

# Race to Develop Eastern Mediterranean Gas

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## Golden Gas in the Eastern Mediterranean

The eastern Mediterranean region is bordered by Turkey, Cyprus, Greece, Syria, Lebanon, Israel, and Egypt. The hydrocarbon-rich Levant Basin lies underneath most of the area. The first large natural-gas discovery in the eastern Mediterranean occurred in 2009 with Israel's discovery of the Tamar field and then the Leviathan field. Egypt and Cyprus followed soon after with their own impressive finds. In 2010, the US Geological Survey estimated that there may be up to an additional 122 trillion cubic feet of undiscovered natural gas in the Levant Basin and up to 1.7 billion barrels of recoverable oil. While extracting the gas will likely have a major effect on the region, the natural-gas reserves of the eastern Mediterranean, to put the numbers in perspective, are less than 1.5% of total global reserves. In 2014, regional production was under 2% of global production. Despite the relatively small amount of gas reserves in the region, the potential impact of developing these reserves is far-reaching.

Mona Sukkarieh, co-founder of Middle East Strategic Perspectives, a Lebanon-based political risk consultancy, told the British Parliament last year that “the discovery of relatively important gas reserves in the eastern Mediterranean adds an additional layer of complexity to an already complex and troubled region, with profound impact, not only on these countries’ economy and energy needs, but also on regional dynamics.”

Harvesting gas from the Mediterranean Sea will help meet the energy needs of a growing region. Noble Energy, a major developer of eastern Mediterranean hydrocarbons, estimates that the region currently suffers from a gas deficit of 4 bcm/d, an amount that will slowly increase to 9 bcm/d. Within the region, natural gas is currently used as fuel by all the countries except Cyprus and Lebanon. Israel and Syria can meet their own gas needs, while Greece and Turkey depend heavily on imports. Egypt also recently began importing natural gas because the country could no longer meet its own demands, but this dynamic could change in a few years.

Countries outside of the eastern Mediterranean may also benefit as gas-rich countries like Israel search for export partners. Europe is a potential export destination for the region’s gas. Europe wants to move away from its dependence on Russian gas due to deepening political tensions and worry over Russia’s grip on the energy markets. However, European natural-gas consumption has been steadily declining since 2010 and gas from the eastern Mediterranean would face stiff competition from Europe’s traditional suppliers—Russia, Norway, and Algeria—as well as the US, which began exporting liquefied natural gas to Europe last year.

Whether sending gas to Europe or next door, there will be widespread ramifications both internally and externally as eastern Mediterranean countries with significant gas reserves, particularly Egypt, Israel, and Cyprus, figure out how to exploit

their newfound resources and grapple with the accompanying diplomatic challenges of building pipelines and exporting their products. Neighboring Greece and Turkey want to get a share of the gas and also hope to use their strategic locations to become regional energy hubs. Syria, meanwhile, is mired in civil war, making it a non-player in the current gas games, and Lebanon is struggling to kickstart its hydrocarbon exploration so that it can participate.



## Egypt: Regional Gas Hub Aspirations

Egypt is currently the largest natural-gas consumer on the African continent. Recent gas finds off of Egypt’s northern shores, particularly the Zohr field, and multi-billion-dollar investments in new exploration will propel the country’s energy sector for a long time. While Egypt was once an exporter of gas, the country has recently had to import gas to meet its growing domestic needs. Egypt aims to sell gas again and hopes to become an energy hub, but the country will face a tough market with strong competition.

Natural gas was first discovered in Egypt in 1967, and the country has relied on natural gas for decades. Egypt exploited its gas resources to power the country and in 2005 began exporting to Israel, Syria, and Jordan. For a while, Egypt was exporting between 25% to 30% of domestic production. A net exporter of liquefied natural gas for almost a decade, the country’s energy balance was disrupted by a combination of factors: declining production, political upheaval, increasing demand, and a lack of new discoveries. Egypt began importing gas in 2014. According to Enerdata, an independent research and consulting firm, Egypt’s natural-gas consumption in 2015 was 47 bcm, which was 37% of the African continent’s consumption.

To deal with a steadily increasing demand for gas, Egypt began using floating storage and regasification units in 2015; a cheaper option than onshore regasification facilities. The country imported gas from various international oil and gas firms, including BP, Shell, Saudi Aramco, and PetroChina. Oxford Business Group estimated the value of imports of liquefied natural gas (LNG) in 2015 and 2016 at about \$3.55 billion each year.

