

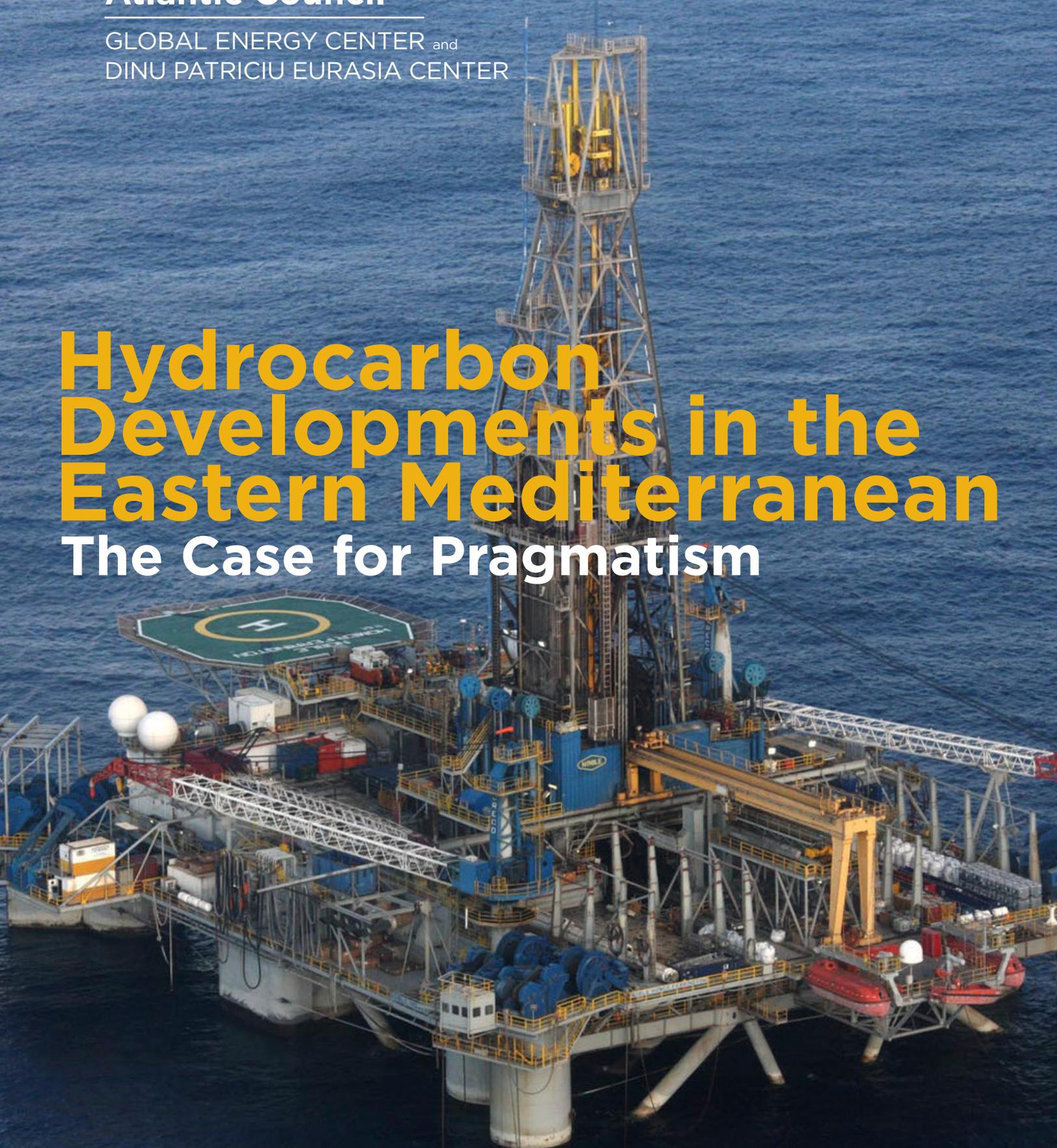


Atlantic Council

GLOBAL ENERGY CENTER and
DINU PATRICIU EURASIA CENTER

Hydrocarbon Developments in the Eastern Mediterranean

The Case for Pragmatism



By Charles Ellinas
With John Roberts and Harry Tzimitras
Foreword by David Koranyi

Hydrocarbon Developments in the Eastern Mediterranean The Case for Pragmatism

By Charles Ellinas
With John Roberts and Harry Tzimitras
Foreword by David Koranyi

Eurasian Energy Futures Initiative

As a joint initiative of the Atlantic Council's Global Energy Center and Dinu Patriciu Eurasia Center, the Eurasian Energy Futures Initiative covers critical energy issues in the wider Eurasian space.

