Italian energy firm Eni’s discovery of the Zohr natural gas field in Egypt in late 2015 may prove a boon to Turkey’s long-term goal of serving as an energy transit country. If the Egyptian market is saturated, Israel and Cyprus will be unable to export the majority of gas from the Leviathan and Aphrodite fields there, leaving Turkey as the most economical transport option for exports to Europe. The prospect of a pipeline offers added impetus to settle long-standing conflicts between Turkey and its potential partners Cyprus and Israel, which coincides with a renewed push for normalization of relations in the region.

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Italian operator Eni’s discovery of the largest known gas field in the Mediterranean Sea on 30 August 2015 shook the regional hydrocarbons market.\(^1\) The Zohr discovery off the coast of Egypt immediately sparked speculations about its potential impact on exploration and production in the Eastern Mediterranean region. In particular, the newly discovered cache has raised questions about export options for other fields in the region, namely the Aphrodite field in Cyprus and Leviathan in Israel.

Holding an estimated 850 billion cubic meters (bcm), the Zohr field overshadows previous Eastern Mediterranean discoveries. Cyprus’s Aphrodite is estimated to contain only 116 bcm.\(^2\) Israel’s Leviathan field was estimated to hold 623 bcm,\(^3\) but a recent review by Dutch company SGS put the figure at 470 bcm.\(^4\) To put this in context, the Southern Gas Corridor (SGC) is being constructed to transport production from Azerbaijan’s Shah Deniz gas field, which is thought to hold 1.13 trillion cubic meters.\(^5\) Aphrodite is too small to develop export infrastructure on its own, making joint development with the Leviathan, only 34 kilometers away, an obvious choice.\(^6\) Israel and Cyprus are planning to connect their fields by 2019, so these two assets should be considered jointly when considering development and export options.\(^7\)

The Zohr has drastically decreased Egypt’s demand for gas, forcing Israel and Cyprus to find other export markets. Turkey is the most economically viable route for a pipeline at a time when oil and gas financing is weak, however geopolitical issues between Ankara and the Cypriot and Israeli governments would have to be resolved for such a project to be implemented. While recent developments bode well for a normalization of regional relations, cooperation is far from a foregone conclusion.

**Will Egypt Be off the Gas Market?**

Prior to the Zohr discovery, gas-hungry Egypt had been negotiating deals to purchase output from the Leviathan field. The country’s energy consumption rose rapidly from 59.3 million tons of oil equivalent in 2004 to 86.2 million in 2014, with

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\(^1\)“Eni’s credentials boosted by giant gas find in Egypt,” Reuters, 31 August 2015.  
\(^2\)“Gas reserve estimates at Cyprus’ Aphrodite lowered to 4.1 tcf,” Reuters, 1 December 2013.  
\(^7\)“Israel mulling twin gas pipelines to Turkey, Greece: Energy minister,” AFP, 7 February 2016.
natural gas making up for more than half of that figure. Already a large consumer of energy and especially natural gas, Egypt’s demand is only expected to increase. While some efforts to diversify are being made, the country’s electricity sector is largely fueled by gas, and the government plans to nearly double generation capacity by 2020. The rising need for gas had prompted the government to look to secure import sources, either regionally from fields such as Leviathan and likely Aphrodite, or liquefied natural gas (LNG) from more distant suppliers.

However, the Zohr discovery means that Egypt will be able to supply a much higher proportion of its own consumption needs. At first, it appeared that the North African country might have no need for imports from the Leviathan field. “The discovery of the massive gas field in Egypt is a painful reminder that while Israel sleepwalks and dallies with the final approval for the gas road map, and delays further prospecting, the world is changing in front of us, including ramifications for [Israeli] export options,” said Israeli Energy Minister Yuval Steinitz to the Times of Israel.

