyer market and limits the investor's ability to negotiate fair gas prices. Further, they maintained that the Israeli market's limited gas demand, relative to the quantity of gas discovered, would not permit sufficient commercialization of gas (in the near future) to justify the multibillion-dollar investment. The investor group also leveraged their existing position in the Tamar gas field, maintaining that if the case to develop the Leviathan proved uneconomic, it would have an impact on the business case to further develop the Tamar field.[20]

While considering the investor group's interests and influence, the Tzemach Committee also reasoned that an overwhelming export cap would discourage future gas exploration by international companies. The committee endorsed an export quota of 60 percent of natural gas reserves; it was estimated that the remaining 40 percent reserved for domestic use would allow Israel to meet domestic consumption for 25

"The Leviathan and Tamar together represent approximately 90 percent of Israel's proven gas reserves."

years. Following the Tzemach Committee, public pressure continued to mount, with advocates arguing that the proposed quota was not consistent with national energy security goals. Accordingly, the Israeli government increased the domestic reserve requirement to 60 percent of gas reserves.[21]

The decision may negatively impact the investor group's bottom line once exports do begin, yet the economic case to develop the Leviathan remained intact.

Competition in Israel's Natural Gas Sector

Complicating matters further, in September 2011 the Israeli Antitrust Authority (I.A.A.) began investigating the Noble-Delek partnership to determine whether it violated antitrust laws, possibly constituting an illegal monopoly.[22] The group's role in the development of the Leviathan, Tamar, and additional smaller gas fields, combined with the increasing share of natural gas in Israel's electricity generation and the limited ability of the I.E.C. to negotiate natural gas prices with a single supplier, created a situation in which the Noble-Delek partnership had the potential to substantially influence prices. This market power, or the ability to increase and maintain a price above the level that would result from competition, could cause higher electricity prices and limit competitiveness across the Israeli economy.[23]

The I.A.A., led by Harvard-educated David Gilo, sought to dissolve the alleged monopoly through compulsory sale of natural gas reserves.[24] Reasoning that a Leviathan sale may take years and therefore effectively maintain the monopoly via Tamar's output, the I.A.A. decided to force the partnership to sell some of the smaller gas fields, including Tanin and Karish, which supposedly resolved the Noble-Delek partnership's monopoly status.[25] Still, the Leviathan and Tamar together represent approximately 90 percent of Israel's proven gas reserves, and these small divestures would ultimately prove insufficient for the I.A.A.

Nine months after the monopoly issue had seemingly been resolved through the divestitures in Tanin and Karish, the I.A.A. reversed its decision, likely reasoning that the agreement would have negligible impact on promoting gas sector competitiveness. The unexpected resurgence of the issue raised the possibility of significant delays in developing the Leviathan, which caused turmoil for the project developers who had already begun negotiating export deals with regional clients.[26]

The seemingly capricious decision-making on the part of I.A.A. troubled the Netanyahu government in terms of Israeli relations

with current foreign investors and the perception of Israel as a safe destination for F.D.I. More importantly, the Israeli government perceived the decision reversal as a threat to national security, as Tamar was Israel's only native natural gas source, providing more than 50 percent of the country's electricity generation.[27] Delivered to Israel's coast through a single transmission route, Tamar gas exposed electricity generation in Israel to significant risk, in the event of an attack or technical failure.[28]

To resolve the predicament, Prime Minister Benjamin Netanyahu appointed the Head of the National Economic Council, Eugene Kendall, to lead a team to redefine the ownership rules of Israel's natural gas reserves. The team was meant to be representative, comprised of ministers from various government ministries, including the I.A.A.'s David Gilo. The outcome of the team's efforts included Delek Group's full exit from the Tamar field within six years, a reduction of Noble Energy's proprietorship in Tamar from 36 to 25 percent, and the sale of the Tanin and Karish fields. The proposal was accepted and recommended by the Noble-Delek partnership and by all government ministers, with the exception of Gilo, who opposed the developers' ability to market gas from both the Leviathan and Tamar. Gilo believed that a single company or joint venture selling gas to the Israeli market from both reservoirs would inhibit competition and raise prices.[29]