ISBN: 978-1-61977-477-3

Cover photo credit: REUTERS/Cyprus Public Information Office. The Homer Ferrington gas drilling rig located in an offshore block on concession from the Cypriot government, November 2011.

This report is written and published in accordance with the Atlantic Council Policy on Intellectual Independence. The author is solely responsible for its analysis and recommendations. The Atlantic Council and its donors do not determine, nor do they necessarily endorse or advocate for, any of this report's conclusions.

August 2016

I TABLE OF CONTENTS

Foreword	1
Executive Summary	2
Israel, Cyprus, and Egypt: The Commercial and Political Context for Gas Development	5
Egypt: The Impact of Zohr	9
Cyprus: Gas Development and a Cyprus Settlement	11
Israel: Development and Regulation	14
Other Prospective Producers	16
Export Prospects: Regional Cooperation	17
Export Prospects: The Israel-Cyprus-Turkey Triangle	19
Marine Transportation and a Pipeline to Greece	24
Europe's Interest	25
Prospects for an Eastern Mediterranean Gas Trading Hub	26
Conclusion: A Need for Realism	28

I FOREWORD

The Atlantic Council, through its Eurasian Energy Futures Initiative,¹ covers energy and climate change issues that are of crucial importance from both a transatlantic and global perspective.

Hydrocarbon resources in the Eastern Mediterranean have been at the forefront of the Initiative's agenda since 2013, while the Council as a whole has been active in driving transatlantic engagement with the region.

The Council has taken a twin-track approach: promotion of analytical work and facilitation of dialogue on developing the Eastern Mediterranean's hydrocarbon resources in a manner that supports regional cooperation on a host of issues, including energy infrastructure development, regulatory and legal frameworks, environmental issues, and bilateral ties. The objectives are simple: to contribute to the resolution of regional political tensions and security challenges and to improve European energy security.

The Council's programming aims to assist a general political dialogue on reconciliation, with special regard to a comprehensive Cyprus settlement; the—frozen—Israeli-Palestinian peace process; rapprochement between Turkey and Israel; and improvement in Israel's relations with the Arab world, with special regard to Egypt and Jordan. It also feeds into the thinking about the future of the whole Mediterranean as part of the Council's strategic foresight work and scenario analysis.

The Eastern Mediterranean's hydrocarbon discoveries have massive consequences for the region, even though when considered on a global scale they are relatively small. They possess the potential to forge new commercial ties and to promote practical cooperation in a region that is so commonly characterized by turmoil, refugee crises, the ongoing Israeli-Palestinian issue, economic challenges in Egypt and Jordan, and, until recently, tensions between Turkey, Europe's fastest growing gas market, and Russia, its main supplier. In the context of broader US and European interests in the region, the Eastern Mediterranean discoveries have the potential to constitute a truly positive element alongside other hopeful developments in regional cooperation, notably the ongoing Cyprus settlement negotiations and the hope that the Iran nuclear agreement and the return of Iranian oil to the international energy markets will contribute to greater stability.

Sorting out viable Eastern Mediterranean hydrocarbon production and export options remains a fascinating geopolitical puzzle. It is clear that developing these resources will be driven by the market, but also heavily influenced by domestic and regional politics, which will continue to reshape the map.

This report—whose authors are among the foremost experts of the region and its energy markets—aims to provide a comprehensive overview of the state of play of Eastern Mediterranean hydrocarbon developments as of mid-July, 2016. It presents the latest updates on key political, security, and energy market developments in the Eastern Mediterranean and beyond. It outlines the various export scenarios and—in hope of contributing to a more stable and prosperous Eastern Mediterranean—concludes with policy recommendations for key government and business stakeholders.