The Egyptian government anticipates the need to continue importing gas for the near future because of a growing population and steadily increasing energy demand. Last October, EGAS issued an import tender for 96 LNG cargoes to be delivered in 2017 and 2018. Egypt also has an option to purchase an additional 12 cargoes this year. According to Reuters, an EGAS official confirmed that Egypt would require about 100 shipments of LNG, worth \$2.2 billion, this year.

Egypt may not be importing gas for long. The massive Zohr



field with 32 tcf of gas, discovered by Eni in 2015, should begin production by the end of 2017. Zohr could allow Egypt to eventually halt the import of gas. Zohr is relatively cheap to develop since the field is near existing infrastructure. Other fields in Egypt are slated to ramp up production, which will also contribute to meeting the country's energy needs. The northern Alexandria field should see an increase of 5.2 billion cubic meters by mid-2017. The Nooros field, which currently produces 9 billion cubic meters, should also increase production soon. The Atoll field, discovered in March 2015, has proven reserves of 1.5 tcf of gas and is being developed by BP. Approximately 300 mcf/d should begin flowing from this field in 2018. According to Ahram Online, Petroleum Minister, Tarek El-Molla, recently said that Egypt plans to increase its natural-gas production by up to 50% by the middle of 2018. Oxford Business Group estimates that Egypt will be enjoying a natural-gas surplus by 2020.

Meeting domestic energy needs and exporting the country's surplus are part of the Egyptian government's plan to become an energy hub. According to the State Information Service website, in late January President Abdel Fattah El Sisi again asserted the importance of transforming the country into a regional energy hub by capitalizing on its strategic location, encouraging foreign investment, and increasing production and exploration activities.

Egypt can become a regional energy hub, contends Carole Nakhle, a Non-Resident Fellow at the Carnegie Middle East Centre and director of Cystal Energy, a global consultancy and advisory company. "Being a gas exporter is not something new for Egypt, which enjoys a strategic location and established infrastructure for exporting the gas whether in the form of LNG or pipeline," she told Egypt Oil & Gas. "Countries like Israel and Cyprus can benefit from the extensive established infrastructure that Egypt enjoys and which will facilitate their gas export." Egypt, however, will first have to meet growing domestic demand before it can consider exporting, which is the biggest challenge facing Egypt right now, according to Nakhle.

Egypt must focus on meeting domestic consumption requirements in the short-term and should view any plans to export gas as a long-term goal. Stratfor analysts point out that a steadily increasing domestic consumption, which is now 50 bcm annually and may increase by up to 20 bcm in the next decade, will likely prevent Egypt from returning to the major exporter status it once held.

Other practical implications may also complicate Egypt's ability to become a gas exporter. While the country has recently made some significant exploration deals with international oil companies, the Egyptian government has also had a list of unpaid arrears, which could deter exploration and development. Many of Egypt's significant gas finds are in very deep water, and these fields decline faster than other fields. Egypt will struggle to increase its overall gas supply, writes Nikos Tsafos, President and Chief Analyst of enalytica, in a 2015 German Marshall Fund policy paper, Egypt: A Market

for Natural Gas from Cyprus and Israel? If timely development occurs and the Zohr field provides its estimated 2.9 bcf/d, and the West Nile Delta concession provides 1.2 bcf/d, then, by 2022, Egypt will only just return to 2012 production levels. Tsafos contends that domestic production will probably not increase enough to allow Egypt to attain energy self-sufficiency before 2020 and that imports may be necessary through 2025, depending on the development timeline of the Zohr field and the rate of increasing energy demand.

In addition, finding regional export partners may prove challenging, since Israel will be able to meet its own natural-gas needs and the Jordanian market is relatively small. Israel and Cyprus will likely be exporting gas long before Egypt and may fill local market needs, forcing Egypt to explore distant European markets.

Egypt needs to focus on meeting its own growing energy demands before it considers exporting gas. Imports will be the reality for the next few years, but if Egypt can become self-sufficient with gas, then the country will enjoy more energy security. Egypt must also encourage regional energy security by supporting cooperation with and between its neighbors. Egypt can still be an important energy hub by securing gas import deals with neighboring Israel and Cyprus. Both countries are on the cusp of major gas developments but still need to overcome political and economic challenges to fully exploit their extensive gas resources.