While the discovery even prompted speculation about Egypt changing from a net importer to an energy exporting country, the Zohr reserves are more likely to go towards satisfying ever-rising domestic consumption. In fact, just days after the discovery was announced, US independent upstream company Noble, operator of the Aphrodite and Leviathan fields, issued a statement saying:

> Regional demand supports the further development of our world class Tamar and Leviathan fields. Noble Energy continues its ongoing discussions with natural gas customers throughout the region, and yesterday the government of Egypt publicly reiterated its support for the import of gas from Israel for both domestic and LNG export purposes.

The Egyptian government expects demand for gas to continue rising to such an extent that additional imports will be required despite the massive discovery. The Zohr discovery will not flood other export markets; it seems unlikely to even suffice for Egypt’s needs. The country will probably still import Israeli gas, albeit in smaller

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8 “BP Statistical Review of World Energy June 2015.”
10 “Steinitz: Egypt gas find is wake-up call for Israel,” Times of Israel, 30 August 2015.
quantities. A preliminary deal was signed in November 2015 to import four bcm of gas from Leviathan annually for 10-15 years.¹²

This leaves the question of where the remainder of the 21 bcm Noble Energy plans to produce annually will be sold – the Israeli government has sanctioned the sale of 50 percent abroad – and how it will be exported.¹³ While Jordan is a likely customer, it is a small market, only planning to import 45 bcm over 15 years.¹⁴ Surrounded mainly by hydrocarbons-rich neighbors, Israel will have to look further afield for export markets.

According to the development plan submitted before the Zohr discovery, the Aphrodite field would produce 22.7 million cubic meters of gas per day, which was to be shipped via an underwater pipeline to Egypt.¹⁶ Low energy prices have thrown a wrench in this plan, likely leading to the more recent proposal to connect Aphrodite with Leviathan for development regardless of the export route chosen.

“\textit{The discovery of the massive gas field in Egypt is a painful reminder that while Israel sleepwalks and dallies with the final approval for the gas road map, the world is changing in front of us.}”

Export Route Options

Several export options have been considered, including pipelines to Greece or Turkey, as well as floating LNG or onshore LNG facilities. In January 2016, Israel and Cyprus announced plans to explore a natural gas pipeline to Greece to export their resources,¹⁷ a plan estimated to cost approximately 19.5 billion dollars, with a net revenue of 54.5 billion dollars.¹⁸ A pipeline from Cyprus to Turkey is calculated at 4.78 billion dollars with net revenue of 69.3 billion dollars. From Israel, a pipeline to Ceyhan, Turkey is estimated at 2.5 billion dollars, and another 647 million dollars would fund the connection to the Trans-Anatolia Pipeline in order to transport the gas to Europe.¹⁹

Even adjusted for inflation, the cost savings from these 2013 estimates are significant.

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¹⁴ Cohen (2016).
¹⁵ “Letter of Intent to Export Natural Gas from the Leviathan Project to the National Electric Power Company of Jordan,” Delek Group, 3 September 2014.
¹⁷ Michele Kambas, “Israel, Greece and Cyprus to explore gas pipeline to Europe,” Reuters, 28 January 2016.
¹⁸ Ayla Gürel, Fiona Mullen, and Harry Tzimitras, “The Cyprus Hydrocarbons Issue,” PRIO Cyprus Centre, January 2013, p. 86.
In February 2016, Steinitz said new estimates had put the cost of a pipeline from the offshore fields to Greece at seven billion dollars, which is still much higher than the potential conduit through Turkey.  

The Cypriot government had also expressed interest in developing an LNG terminal at Vasilikos to process the resources, which would cost about 12.6 billion dollars and bring in profits of about 50.2 billion dollars. Barring a new discovery before infrastructure investments are made, this plan has been all but abandoned because resources are insufficient to support it. Israel reportedly prefers to avoid an onshore LNG facility due to security concerns and a lack of coastal land available for such an installation. A floating LNG installation would be an option, but at six to eight billion dollars, the investment is unlikely to pay off without additional discoveries. The intended market for LNG would be Europe, the same as a pipeline, meaning the required costs of an LNG facility would cut into the profit margin without additional advantages.