David Koranyi
Director
Eurasian Energy Futures Initiative
Atlantic Council

¹ The Eurasian Energy Futures Initiative is a joint program of the Global Energy Center and the Dinu Patriciu Eurasia Center, focused on critical global and regional energy challenges.

I EXECUTIVE SUMMARY

Israel and Cyprus need to be able to export gas if they are to justify the considerable investment required to develop the Leviathan and Aphrodite gas fields and to enable companies developing Israel's Leviathan field and Cyprus' Aphrodite to monetize their assets. This requires access to export markets. In an ideal world, this would probably be achieved by pipelines. But while this report considers a pipeline from Israel to Turkey to be practical in the event of a Cyprus solution, in the interim commercial context and in the aftermath of the failed coup in Turkey, marine transportation may be required. This includes production and transportation in the form of compressed natural gas (CNG) or liquefied natural gas (LNG) that can complement rather than hinder the Cyprus settlement process.

In today's uncertain economic and political conditions, and not least in an era of low gas prices, export targets need to be local and flexible. Between them, Israel and Cyprus have the ability to produce as much as 25 billion cubic meters (bcm) per year for twenty years, enough to cover half of Turkey's current demand or one-sixth of current Russian supplies to Europe.

In the absence of pipelines, marine transport by means of either floating CNG or floating LNG (FLNG), would enable Eastern Mediterranean (East Med) gas to access large volume markets in Turkey and energy-short communities such as the Greek islands and Cyprus itself, and possibly southeast Europe, while simultaneously ensuring access to markets in the European Union (EU), if and when prices there become attractive to Eastern Mediterranean producers.

CORE ECONOMIC AND TECHNICAL CONSIDERATIONS

None of these projects will be realized unless they are commercially viable and low risk. This makes it necessary to focus on local and regional markets in view of current low gas prices in both the Asian and European gas markets and the increasing possibility that such low prices will prevail for quite some time. Turkey offers a market where gas prices are relatively high and is thus highly attractive for nearby Eastern Mediterranean producers.

In an ideal world, Eastern Mediterranean producers would access the Turkish market by pipeline through Cypriot waters or across Cyprus itself. Rapprochement between Turkey and Israel may eventually support such a pipeline. In addition, this report considers that

a start should be made using floating production and marine transportation systems and argues, furthermore, that such developments can also play a useful role in promoting the ongoing negotiations for a Cyprus settlement.

CORE POLITICAL CONSIDERATIONS

Israel is in a relatively strong position to initiate exports now that it has concluded an agreement to resume diplomatic relations with Turkey. Gas has been a key driver in the Israeli-Turkish rapprochement, with Israel looking to find a local market and with Turkey, one of the world's fastest growing gas markets, looking to find suppliers to cover both demand increases and to serve as a prospective substitute should Russia halt gas deliveries to southeast Europe via Ukraine. Israel has now approved a revised gas regulatory framework agreement that embraces exports. This followed the High Court decision on March 27, 2016 to suspend the gas regulatory framework agreement reached between the government and Leviathan field developers Noble Energy, Inc. and Delek Group, Ltd., by declaring the stability clause as unconstitutional, giving the government one year to sort it out. The revised deal has opened the way to develop Israeli gas, particularly the Leviathan gas field.

Cyprus is in a delicate position. Its gas development is not linked in any official way to the ongoing negotiations for a settlement of the wider Cyprus problem, but, in practice, it is sometimes hard to disentangle one from the other. Gas development can serve as an incentive for a Cyprus solution, both in the form of a pipeline from Israel to Turkey and through development of Cyprus' Aphrodite field; development options, however, need to be sufficiently pragmatic and flexible to ensure they can be put in place in the absence of any peace settlement.