## Israel Sets Its Sights on Exports

Israel's natural gas has the potential to change not only the country's energy outlook, but also its influence in regional geopolitics. Development of Israel's two significant offshore gas discoveries, as well as continued exploration of its Mediterranean waters, can guarantee Israel's domestic energy supply for decades to come. Securing export agreements in the region would enhance relations between Israel and its neighbors. Egypt is a particularly viable option for an export agreement. Israel, however, is still figuring out how to best develop its resources and how to establish ties with historically hostile neighbors.

Israel has only recently joined the ranks of the region's hydrocarbon rich countries. Israel began exploring for oil and gas in the mid-twentieth century but had only modest success. Due to its apparent lack of energy resources, the country relied heavily on imports, including gas from Egypt. After a several oil and gas finds in the Mediterranean Sea, offshore exploration increased in the past few decades. Israel hit the hydrocarbon jackpot with its discoveries of the Tamar gas reservoir in 2009 and then the Leviathan field the following year. Tamar is estimated to hold 240 bcm of recoverable gas

reserves, enough to supply Israel's domestic gas consumption for several decades. US-based Noble Energy and its partners, Iramco Negev 2, Delek Drilling, Avner Oil Exploration, and Dor Gas Exploration, began extracting gas from this field in 2013.

The Leviathan field is the country's largest natural-gas reservoir and holds approximately 621 bcm of gas. Noble Energy and its partners, Delek Drilling, Avner Oil, and Ratio Oil Exploration, plan to begin drilling a \$77-million well this year to produce gas for the Israeli market and for export. This well is part of an eight-well plan developed by Noble Energy and its partners to extract about 12 bcm of gas per year from the Leviathan field at a total cost of \$3.5 to \$4 billion. Israel has also had other successful finds in the nearby Kalisz and Tannin fields.

In the years since offshore gas was discovered, further exploration has been hampered by a debate over how to regulate the energy industry. A four-year freeze in offshore natural-gas exploration ended in late 2016 when Israel invited bids for 24 new oil- and gas-exploration licenses off the Mediterranean coast. Continued exploration will likely yield further finds. The Israeli government estimates that there are 900 billion cubic meters of recoverable-gas reserves in its offshore holdings. In the summer of 2016, Energy Minister, Yuval Steinitz, postulated that there may be as much as 2,200 bcm of natural gas in unexplored offshore reserves. Israel has already connected the Tamar gas field to the Israeli gas transportation system and is working to improve gas transmission and distribution as well as convert electric power plants and industrial facilities to consume natural gas.

The country aims to transition from oil to natural gas as its primary energy source, citing advantages such as the reduction in the cost of electricity, less air pollution, and overall strengthening of the Israeli economy. Israel's Ministry of National Infrastructures, Energy, and Water Resources estimates that the demand for natural gas will continue to increase every year, rising from 5.2 bcm in 2010 to 18 bcm by 2030.

Israel's gas bonanza will influence the region's energy and political dynamics for decades. In addition to Israel's newfound means to supply its own energy needs, it is also well positioned to export gas to its neighbors. Right now Israel is still considering its options for major gas deals. One option is to export to Egypt. Laying a pipeline to Cyprus and Greece is a second option. A third is to export to Turkey. There have already been several agreements made to export gas to private companies, particularly in Jordan and Egypt. However, Israel's relations are strained with its Mediterranean neighbors, and the country will have to work hard to broker stable export deals that can withstand ongoing political issues.

Israel and Egypt have long been energy partners despite their rocky political relationship. Moran Stern of the Atlantic Council, a global affairs think tank, recently characterized relations between the two countries as a "cold peace." Israel and Egypt may disagree about many things, but they have a history of

cooperation regarding natural resources. "Oil and gas have long been a key part of Israeli-Egyptian relations," said James Stocker, Assistant Professor of International Affairs at Trinity Washington University, to the Middle East Monitor in 2015. Egypt began exporting natural gas to Israel in 2008. That agreement was cancelled in 2012 after Egypt's wells depleted and the pipeline that carried gas across the Sinai Peninsula suffered repeated sabotage. The Israel Electric Corporation then sued the Egyptian-based Eastern Mediterranean Gas Company and Egypt's two national gas companies for breach of contract.