**Decreased Financing for Hydrocarbons Projects**

The development of the Aphrodite and Leviathan fields comes at a time when investments in the oil and gas industry are dropping off with record-low hydrocarbons prices. According to energy market analysts Wood Mackenzie, 68 major upstream projects were delayed in 2015, representing investment of 380 billion dollars. Deepwater developments have been particularly hard hit. The 29 major deepwater projects delayed made up 62 percent of the reserves and 56 percent of the capital expenditure of all suspended investments. Amid the drop in energy prices since mid-2014, deepwater services providers have reduced prices less than those operating in other areas, which, combined with the high capital requirements of working in the deep offshore, has discouraged investment in this sector.

The difficulty of attracting investment to a large project in this sector enhances the appeal of the lowest cost option – the pipeline to Turkey. More ambitious projects are unlikely to attract the necessary funding, particularly as energy prices continue to fluctuate. An unsteady market has hampered investment more than low prices alone would because investors cannot count on returns at any level.

Developers are eager to participate in a pipeline from Israel to Turkey. In April 2016, the CEO of Turkish energy firm Turcas, Batu Aksoy, told Hürriyet the company was considering a buyers’ consortium to build a pipeline from Israel through Turkey and onto Europe, and 15 companies had expressed interest in participating. He suggested the pipeline could carry eight bcm annually, to be split among the partners. As project investment has been drying up, unsolicited interest in this pipeline shows how potentially lucrative it is. It also bodes well for the project’s eventual completion if the political obstacles can be cleared.

While governments continue to examine their options, alternatives seem less likely. “If important reserves are discovered in Israel and Egypt, or even in [instead] Egypt, this could justify the construction of a long pipeline to Greece,” Agence France-Presse (AFP) quoted Steinitz as saying in February 2016. However, if more significant reserves were discovered in Egypt, they would more likely be processed in the country’s own liquefaction facilities, which the government plans to expand. The site of Egypt’s Idku LNG facility was selected to accommodate up to eight trains, although only two are currently active. While the prospect of twin pipelines to both Turkey and Greece has been suggested, the current known reserves are not sufficient to justify the more than doubled investment. Israel and Cyprus could potentially export their gas to Egypt for liquefaction, but BG Group, the operator of the Idku LNG plant, merged with Shell in January. The Anglo-Dutch super-major has large projects in Qatar and is eyeing the post-sanctions Iranian market, making a deal to liquefy Israeli gas for export less likely.

**Eastern Mediterranean Tensions**

Turkey’s regional relations are a greater roadblock than the issues of financing

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24 “Israel mulling twin gas pipelines to Turkey, Greece: Energy minister,” AFP, 7 February 2016.
energy projects. Although plans to export Israeli and Cypriot natural gas through Turkey are the most expedient economically, if relations between Turkey and the two countries do not improve, the pipeline is unlikely to be built. While plans to build a pipeline from Cyprus and Israel to Greece or Egypt are relatively unlikely to come to fruition, those export routes are still on the table if negotiations with Turkey prove untenable. Opportunities to improve relations with these countries have opened up in the past year, and steps to strengthen ties between Turkey and Cyprus could clear the way for a mutually lucrative pipeline deal, ultimately snowballing into closer Eastern Mediterranean connections.

**Potential for a Cyprus Settlement**

Another effect of the Zohr discovery, the scramble by Cyprus to find similar assets in its own territory, illustrates well the tension preventing pipeline cooperation. In March 2016, the Cypriot government announced a bid round for three blocks close to the Zohr field, citing “huge interest by international companies to carry out explorations offshore Cyprus despite the energy industry’s not so favorable conditions.”