In May 2015, Gilo resigned from his post, creating a major obstacle for the new plan, which required the approval of the antitrust commissioner. Identifying and appointing a new antitrust commissioner would have taken at least several months, and the new commissioner may have mimicked Gilo's position. To expedite the process, the Netanyahu government overrode the I.A.A.'s decision, through Section 52 of the Antitrust Law, which had never before been applied.[30] According to the I.A.A., the application of Section 52 "is limited to narrowly defined circumstances where foreign policy and national security override competition considerations."[31]

To officially invoke Section 52, the minister of the economy must consult the Knesset's Economic Affairs Committee.[32] Aryeh Deri, the incumbent minister of the economy at the time, was not comfortable approving the deal, yet he did not want to block the prime minister's national energy agenda. Accordingly, Deri was offered a new post, and Netanyahu assumed the role of minister of the economy in November 2015 (while still retaining his position as Israeli prime minister).[33]

"The Israeli government perceived the decision reversal as a threat to national security."

Despite further public opposition to the deal and Prime Minister Benjamin Netanyahu's alleged power grab, Israel's natural gas development framework was finally on course. With the Israeli government's recent approval of the framework, the Leviathan field is expected to come online in 2019.

Outcome of Regulatory Upheaval

The Israeli government's retroactive modifications to natural gas regulation was due to its reactive, rather than proactive, role in revisiting decades-old legislation to reshape the state's upstream hydrocarbon market rules. Instead of anticipating opposition to market rules among civil society groups and within certain Israeli government agencies, the Netanyahu government chose to react on an as-needed basis.

Market rules were not updated prior to auctioning exploration and production blocks in the Mediterranean. Instead, the Israeli government relied on preexisting legislation to provide favorable terms to investors while simultaneously advancing Israeli national and public interests. Before the discovery of some of the world's largest offshore gas deposits in Israeli waters, the longstanding regulatory framework was unchallenged. Yet, when it became clear that billions of dollars and the future of the Israeli economy were at stake, Israeli civil society and media began fervently protesting legislation perceived as favoring investors at the expense of the Israeli people and state.

Investor confidence suffered throughout the process, and, at times, it even seemed that Israeli politics and public opinion would prohibit any agreement at all or that the investor companies would depart (Woodside Petroleum, an Australian company involved, did exit in 2014).[34] By not electing to undertake early-stage premeditated regulatory change, Israel unwittingly choose the "put out fires" method, hurriedly seeking solutions each time contested regulation represented a genuine threat to gas development.

High-Level Overview of Benefits

2013	$2.3 billion in savings for the I.E.C. through natural gas fuel purchases for the year
2014	$180 million in Israeli state income through gas royalties for the year
2014	$9 billion current account surplus, resluting largely from Tamar gas production
2015	10 percent reduction in electricity rates as a result of Tamar gas consumption
2016	$6.4 billion in energy cost savings since the Tamar field came online in 2013
2026	$20 billion of gas windfalls from royalties and taxes is projected by 2026

Source: Noble Energy[35]

While this method has caused turmoil and uncertainty for investors, the Israeli government, and the Israeli people, it is unlikely to have caused any irreparable damage. In fact, the way in which events unfolded led to a remarkable increase of Israel's take in natural gas windfall gains, retention of at least 25 years of gas for domestic use, a more competitive sector, and a viable path to develop Israel's natural gas deposits. Accordingly, Israel has already begun, and will likely continue, to experience significant benefits in terms of revenues, savings, and macroeconomic stability.

Opponents argue that the natural gas sector and economy may suffer from a lack of competition, which will increase energy prices, and that the Netanyahu government undemocratically pushed through its natural gas agenda. However, as a result of popular discontent and protests, the Israeli government was pressured to overhaul its natural gas regulation on at least four occasions in the last five years, through political hearings and a Supreme Court ruling.

While the competition issue may not be entirely resolved, the gas development currently underway will send a positive signal for additional upstream companies to explore for gas in Israeli waters, which may lead to greater competition through the participation of additional gas providers to Israel's market (assuming the discovery of further commercially-viable gas deposits).

"Israeli gas has the potential to be a game changer for regional energy relations and economic ties."