In a sign that relations are improving, Israel has approved gas exports to Egypt. In 2015, the Tamar-reservoir partners agreed to a deal with Egypt's Dolphinus Holdings, Ltd., to export 5 bcm of gas through the unused East Mediterranean Gas (EMG) pipeline for seven years. The pipeline had previously carried gas from Egypt to Israel. The Leviathan-reservoir partners signed a letter of intent with Dolphinus Holdings the same year to export up to 4 bcm of gas annually over a 10- to 15-year period through the same pipeline. Tamar Partners is in negotiations with Union Fenosa Gas to supply gas to an Egyptian gas liquefaction plant that is co-owned by Eni.

As Egypt strives for energy self-sufficiency, importing gas from Tamar gas field may become unnecessary in the long term. However, even if Israel does not end up exporting large quantities of gas to Egypt, improved relations between the two countries is a positive side benefit of recent energy discussions.

Israel has made moves towards repairing ties to other eastern Mediterranean countries as well. Israel has greatly improved relations with Greece in the past few years, particularly on energy issues. In December 2016, leaders of Israel, Cyprus, and Greece met to discuss energy cooperation. The trilateral summit focused on an East Med pipeline for transporting gas from Israel and Cyprus through Greece to Italy. This pipeline, which would cost about \$6 billion, would carry gas to European markets. Due to the distance involved, however, the gas would be more expensive than Russian gas, hindering sales.



## Jordan Eyeing Gas Imports

Israel and Jordan also have a complicated relationship that has recently shown signs of improvement. Jordan relies on natural gas for a small portion of its energy needs, approximately 11% of consumption in 2013. The country lacks hydrocarbon resources, possessing only about 200 bcf of proven natural-gas reserves and just 1 million barrels of proven oil reserves. Jordan imports most of its energy requirements, accounting for more than 40% of the country's budget in 2014. As a result of its energy needs, Jordan is focusing on developing renewable and nuclear energy. The country is also interested in new pipeline deals.

Deals to import Israeli gas are in place with private foreign companies in Jordan. Tamar Partners, which is comprised of Delek Drilling, Avner Oil Exploration, Noble Energy, Isramco, and Dor Gas, agreed to export gas from the Tamer field to two private Jordanian mineral companies: the Arab Potash Company and the Jordan Bromine Company. The Jordanian companies will receive approximately 1.8 billion cubic meters of gas over 15 years under a contract worth hundreds of millions of dollars.

After two years of uncertainty, in September 2016, Noble Energy and its partners in the Leviathan field finally agreed on an export deal with Jordan's government. The \$10-billion deal will provide Jordan's national electric company with 45 bcm of gas over 15 years, beginning in three years. The export agreement was first introduced in 2014, but opposition to the plan came both from Jordanian citizens who staged multiple protests and the Jordanian parliament that voted against the deal. After the agreement was finalized in the fall, Jordanian activists took to the streets again to protest the deal, which they say makes the country susceptible to pressure from Israel.

Questions about the recent gas deal between Israel and Jordan may remain, but a practical answer is in the numbers. This gas agreement will save Jordan \$600 million, according to Mohammed al-Momani, the country's Minister of State for Media Affairs. A steady supply of gas could assist Jordan as it struggles with an economic crisis marked by higher living expenses, increased unemployment, and an influx of refugees.

Egypt's Sinai pipeline that supplied Jordan with gas for several years has come under attack many times, interrupting the flow of gas and leaving Jordan vulnerable. Cairo must work to regain its market share and reopen prosperous energy deals.



## Turkey's Tumultuous Gas Affairs

Turkey would benefit greatly from importing gas from other countries in the eastern Mediterranean. Ankara is heavily dependent on Russia and Iran for energy imports. According to the Turkish Ministry of Foreign Affairs, Turkey imports 75% of its energy and is one of the fastest-growing energy markets in the world. Right now the country imports nearly all of its natural gas and almost 90% of its oil. With an expectation that its natural-gas and electricity demand will continue to grow, Turkey is looking to diversify its energy supply to avoid being overly dependent on only a few suppliers.

One way the country could diversify its supply is to search for domestic hydrocarbons. Oil and gas exploration and extraction in Turkey is steadily increasing, leading some experts to suggest that the country could hold vast resources. International oil companies have already begun working in two areas: the Thrace Basin and the Southeast Anatolia Basin. According to the US Energy Information Administration (EIA), there may also be shale-gas reserves in the Salt Lake Basin and the Sivas Basin, both located in the central region of the country. These two basins, however, have not been explored much yet.