EGYPT AND OTHER PROSPECTIVE EASTERN MEDITERRANEAN PLAYERS

In Egypt, by far the largest current and prospective producer in the region, the focus is currently on servicing high levels of domestic demand. Recent discoveries and moves toward liberalization of gas prices are changing this, enabling Egypt to become self-sufficient and resume LNG exports. Due to low global gas prices and for commercial reasons, the possibility that Israeli and Cypriot gas could be indirectly exported to Europe in the form of Egyptian

LNG is now looking increasingly remote. However, Egypt may still play a role as a second export route at a later stage: if larger quantities are available from Israel and from possible new discoveries in Cyprus; and if and when prices recover sufficiently to make this viable, assuming Egypt's LNG terminals do not become saturated. Developments in Egypt are taking place at a rapid pace driven by a hungry domestic market and high gas prices, with enough gas projects committed for development to cover both domestic gas market needs and exports.

Other prospective regional players, such as Lebanon and the Palestinian Authority, are not in a position to contribute to international markets in the foreseeable future. In Lebanon, government actions is stalled, and the Palestinians are hemmed in by Israeli restrictions and only possess enough gas for domestic use.

RECOMMENDATIONS

There is a need to build from ongoing regional discussions and accords between current and prospective producers, notably Egypt, Israel, and Cyprus, and prospective transit or consumer states such as Greece, to develop regional cooperation mechanisms that Turkey can subsequently join. US and European diplomacy should continue to push toward a cooperative regional development framework that takes into account commercial realities and existing arrangements.

Development of energy resources is usually driven by commercial considerations and requires careful long-term planning. This holds true for the Eastern Mediterranean. But there are other key factors. For the companies developing such fields as Leviathan and Aphrodite, one factor is the provision of stable and secure regulatory and political frameworks. This means that both the Israeli and Cypriot governments have to develop realistic and stable energy policies and plans.

There is serious Russian interest in developing Leviathan, either alongside existing partners or in the event of Noble Energy pulling out of the project. This raises the prospect of Russia pushing for a field development program focused on FLNG. Even though Russia's strained relations with Turkey are thawing, this still raises questions as to whether any such

development would be focused on excluding Turkey from prospective export destinations, a move that could have wider consequences for the development of hydrocarbons in the region, and as to whether Russia would seek to incorporate Aphrodite into its development plans. However, apart from the political challenges, this option faces commercial challenges due to the low price of gas.

A NEED FOR REALISM

There is a need to promote realistic thinking in both Israel and Cyprus. Israel naturally requires a steady supply of gas from its own offshore fields to ensure its energy security, but it also needs to ensure a steady flow of gas exports to help pay for field development. In a domestic context, the proven discovery at Aphrodite means that Cyprus has a useful resource for domestic supplies. Yet, Cypriot demand, taking into account both parts of the island, is and will remain relatively limited, and this means Cyprus will need to cooperate with others so that the bulk of future production can be exported. Given the state of the global market and regional uncertainties, such exports may be delayed well into the next decade.

At the same time, there is a need for informed public dialogue. Public expectations need to be managed since export volumes, in international terms, are likely to be modest unless further discoveries are made.

For Cyprus in particular, there needs to be a firm emphasis on further drilling, which requires promotion of realistic longer-term plans and policies to support exploration and commercial field development, while managing expectations.

Likewise, a degree of realism is required if Cyprus is to create the conditions in which it could become a regional gas hub. In ten years or so, gas will generally be hub-priced in Europe. In geographical terms, Cyprus is well placed to become a gas-trading hub. However, governments cannot mandate the creation of hubs; they emerge organically because buyers and sellers find it congenial to do business there. The role of the Cypriot government should be to create such an atmosphere. Fostering the conditions for an energy hub is included in the EU's energy security

US and European
diplomacy
should continue
to push toward
a cooperative
regional
development
framework that
takes into account
commercial realities
and existing
arrangements.

HYDROCARBON DEVELOPMENTS IN THE EASTERN MEDITERRANEAN

package, and the European Commission has expressed willingness to assist with its development.