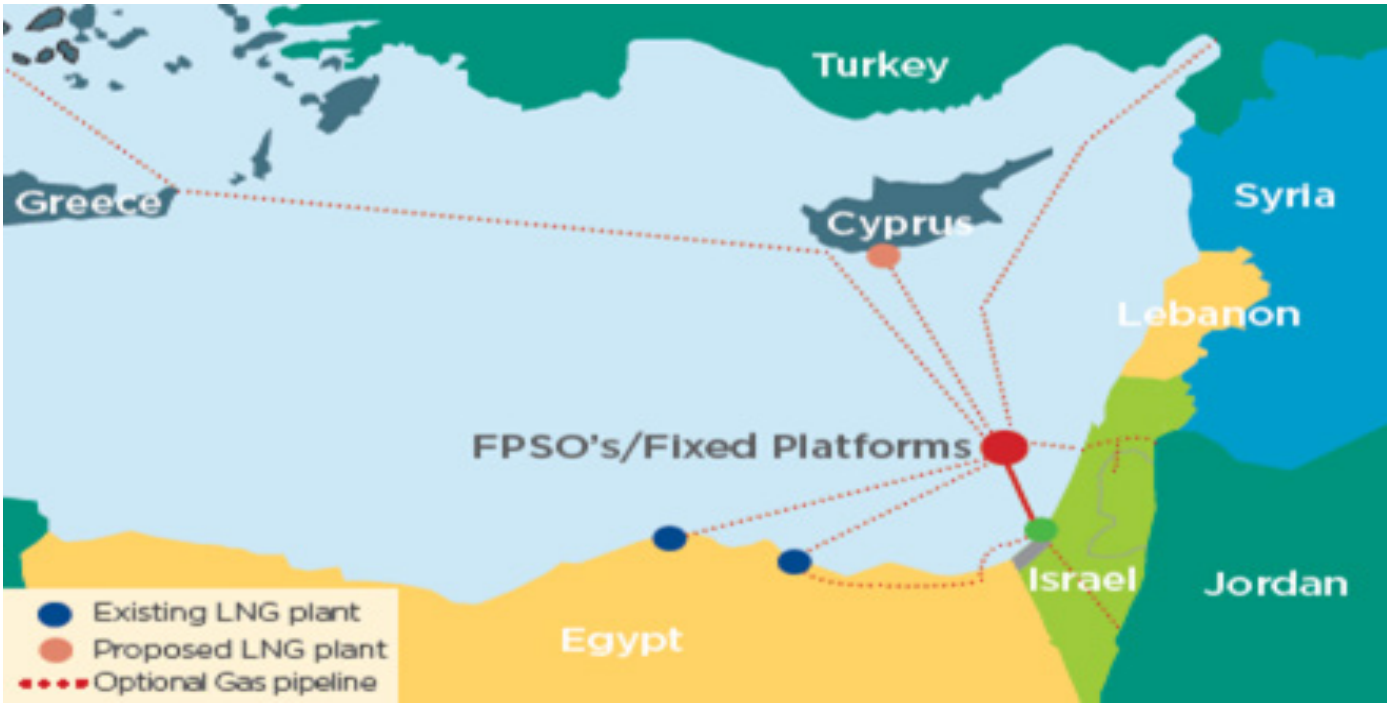
Accordingly, the process of balancing the Netanyahu government's aim of securing a path to gas development with Israeli civil society's prerogative to achieve superior terms for the Israeli people and state seems to have been successful. The two opposing views proved complementary in engineering a solution, which has led to improved terms for the Israeli state and renewed fervor to export gas, auction additional exploration blocks in the Mediterranean, and capitalize on Israeli gas.

The Role of Israeli Gas in the Middle East and Beyond

Beyond Israel's domestic concerns, Israeli gas has the potential to be a game changer for regional energy relations and economic ties. In a region where economic power depends heavily on geopolitics, Israel's gas represents a significant economic bargaining tool, which has already led to shifting regional relationships.

While a myriad of potential markets for Israeli natural gas exist, Israel is more likely to begin exporting Leviathan gas to markets that are both politically viable and close in proximity, thus requiring minimal infrastructure development. Market size and

Several Options for Natural Gas Export are under Consideration



Source: Ministry of National Infrastructures, Energy and Water Resources[36]
Note: FPSO = Floating production, storage, and offloading unit[37]

projected demand growth are also important for electing partners for long-term natural gas contracts. As such, Jordan, Egypt, and Turkey are the most probable candidates to receive Israel's first gas exports.