The Turkish Petroleum Company and Shell have teamed up on joint ventures in the Silurian Dadas formation of the Southeast Anatolia Basin. This basin, located in southeastern Turkey, could contain up to 100 billion barrels of oil and tests have also shown gas in the area. The EIA estimates 10 tcf of risked, technically recoverable shale gas in the Silurian Dadas formation. Other companies, including Anatolia Energy, and TransAtlantic Petroleum, have also begun drilling in the area.

In 2016, the US Geological Survey estimated that the Thrace Basin, located in western Turkey, could contain up to 787 bcf of recoverable, conventional gas reserves and up to 1,630 bcf of recoverable, unconventional gas reserves. The Hamitabat gas field, discovered in the Thrace Basin in 1970, quickly became the most significant gas-producing area of Turkey and accounted for 85% of Turkey's total gas production, according to the EIA.

Multiple Canadian companies, led by Transatlantic Petroleum Ltd. and Condor Petroleum through its subsidiary Marsa Turkey BV, are currently drilling in the basin. The company has drilled several successful test wells and plans to begin producing gas in the Thrace Basin by mid-2017. Another company, Valeura Energy Inc., has made several natural-gas discoveries in both the Thrace Basin and the Southeastern Anatolian Basin.

Exploration in the Mediterranean has not gone as well. Turkey has fought with Greece over the specific boundaries of its



Exclusive Economic Zone (EEZ). At the Cairo Declaration conference in late 2014, Egypt, Greece, and Cyprus warned Turkey to discontinue gas exploration projects in the Mediterranean until maritime borders were made clear. In response, Turkey dispatched its naval forces to protect its Mediterranean projects, and its relations with eastern-Mediterranean gas giants, such as Egypt, have suffered. Deteriorating relations with its neighbors could complicate Ankara's aspiration for becoming a regional energy hub and a focal point for gas export pipelines to Europe.

A gas deal with Turkey could prove lucrative for some partners, especially if it opened an opportunity to funnel gas to Europe. A successful deal could go a long way towards healing the rifts among eastern-Mediterranean countries. While some countries are more prone to strike a deal with Turkey, others are still eager to find alternative ways to circumvent Ankara's aspirations by offering different pipeline routes to the thirsty European market. For eastern-Mediterranean gas producers, the most political viable option may be to focus on Cyprus and Greece and to invest in developing LNG terminals for shipments to the Europe.

But Turkey's dream to become a regional energy hub is based on the combination of its enormous potential gas resources (both onshore and offshore) and its close proximity to over 75% of the world's proven oil and gas reserves. In pursuit of this objective, Turkey has already committed to mega projects, including the Trans Anatolian Natural Gas Pipeline (TANAP), which will begin transporting 16 bcm of natural gas from Azerbaijan through Turkey to southern European markets starting next year; and the TurkStream project, which will move Russian gas through a 900 km Black Sea pipeline to Turkey's gas network. Construction on this project should begin during the second half of 2017.

Turkey, however, will need to repair relations with its neighbors in order to capitalize regional gas market. Experts say that Cyprus' natural resources have been a motivating factor for Turkey's efforts at reconciliation.



## Cyprus: Uncertain Gas Reserves

Cyprus has large gas reserves, estimated at over 4 tcf and valued at over \$50 billion. However, recent announcement that the area in block 11 –which is adjacent to Egypt's mega gas concession Shorouk – has only around 0.4 TCF worth of natural gas reserves, deeming it commercially unviable. Nevertheless, the world is taking notice; major international energy companies including ExxonMobil, Total, Qatar Petroleum, and Eni have snapped up licenses to explore for hydrocarbons off the island's southern coast. Total will soon begin exploratory drilling next door to the Zohr field and excitement is building about the possibility of a major find.

Natural gas was first discovered off Cyprus' shores in 2011. The Aphrodite field, discovered by Noble Energy, is estimated to contain 120 to 129 bcm of gas. Cyprus aims to begin exporting gas from the field by 2019. The country has two possibilities to develop its export infrastructure: build a LNG export terminal to ship gas to Europe or use existing terminals in neighboring countries. Egypt is one possibility. A pipeline to Egyptian LNG export terminals would be cheaper than building a new terminal. In mid-2016, Cyprus signed a deal with Egypt to transfer gas via pipeline.