The government of Cyprus will also have to prepare both itself and Cypriot societies in both parts of the island for the reality that, in the event of a settlement being reached for the Cyprus problem, it will be the responsibility of the new federal government to approve gas development plans. This new federal government's remit would embrace not only production and exports from Aphrodite and how financial benefits will be used, but also such issues as resolution of exclusive economic zone (EEZ) delineation, future block leasing and drilling, and use

of Cypriot territory or EEZ waters for the transit of gas exports from Israel. It has been suggested that profits from the development of Cyprus gas fields could be used to fund the cost of reunification. For this to happen first Cyprus must find markets and sell its gas profitably and in a timely manner, something that is not proving easy. As a result, other realistic funding options should also be considered. In the meantime, there is a need for enhanced public dialogue on both parts of the island, not least to address false expectations that existing or future gas discoveries will somehow yield a rapid bonanza for ordinary Cypriots, wherever they live.

ISRAEL, CYPRUS, AND EGYPT: THE COMMERCIAL AND POLITICAL CONTEXT FOR GAS DEVELOPMENT

THE BASICS

Egypt will be at the center of Eastern Mediterranean oil and gas activities in 2016 with new production expected to come online, along with prospects of major new discoveries. However, Egypt is experiencing serious pressure on its energy resources due to past misguided policies and ever-increasing demand. This is one of many challenges the country now faces as it develops its indigenous resources.

Israel, following resolution of its regulatory issues, will be looking to work out how the 620 bcm of proven reserves in its giant Leviathan field (see map 1) can best be harnessed to meet both economic and security concerns regarding domestic and export requirements.

Cyprus will be looking to find ways to cooperate with both Israel and Egypt, and beyond, to find ways to monetize the relatively modest Aphrodite field with 128 bcm in proven reserves, perhaps more if the forthcoming drilling is successful, and to assess how gas development might contribute toward an end to the island's forty-one years of political partition.

As elsewhere, the development of potential offshore gas resources in all three countries necessarily requires a practical combination of geological conditions, to produce the resource base; of commercial conditions, to justify production and possibly exports; and of political conditions, which help shape the balance between domestic and export production and the direction of exports. However, these factors affect prospects for development of gas in Egypt, Israel, and Cyprus in very different ways.

GEOLOGY: EGYPTIAN PLANS AND CYPRIOT HOPES

On August 30, 2015, Italian energy company Eni announced the discovery of Zohr, a large field that could hold around 850 bcm in the Egyptian Shorouk Block.² Zohr is the first discovery in carbonate rock formations in the Eastern Mediterranean, whereas previous discoveries off Cyprus and Israel were in porous sands. In Cyprus, Energy Minister Yiorgos

Lakkotrypīs has said that the discovery of Zohr had led the government to carry out a total reevaluation of the energy potential of Cyprus' EEZ, and that it was on the basis of these results that it had decided to proceed to a third licensing round. At present, Israel is more concerned with working out how to exploit existing proven resources. However, more recently it has been focusing on geological prospects for further discoveries, and may announce an offshore licensing round within 2016.

COMMERCIAL CONDITIONS

Energy development in the Eastern Mediterranean, as elsewhere, will have to take place in the context of low oil and gas prices. At some stage—perhaps sooner rather than later—excess supplies will dry up and prices will stabilize and then edge forward. There is a widespread view in the industry that oil prices may rise to \$50-\$60 per barrel by the end of 2016 and into 2017 but stay low to the end of this decade and possibly beyond, with the US shale industry acting as a cap on any price rally. In the meantime, however, producers will not keep producing and investing in hydrocarbons at a loss.

2016 is proving to be even more difficult for gas prices, with huge quantities of LNG entering what is already an over-supplied market. Gas prices will stay low, hovering around \$4-6 per million British Thermal Units (mmBTU), making life for the LNG industry very difficult. With more new LNG still to come, this will persist well into the 2020s.

There is also a view that the world is entering a long period of plenty at a time when global energy demand may be peaking. Technology developed for shale oil and gas is unlocking development of more resources at lower costs. In addition to potentially vast shale oil and gas resources, the development of renewables is increasing and becoming cost competitive. Also energy efficiency is increasing while energy intensity is going down. As a result, oil and gas prices are now expected to stay low for a long time.