Jordan

Energy-poor Jordan, which has historically imported approximately 95 percent of its fuel used to satisfy domestic demand, is a very likely candidate for Israeli gas exports.[38] In September 2014, the Noble-Delek-led partnership signed a nonbinding letter of intent to supply 45 B.C.M. of Leviathan gas to Jordan's National Electric Power Company (NEPCO) over a 15-year term.[39] Israeli gas would help Jordan reduce its reliance on environmentally harmful and costly fuel oil, which increased its share in Jordan's electric generation mix after significant interruptions in its supply of Egyptian gas.

Jordan's NEPCO would also provide Israel with a relatively reliable partner, compared to potential partner companies in Egypt, which have a history of nonpayment. Gas would be supplied through a pipeline, which would be relatively inexpensive given the proximity of the states. The arrangement would benefit Jordan in terms of both environment and economics, with savings for NEPCO estimated at $200-$600 million (0.6-2 percent of G.D.P.) annually, depending on the price of fuel oil.[40] Anti-Israeli

public sentiment in Jordan, however, will be an obstacle for King Abdullah's administration in bringing the deal to fruition.

Egypt

While Egypt is an exponentially larger natural gas market than Jordan, the two countries share key characteristics relevant to their Israeli gas import considerations. Public opposition against importing Israeli gas would likely be equally strong in Egypt. Egypt also faces its own energy shortages, struggling to meet rising domestic demand and failing to utilize liquefied natural gas (L.N.G.) gasification facilities built when Egypt was expected to export gas. Further, pipeline distances are relatively short. There is already an Egyptian-Israeli gas pipeline, which once provided Egyptian gas to Israel. The same pipeline could be used, reversing the flow to provide Egypt with Israeli gas. Egypt, which uses natural gas for more than 70 percent of electricity generation, is in desperate need of additional gas supply for both electric generation and L.N.G. export.[41] However, the country must service billions of dollars of outstanding debt with the I.E.C. as a result of Egyptian gas supply shortages under the former gas deal between the two countries.

Turkey

Turkey may offer the most potential for Israeli gas in terms of market size and reach. Driven partially by the prospect of a gas deal, Israel and Turkey agreed to normalize relations in June 2016, after six years of diplomatic estrangement. Any gas exports to Turkey would not take place until the second phase of the Leviathan's development (circa 2020), partly due to the lack of current infrastructure. However, an Israel-Turkey gas deal could yield significant gains for both countries.[42]

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To meet gas demand and produce nearly 50 percent of its electricity, Turkey uses approximately 50 B.C.M. of gas annually.[43] More than 90 percent of gas used in domestic consumption is imported, with approximately 60 percent sourced from Russia.[44] The Syrian civil war has strained relations between Turkey and Russia, with Turkey shooting down a Russian fighter jet in November 2015. With long-term supply agreements between Russia and Turkey scheduled to begin concluding in 2021, Israeli gas represents a potentially reliable and inexpensive alternative.[45]

Geographically situated between eastern and western markets, Turkey has the potential to serve as a natural gas pipeline hub. However, rising domestic natural gas demand has prohibited export opportunities.[46] Israeli gas could help Turkey fulfill its potential as a natural gas corridor, which could even permit Israeli gas to reach European markets.

For geographic reasons, however, the possible Israeli-Turkish pipeline would have to traverse the maritime space of politically divided Cyprus, which does not have diplomatic relations with Turkey. Cyprus is divided into the Turkish Republic of Northern Cyprus (T.R.N.C.), a self-declared state recognized only by Turkey, and the Republic of Cyprus, comprising the island's entire territory, and recognized by the international community.[47] As the southern coast of the T.R.N.C. is a short distance (approximately 200 kilometers) from Israel's natural gas fields, it would be economically and environmentally sound policy for the pipeline to cross the T.R.N.C.'s waters, as opposed to taking a longer and more expensive route through the maritime space of internationally recognized Cyprus. Accordingly, reunification of the island may be a necessary requisite for an Israel-Turkey gas deal.

"Israel is closer than ever to exploiting its natural gas resources."