A lack of infrastructure may hamper Cyprus' domestic consumption of its offshore gas. Currently, Cyprus relies heavily on foreign-oil imports. The country generates most of its electricity through oil-fired power plants. In order to shift to natural gas, Cyprus would have to build new infrastructure, including power plants or facilities that could use the gas and overland pipes to deliver it. In October 2016, Cypriot President, Nicos Anastasiades, requested a study about the importation of LNG to help meet rising domestic demand and also achieve Cyprus' climate targets. Imported gas would be a stop-gap measure until the country can start utilizing its own gas supplies.

Cyprus has been pursuing trilateral partnerships with its neighbors to support its energy development. Egypt signed a declaration with Cyprus and Greece in October 2016 to work together on implementing energy projects. In part, the declaration read: "We recognize that the discovery of important hydrocarbon reserves in the eastern Mediterranean can serve as a catalyst for regional cooperation."

Egypt and Cyprus have also strengthened bilateral ties. President Anastasiades described relations with Egypt as "excellent and strong" after a meeting with Egyptian President El Sisi. In August 2016, the Egyptian government signed a preliminary deal with Cyprus to build an underwater pipeline from the Aphrodite field to the Egyptian coast. While there are plenty of hurdles to overcome, including funding, the pipeline

is slated to be operational by 2020.

Before gas from the Aphrodite field or any new finds go anywhere, Cyprus will need to resolve relations with Turkey, which is strongly opposed to the development of natural-gas resources unless Turkish Cyprus shares the profits or until a satisfactory resolution is reached to unify the island. If Turkey and Cyprus can work out their differences, then both countries will profit from an end to decades of hostility. Cyprus' exports could help both Egypt and Turkey meet their domestic demand.



## Greece: Crossroads of Energy Corridors

Greece's geography may help its own bid to become an energy hub in the region. The country, itself not a big gas consumer, is well positioned to transport gas to European markets. Greece is slowly recovering from the worst recession in its history and the country hopes that a blossoming energy sector will contribute to economic growth.

"Greece is at the crossroads of two energy corridors," Greece's Energy and Environment Minister, Giorgos Stathakis, explained to the Athens-Macedonian News Agency in early January. "One runs in the East Mediterranean and the second one runs through Southeast Europe. Greece is at the centre of both of them and so there are the conditions to become an energy hub, which will help the security of supply to Europe through the diversification of energy supply routes."

Greece has a small number of proven oil and gas deposits. But most of the country has not been explored for hydrocarbons. In the early 1970s, Greece discovered its first hydrocarbon reserves in the Prinos Basin, and most exploration and development attention has been localized in this area. Greece relies heavily on oil for its energy needs, and current domestic gas production is negligible. In 2014, oil comprised 54% of total energy consumption while gas, at approximately 3.5 bcm per year, made up only 8% of domestic energy consumption. The Institute of Energy for South East Europe estimates that gas consumption will almost double by 2025. Greece's demand for electricity is increasing and the country has constructed new gas-fired power plants. Greece must look to its neighbors to meet the country's growing energy needs. In 2012, Greece imported three-fourths of its gas from Russia and Turkey via pipeline and the remaining stock was LNG, mainly coming from Algeria.

Greece is surrounded by hydrocarbon-rich neighbors, so it makes sense for the country to ramp up exploration efforts. Low oil prices, a technically difficult landscape, and the country's recent economic troubles, have dampened the investment climate. Greece has been seeking to attract investment over the past year by offering exploration and development licenses to companies such as Total, Hellenic Petroleum, and Edison. If significant gas fields are discovered, Greece's economic and energy future could brighten.

Even without a major hydrocarbon discovery, Greece can utilize its strategic geographical location to ensure its importance in the Mediterranean energy scene. Greece has several major pipeline projects in the works. The Trans Adriatic Pipeline (TAP) will transport gas from Azerbaijan to Italy, crossing Greece on its journey. Construction began on Greece's 550-kilometer section in mid-2016. The pipeline, with an initial annual capacity of 10 bcm, should be operational in 2019. "Once complete, TAP will be a major asset in European energy security tool box," said European Commission Vice-President for the Energy Union, Maroš Šefčovič, in a May 2016 press release. Greece has also agreed to a deal with Russia to extend the Turkish Stream through Greece, a project that will involve laying a 450 km of pipeline to reach the main European gas markets. A third major project is the IGB, a 180-km pipeline between Greece and Bulgaria that will transfer up to 4.3 bcm per year. The pipeline is expected to be operational in 2018, but has already suffered several years of delays.