Gas producers in captive domestic markets, such as Egypt and Israel, will fare better as prices are less dependent on global oil and gas price factors. Turkey

² Charles Ellinas, "ENI's giant discovery," *in-cyprus*, September 5, 2015, <http://in-cyprus.com/enis-giant-discovery/>.

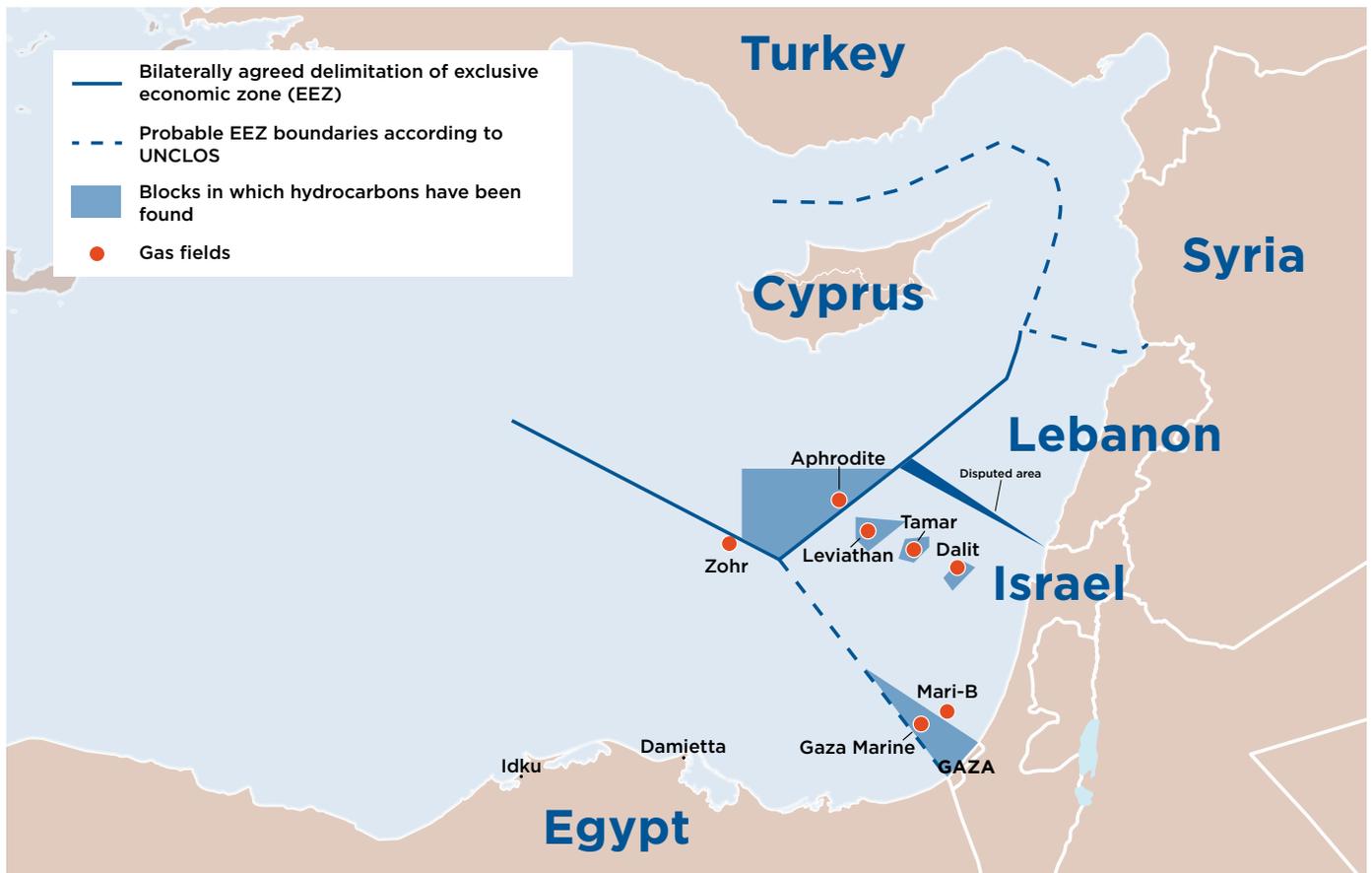
HYDROCARBON DEVELOPMENTS IN THE EASTERN MEDITERRANEAN

Table 1. Major gas discoveries in the Eastern Mediterranean

Gas-field	Probable reserves (bcm)	Discovery date	Status
Tamar - Israel	280	2009	Producing
Leviathan - Israel	620	2010	Pursuing gas sales
Aphrodite - Cyprus	128	2011	Pursuing gas sales
Zohr - Egypt	845	2015	Being developed

Source: Compiled by the author.

Map 1. Exclusive Economic Zones in Eastern Mediterranean



Source: IISS, *Economist*.

is almost completely dependent on imports, with the cheapest gas price being \$10 per mmBTU. This is what makes it a viable market to export Eastern Mediterranean gas, provided the Cyprus problem is solved.

For oil and gas producers around the world, 2016 is a year of further cost cutting, restructuring, refinancing when possible, and, in some cases bankruptcy. For companies such as Noble, which are exclusively focused on production and have weak balance

sheets³—and that are involved in all major field developments off Israel and Cyprus—2016 will be particularly tough. Eni is faring better, but adverse results in 2015 have left it in a weaker position.

³ Ed Crooks, “Oil companies brace for a grim 2016 amid sustained price crash,” *Financial Times*, December 28, 2015, <http://www.ft.com/intl/cms/s/0/8831ada6-ad6c-11e5-b955-1a1d298b6250.html#axzz46vb7HS5a>.



Leviathan oil rig, March 2013. *Photo credit:* British Embassy Israel/Flickr.

In general, the emphasis will be on production projects that have quick and healthy paybacks, such as Zohr, while limiting exploration and longer-term developments. For Cyprus and the Eastern Mediterranean, this means deferring expensive drilling as long as possible.