A Less Uncertain Future

Israel is closer than ever to exploiting its natural gas resources. Barring unforeseen circumstances, all regulatory hurdles have been cleared. Pending regulatory commitments of the gas developers have begun to take form, with Noble Energy selling both the Tanin and Karish gas fields and reducing its proprietorship of the Tamar field by 3 percent (it must reduce its take by an additional 8 percent).[48] Highlighted by the normalization of relations with Turkey and the prospect of Cyprus unification, Israel and the gas developers are also navigating regional geopolitics and progressing in finding buyers for Israeli gas. Intimate energy cooperation would likely lead to closer cooperation in security and pressing regional issues as well.

While the development of the Leviathan and other Israeli gas fields is underway and regulation appears to be set, much remains uncertain. To date, there are no confirmed export arrangements for Israeli gas. Financing multibillion-dollar gas projects in a low-price gas environment in one of the most turbulent regions globally will also be tricky. Whether Israel, its neighbors, and the gas developers have the tact, acumen, and good-fortune to be alchemists, to convert natural gas that sits thousands of feet beneath the Mediterranean into win-win economic and political ties, remains to be seen.

Endnotes

1. "Noble Energy Receives Plan of Development Approval for Leviathan Field Offshore Israel," *Noble Energy*, June 2, 2016, accessed August 3, 2016, http://investors.nobleenergyinc.com/releasedetail.cfm?ReleaseID=973988; "Solution Found for Framework for Developing Israel's Natural Gas Fields - The Stability Provision Will Be Revised," Ministry of National Infrastructures, Energy and Water Resources, May 19, 2016, accessed August 3, 2016, http://energy.gov.il/English/AboutTheOffice/SpeakerMessages/Pages/GxmsMniSpokesmanNGMay16.aspx.

2. "Israel Supreme Court Rules Stability Provisions to be Addressed Through Alternate Means," *Noble Energy*, March 27, 2016, accessed August 3, 2016, http://investors.nobleenergyinc.com/releasedetail.cfm?ReleaseID=962222.

3. "Submission to the Petroleum Commissioner of a Revised Development Plan for the Leviathan Project in a Capacity of approx. 21 BCM per annum," *Delek Group*, February 25, 2016, accessed August 3, 2016, http://ir.delek-group.com/phoenix.zhtml?c=160695&p=irol-newsArticle&ID=2143096.

4. "Israeli Natural Gas Industry – Where do we go now? – Part 2," *Energy Global*, June 24, 2015, accessed August 3, 2016, http://www.energyglobal.com/upstream/drilling-and-production/24062016/Israeli-Natural-Gas-Industry-where-do-we-go-now-Part-2/.

5. "Eastern Mediterranean," *Noble Energy*, accessed August 3, 2016, http://www.nobleenergyinc.com/operations/eastern-mediterranean-128.html.

6. Margit Cohn, *Energy Law in Israel* (Frederick: Kluwer Law International, 2010), 122.

7. "The Natural Gas Sector in Israel," Ministry of National Infrastructures, Energy and Water Resources, accessed August 3, 216, http://energy.gov.il/English/Subjects/Natural%20Gas/Pages/GxmsMniNGEconomy.aspx.

8. "Israel Gas Opportunities," Israel Ministry of National Infrastructures, Energy and Water Resources, June 2016, accessed August 3, 2016, http://energy.gov.il/English/PublicationsLibraryE/Israeli%20Gas%20Opportunitties.pdf.

9. "Noble Energy, Inc. Announces Startup of Natural Gas Production From the Giant Mari-B Field Offshore Israel," *Noble Energy*, December 24, 2003, accessed August 3, 2016, http://files.shareholder.com/downloads/ABEA-2D0WMQ/0x0x264771/449a1ba9-4b6e-4956-8c52-5497362a29ee/NBL_News_2003_12_24_General_Releases.pdf.

10. "Synopsis of the Israeli Petroleum Law and Regulation," Ministry of National Infrastructures, Energy and Water Resources, accessed August 3, 2016, http://energy.gov.il/English/PublicInfo/Pages/GxmsMniLegislationThisSubject.aspx?LPF=Search&WebId=7c7a7361-645d-433c-8eff-fd934d7d8689&ListID=611732a3-e37c-4802-b9e5-5405b5fc9a42&ItemID=19&FieldID=MMDSubject_GxS_Invalid.