Greece has also been in talks with Israel and Cyprus about building a 1,400-km pipeline to transport Israeli and Cypriot gas to Europe. The pipeline is estimated to cost \$5.7 billion.

Complicating the issue, Greece suffered from poor relations with Turkey. Greece's relations with Turkey have been contentious for decades, exasperated by the Cyprus issue and territorial conflicts. Some analysts warn that Turkish-Greek relations are at their lowest point in twenty years.

Europe wants new sources of gas and will be motivated to support cooperation between Greece and its neighbors to ensure that gas flows through Greek pipelines. Yet while Greece is well positioned to become a regional energy hub due to its strategic location and proximity to the European gas markets, the competition is stiffening.





## Lebanon: To Live up to Its Potential

Lebanon may have offshore natural-gas resources, up to 25.4 trillion cubic feet by one estimate, but the country has yet to explore its hydrocarbon potential. The country relies heavily on imported oil, which accounts for 95% of its consumption. Lebanon has been grappling with several serious issues that have drawn attention away from oil and gas exploration, but recent developments indicate that the country may be shifting its focus toward its energy sector.

One reason that Lebanon cites for the failure to develop its resources is an ongoing conflict with Israel. Lebanon has disputed Israeli gas finds along their contested maritime border. Geopolitical considerations have also impeded its hydrocarbon exploration.

Despite these challenges, Lebanon is now poised to open its offshore waters to exploration. The new government issued several decrees in early January that authorized the division of offshore blocks and the issue of tenders. Lebanon also officially offered five offshore blocks for bidding in a first licensing round.

## Competing for Regional Energy Hub

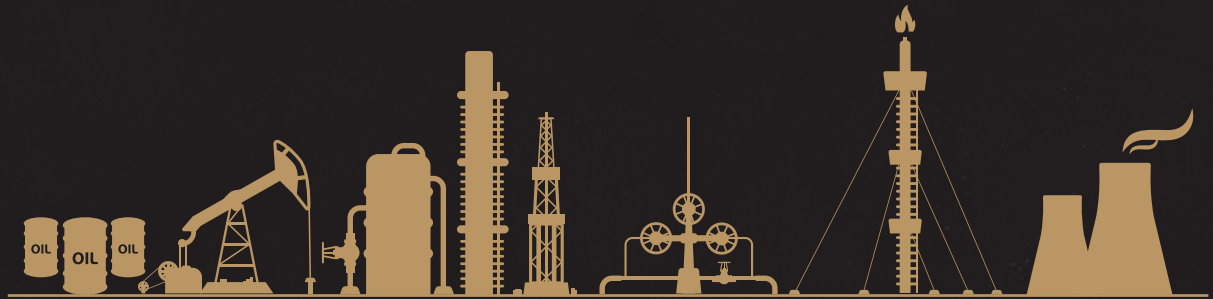
The eastern Mediterranean gas market is shaping up to become a major zone of competition, as Egypt, Turkey, Cyprus, and Greece all aim to become the regional gas hub.

Egypt is on track to arrange gas imports to meet its growing domestic demand in the short term and in the near future should be able to increase its production to meet its internal needs. Once its internal needs are met, the country will have an opportunity to resume exports in the region and beyond. Cyprus and Greece will play a decisive role as transmission channels for extracted gas in the offshore zones to be shipped to Europe. Turkey, while striving to impose its strategic role, faces many challenges from its neighbors. Turkey may soon seek a greater cooperation with Cyprus in order to facilitate the development of the Aphrodite gas field.

Energy and politics are intertwined in the eastern Mediterranean. Developing gas resources in the region can help pave the way towards energy security and thus lead to a new era of regional cooperation.







WWW.EGYPTOIL-GAS.COM

13D Sherif Salama Street - Takseem El Laselky - New Maadi, Cairo, Egypt

 [www.egyptoil-gas.com](http://www.egyptoil-gas.com)

 [info@egyptoil-gas.com](mailto:info@egyptoil-gas.com)



(+20) 2 25164776

(+20) 2 25172052

(+20) 2 27547569



(+20) 2 25172053