The potential for additional discoveries is a double-edged sword. Tensions over disputed offshore rights led to the breakdown of talks between the northern and southern sides in July 2014, and negotiations only restarted in May 2015. This new licensing round included Block 6, which Turkey maintains overlaps with its continental shelf. While the block had been included in Cyprus’s first and second licensing round, it was not awarded – likely an attempt to avoid antagonizing Ankara. Northern Cypriot leader Mustafa Akıncı has said drilling on newly granted exploration blocks before unification would jeopardize the talks. Furthermore, if the increased exploration encouraged by the Zohr find leads to another significant discovery in Cypriot or Israeli waters, it may prove sufficient to make an LNG facility in Cyprus a viable investment and reduce the urgency for regional conflicts to be resolved.

At the same time, the current gas reserves could sweeten the pot for the sides to cooperate, particularly as Greek Cyprus recovers from the financial crisis. “Definitely [gas is] going to be an asset, if wisely prepared and conducted in a way not to trigger yet [more] tension in the area,” Akıncı told the Associated Press in April 2016.

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28 Menelaos Hadjicostis, “AP Interview: Turkish Cypriot head: Gas may fund peace deal,” AP, 4 April 2016.
30 Gürel, Mullen, and Tzimitras (2013)
31 Sara Stefanini, “Best Chance Cyprus has had for Peace,” Politico, 31 March 2016.
32 Hadjicostis (2016).
There have been several hopeful signs pointing to a resolution to the Cyprus conflict by the end of 2016. Akıncı and his Greek-Cypriot counterpart have met more than 25 times in the year since Akıncı’s election in April 2015, and both have said a settlement is possible within the year as agreements have been reached on issues such as property, governance, and application of EU law in the Turkish section. Although Cypriot President Nicos Anastasiades cancelled a scheduled meeting for UN-brokered peace talks in late May after Akıncı was also invited to an official dinner in Turkey, he said “never, but never before, did I think there was another such good opportunity, as long as we all make use of it with mutual respect.” Akıncı has noted that to reach a settlement this year, faster progress will be necessary. Eurasia Group, a consultancy, puts the odds of success at 60 percent.

As the only country to officially recognize the Republic of Northern Cyprus, Turkey has publicly stated its support for an agreement between the two sides. When Turkish President Recep Tayyip Erdoğan spoke at the Brookings Institution in Washington, DC in March 2016, he said the Cyprus issue had to be resolved this year, and that talks would restart in May. He cited energy projects as among the opportunities that would be possible if the issues are resolved.

As the possibility of Turkish membership in the EU appears up for discussion once again, if the ruling Justice and Development Party (AKP) decides to push for membership, which Deputy Prime Minister Mehmet Şimşek called “the most important strategic target of Turkey for a long time,” normalized relations with Cyprus will be a prerequisite. Turkey may push the Turkish Republic of Northern Cyprus for additional concessions and take its own steps towards rapprochement to improve its position with the EU, as well as the benefits it would see from energy cooperation.

**Major Powers Push for Resolution**

The EU, seeking to diversify its energy import options away from Russia and resolve the Cyprus situation, is likely to support a potential Cyprus-Israel-Turkey pipeline, as it includes the Cyprus-Crete-Greece pipeline on its list of projects of common interest. While the potential imports are only a drop in the bucket compared to

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33 “Why there are fresh hopes of a united Cyprus,” The Economist Explains, 25 April 2016.
34 “Remarks by the President of the Republic on the Cyprus Problem,” Cyprus Press and Information Office, 26 May 2016.
37 Recep Tayyip Erdoğan, “Global challenges and Turkey’s goals for the year 2023,” given 31 March 2016, in Washington, DC.
its vast needs, the EU sees varied energy import sources as a high priority, and the bloc’s support could only help push a rapprochement forward.

US Vice President Joe Biden has also taken a personal interest in finding a resolution to the division of Cyprus. After his January visit to Turkey, the White House released a statement about “his positive discussions with Turkish officials on finding a settlement to reunify Cyprus as a bizonal, bicomunal federation” and pledging ongoing support from the US to reach a settlement. Following the cancellation of talks in May, the vice president called the leaders of both sides to urge them to return to the bargaining table. As Biden looks to establish a legacy during his last months in office, the Cyprus dispute is one area that he may focus on as an achievable goal.