11. "The Natural Gas Sector in Israel," Ministry of National Infrastructures, Energy and Water Resources, accessed August 3, 2016, http://energy.gov.il/English/Subjects/Natural%20Gas/Pages/GxmsMniNGEconomy.aspx.

12. "Noble Energy Filing," *Noble Energy*, February 19, 2015, accessed August 3, 2016, http://files.shareholder.com/downloads/ABEA-2D0WMQ/0x0xS72207-15-7/72207/filing.pdf.

13. "Eytan Sheshinski," *Taub Center for Social Policy Studies in Israel*, accessed August 3, 2016, http://taubcenter.org.il/eytan-sheshinski/.

14. "The Knesset Approved Today the 'Sheshinski Committee' Recommendations on the Fiscal Policy on Oil and Gas Resources in Israel," Israeli Ministry of Finance, March 30, 2011, accessed August 3, 2016, http://www.financeisrael.mof.gov.il/FinanceIsrael/Docs/En/pressReleases/20110330.pdf.

15. "Annual Report 2012," *Noble Energy*, accessed August 3, 2016, http://ar2015.nobleenergyinc.com/wp-content/uploads/2016/03/NobleEnergy_2012_AR.pdf.

16. Joel Slawotsky, "Ignoble Treatment: The Tax Increase on Noble Energy's Interests in the Massive Israeli Gas Strikes," *Emory International Law Review* 27, no. 1 (2013): 347-396, http://law.emory.edu/eilr/_documents/volumes/27/1/articles/slawotsky.pdf.

17. "Conclusions of the Committee For the Examination of the Fiscal Policy with Respect to Oil and Gas Resources in Israel," Ministry of Finance, January 2011, 3-4, 61-62, 99, accessed August 4, 2016, http://www.financeisrael.mof.gov.il/financeisrael/Docs/En/publications/02_Full_Report_Nonincluding_Appendixes.pdf.

18. "Israel Gas Opportunities," Israel Ministry of National Infrastructures, Energy and Water Resources, June 2016, accessed August 3, 2016, http://energy.gov.il/English/PublicationsLibraryE/Israeli%20Gas%20Opportunitties.pdf; "Yam Tethys: The Mari B and Noa Natural Gas Reservoirs," *Delek Group*, accessed August 3, 2016, http://www.delekenergy.co.il/?CategoryID=170&ArticleID=83.

19. "The Recommendations of the Inter-Ministerial Committee to Examine the Government's Policy Regarding Natural Gas in Israel," Ministry of National Infrastructures, Energy, and Water Resources, accessed August 4, 2016, http://energy.gov.il/English/PublicationsLibraryE/pa3161ed-B-REV%20main%20recommendations%20Tzemach%20report.pdf.

20. Natan Sachs and Tim Boersma, "The Energy Island: Israel Deals with its Natural Gas Discoveries," Brookings Institution, February 2015, 11-12, accessed August 4, 2016, http://www.brookings.edu/~/media/research/files/papers/2015/02/eastern-mediterranean-papers/israel-energy-island-natural-gas/energy-island-web.pdf.

21. Sachs, Boersma, "The Energy Island: Israel Deals with its Natural Gas Discoveries;" According to a June 2016 doucment from the Ministry of National Infrastructures, Energy and Water Resources, "in 2013 Israel adopted a Gas Export Policy allowing export of 50-100 percent of newly discovered natural gas reserves;" however the basis of this statement is unclear, "Israeli Gas Opportunities," http://energy.gov.il/English/PublicationsLibraryE/Israeli%20Gas%20Opportunitties.pdf.

22. Friedrich, Ebert, Stiftung, "Israel Debates No. 17, The Israeli Gas Bonanza – Money, Interests, Democracy?," March 13, 2016, accessed August 4, 2016, http://library.fes.de/pdf-files/bueros/israel/09878/israel-debates-17.pdf.

23. "Glossary of Statistical Terms," *OECD*, March 16, 2002, accessed August 4, 2016, https://stats.oecd.org/glossary/detail.asp?ID=3256.

24. "Prof. David Gilo: Biography," Tel Aviv University, accessed August 4, 2016, https://en-law.tau.ac.il/profile/gilod.

25. Friedrich, Ebert and Stiftung "Israel Debates No. 17, The Israeli Gas Bonanza – Money, Interests, Democracy?"

26. Ibid.

27. "Investor Handout," *Noble Energy,* June 2016, accessed August 4, 2016, http://files.shareholder.com/downloads/ABEA-2D0WMQ/0x0x897698/B2C7D7A6-06E3-4B5E-87FF-65AA5726254F/Investor_Handout_-_Draft_v5.pdf.

28. "Israel Debates No. 17, The Israeli Gas Bonanza – Money, Interests, Democracy?," Friedrich, Ebert, Stiftung.

29. Friedrich, Ebert and Stiftung "Israel Debates No. 17, The Israeli Gas Bonanza – Money, Interests, Democracy?"

30. Ibid.

31. "Annual Report on Competition Policy Developments in Israel, The Antitrust Authority," *OECD*, May 21, 2016, accessed August 4, 2016, http://www.antitrust.gov.il/files/34132/Annual%20report_OECD_2015_FINAL.pdf.

32. "Restrictive Trade Practices Law, 5748-1988," The Antitrust Authority.

33. "PM: Deri quits Economy Ministry, paving way for gas deal," *Times of Israel*, November 1, 2015, accessed August 4, 2016, http://www.timesofisrael.com/pm-deri-quits-economy-ministry-paving-way-for-gas-deal/.

34. "Noble Energy Announces Termination of Leviathan MOU with Woodside," *Noble Energy*, May 20, 2014, accessed August 4, http://investors.nobleenergyinc.com/releasedetail.cfm?ReleaseID=849242.

35. "Committed to Doing it Right," *Noble Energy*, http://www.nbl.co.il/en/How_does_natural_gas_produced_by_Noble_Energy_contribute_to_economic_development_in_Israel?/FAQ.

36. "Israel Gas Opportunities," Israel Ministry of National Infrastructures, Energy and Water Resources.

37. F.P.S.O. = a is a type of floating tank system used by the offshore oil and gas industry and designed to take all of the oil or gas produced from nearby platforms or templates, process it, and store it until the oil or gas can be offloaded onto a tanker or transported through a pipeline.

38. "New Energy Sources for Jordan: Macroeconomic Impact and Policy Considerations," International Monetary Fund, May 2015, accessed August 4, 2016, https://www.imf.org/external/pubs/ft/wp/2015/wp15115.pdf.

39. "Noble Energy Announces Letter of Internet to Sell Leviathan Natural Gas to the National Electric Power Company of Jordan," *Noble Energy*, September 3, 2014, August 4, 2016, http://investors.nobleenergyinc.com/releasedetail.cfm?releaseid=868812.

40. "New Energy Sources for Jordan: Macroeconomic Impact and Policy Considerations."

41. "Egypt," US Energy Information Administration, June 2, 2015, accessed August 4, 2016, https://www.eia.gov/beta/international/analysis_includes/countries_long/Egypt/egypt.pdf.

42. "Full Gas Ahead," Delek Drilling Limited Partnership and Avner Oil Exploration Limited Partnership, October 2015, accessed August 4, 2016, http://www.delekenergy.co.il/_Uploads/dbsAttachedFiles/Delek_Analyst_PPT_English_27_10_2015.pdf.

43. "Turkey's Transition: Milestones and Challenges," The World Bank, July 2015, accessed August 4, 2016, http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/10/28/090224b083174b65/2_0/Rendered/PDF/Turkey0s0energ0tones0and0challenges.pdf.

44. Ibid.

45. Gulmira Rzayeva, "Natural Gas in the Turkish Domestic Energy Market: Policies and Challenges," *The Oxford Institute for Energy Studies*, February 2014, accessed August 4, 2016, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/02/NG-82.pdf.

46. "Turkey," US Energy Information Administration, August 6, 2015, accessed August 4, 2016, https://www.eia.gov/beta/international/analysis.cfm?iso=TUR.

47. "Cyprus," CIA World Fact Book, accessed August 4, 2016, https://www.cia.gov/library/publications/the-world-factbook/geos/print/country/countrypdf_cy.pdf.

48. "Noble Energy Announces Solid First Quarter 2016 Results," *Noble Energy*, May 4, 2016, accessed August 4, 2016, http://investors.nobleenergyinc.com/releasedetail.cfm?ReleaseID=968996.

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