**Israeli-Turkish Relations**

While Turkey and Israel had close ties, especially as fellow US allies, the relationship deteriorated rapidly following the 2010 Mavi Marmara incident. However, recent signs of a potential rapprochement are promising. In May 2016, Israeli Consul General in Istanbul Shai Cohen told reporters that a resolution would come once a new government was formed in Turkey following the resignation of Prime Minister Ahmet Davutoğlu. “I believe it will take another round or two in order to conclude the deal ... Most of the issues between Israel and Turkey are already, to a certain extent, clear.” Ankara has also said the talks are in the final stages.

The details of the agreement, negotiated at high-level talks in Switzerland, are unclear. Turkey has maintained it would require the lifting of the blockade against Gaza and compensation for the victims of the Mavi Marmara incident in order to restore ties. AKP spokesman Ömer Çelik told HaberTürk that a deal on compensation had reached the point where it could be signed, but did not comment on the blockade issue. Erdoğan said in April 2016 that the two countries were discussing

“The EU, seeking to diversify its energy import options away from Russia and resolve the Cyprus situation, is likely to support a potential Cyprus-Israel-Turkey pipeline (…)”

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41 “Biden urges Cyprus leaders to resume talks,” AFP, 26 May 2016.
42 Ayla Jean Yackley, “Israeli-Turkish reconciliation makes progress, more talks needed – envoy,” Reuters, 10 May 2016.
43 “Deal with Israel to be finalized ‘very soon,’ Turkey says,” Hürriyet Daily News, 25 April 2016.
44 “Turkey, Israel close to deal on compensation over Mavi Marmara: Turkish official,” Reuters, 15 February 2016.
the possibility of Turkey sending a power generation vessel to Gaza as part of the normalization process.\textsuperscript{45}

The Turkish downing of a Russian jet in November 2015 likely served as an extra impetus to reach a deal.\textsuperscript{46} As Turkey receives most – 55 percent in 2014 – of its natural gas from Russia, the incident heightened the country’s desire to diversify its energy sources.\textsuperscript{47} The fact that Israel has gas it wants to export gave Turkey an extra reason to find a way to re-establish ties.

One option to encourage the Turkish side to accept the terms of rapprochement would be the inclusion of the Gaza Marine field in the pipeline development. The shallow-water field, discovered in 1999, is estimated to hold 28.3 bcm and will be technically simple to extract resources from. The snag has been repeated conflicts between Hamas and Israeli forces, as well as legal disputes over its ownership. If Turkey and Israel reach an impasse over the blockade issue, including a clause about potential exports from the Gaza Marine, a Cyprus-Israel-Turkey pipeline could offer benefits for all parties. Palestinians could benefit from increased access to electricity and energy-intensive desalinated water, while the additional income from exports could be used to pay the region’s electricity debts to Israel.\textsuperscript{48}

\textbf{Success Story}

While a major breakthrough with long-time regional rivals may seem unlikely, the export relationship between Turkey and the Kurdistan Region of Iraq (KRI) serves as a counterexample. While Ankara could have been expected to view the semi-autonomous government as a threat that would promote the idea of autonomy for Kurdish people in the region, Erbil and Turkey have developed a close energy relationship. Almost all of the region’s crude oil exports pass through Turkey,

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\textit{“Turkey’s cooperation with the KRG in Iraq for mutually profitable energy projects is a model that may also prove possible with Israel and Cyprus.”}
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\textsuperscript{46} Tulay Karadeniz and Maria Kiselyova, “Turkey downs Russian warplane near Syria border, Putin warns of ‘serious consequences’,” \textit{Reuters}, 24 November 2015.

\textsuperscript{47} Enerji Piyasası Düzenleme Kurumu, [Turkish natural gas market report 2014] \url{http://www.epdk.org.tr/TR/Dokumanlar/Dogalgaz/YayinlarRaporlar/Yilik}

averaging 421,210 barrels per day by the Kirkuk-Ceyhan pipeline, and most of the 12,436 barrels per day exported by truck also go through Turkey.\textsuperscript{49}

Security issues have put a strain on the relationship between Ankara and Erbil. In August 2015, the Kurdistan Regional Government (KRG) said attacks on the Turkish segment of the pipeline in July and August had cost it more than 500 million dollars in revenue.\textsuperscript{50} The conduit was shut down another three weeks in February and March 2016 due to sabotage on the section running through southeastern Turkey, which has been seeing the worst violence in decades since the 2013 ceasefire between the Turkish government and the PKK broke down in July 2015.\textsuperscript{51} The resumption of operations against the PKK and the obstruction of exports have led the KRG to pursue an export pipeline to Iran.\textsuperscript{52}

However, despite these setbacks, the Turkish government is seeking to expand this cooperation, having signed a gas sales agreement in 2013 for up to 20 bcm, sourced from Anglo-Turkish Genel Energy’s Bina Bawi and Miran fields, annually.\textsuperscript{53} This support has continued as Reuters reported in late April 2016 that state-backed Turkish Energy Company (TEC) was in talks with Genel Energy to invest in the “entire value chain of the project.”\textsuperscript{54} Turkey’s cooperation with the KRG in Iraq for mutually profitable energy projects is a model that may also prove possible with Israel and Cyprus.

\textit{Time to Act}

A reconciliation between Turkey and Israel appears imminent, thanks in large part to the countries’ shared interest in energy cooperation. If the issues between Turkey and Israel are resolved by mid-2016, as both sides seem to expect, it could add momentum to a settlement on the Cyprus issue as well. Without another viable option to monetize the Aphrodite field, action on a pipeline from Israel to Turkey could push Nicosia to ensure it does not miss out. If the three countries do not


\textsuperscript{51} “Iraqi Kurdistan oil flows to Turkey’s Ceyhan port resume,” ekurd.net, 11 March 2016, http://ekurd.net/kurdistan-ceyhan-oil-resume-2016-03-11

\textsuperscript{52} “Iran offers Kurdistan region oil shipment through Persian Gulf,” Rudaw, 10 March 2016.

\textsuperscript{53} Gareth Winrow, “Realization of Turkey’s energy aspirations: Pipe dreams or real projects?” Center on the United States and Europe at Brookings, Turkey Project policy paper No. 4, April 2014.

\textsuperscript{54} “Genel courts Turkey with Kurdish gas to reduce reliance on Russia,” Reuters, 28 April 2016.
cooperate, Israel may be forced to export a smaller portion of its gas and produce from Leviathan more slowly, while Aphrodite would remain stranded unless or until another, more substantial field is found. If Tel Aviv and Nicosia proceeded jointly without Turkey, they will lose a large portion of their net profits to much more expensive export infrastructure.

The domestic legal battles delaying the Leviathan field development have had the unexpected side effect of weakening the sense of urgency about settling these regional issues, and smoothing the way for a Cyprus-Israel-Turkey pipeline. It would be in Turkey’s interests to secure a pipeline deal sooner rather than later, as any new discovery in the area would lead to a recalibration of interests. A good starting point would be agreeing to a maritime boundary with Cyprus. Both sides could make concessions on the disputed territory, which holds only the potential for economically valuable resources, in exchange for the concrete financial gains possible through collaboration.

Greek Foreign Minister Ioannis Kasoulides has said the Eastern Mediterranean’s natural gas resources could serve as the “steel and coal of the 21st century” to bring the littoral states together as the EU joined long-time rival powers several decades earlier. The prospect of cooperative hydrocarbons exploration has already warmed relations between Cyprus and Israel, who have agreed to a maritime delineation in 2010 to facilitate exploration. Turkey, Cyprus, and Israel have the chance to expand on this collaboration in a way that would benefit them all.

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