There is a need for both commercial and political stability. Gas sales contracts usually run for fifteen to twenty years. Their commercial viability depends on gas prices, project costs, regulatory stability and certainty, risks, and the ability to ensure uninterrupted exports over the contract period. Moreover, LNG exports from the region will have to compete in an increasingly challenging market. Qatar's agreement in January to renegotiate its long-term LNG sales contracts with India and to lower the price by 50 percent, to \$6.50 per mmBTU—and to waive any penalties—sent shockwaves through the rest of the global LNG-industry. Long-term contracts, which until recently have been the corner-stone underpinning commercial viability of LNG projects, are no longer sacrosanct. LNG buyers have the upper hand and have been demanding and receiving new terms reflecting the current reality. Any exports from the Eastern Mediterranean in the form of LNG will have to match such competition, including US Cheniere LNG exports to Europe, if they are to succeed and be commercially viable. This is what makes gas exports from Israel and

Cyprus to Egypt for liquefaction and reexport as LNG such a challenge.⁴

However, Egypt may still play a role as a second export route at a later stage, if and when prices recover and larger quantities are available from Israel, and from possible new discoveries in Cyprus, assuming Egypt's LNG terminals do not become saturated.

For Egypt, one immediate issue concerns its ability to pay debts owed to oil and gas companies, including its LNG suppliers. If this problem goes unchecked, it will affect Egypt's financial credibility. Combined with persistent terrorist threats, this could affect future investments.

For Israel, the priority is to balance the need for sufficient offshore development to ensure there is enough gas to meet all the country's current and anticipated future requirements while also producing sufficient gas for export to justify initial investment costs. All this has to be set against a background in which a large section of Israeli public opinion—and until recently the Israeli Supreme Court—is questioning the way in which a small cluster of companies wound up controlling the vast majority of the country's productive gas assets.

⁴ Charles Ellinas, "East Med gas export risk," *in-cyprus*, January 10, 2016, <http://in-cyprus.com/east-med-gas-export-risk/>.

HYDROCARBON DEVELOPMENTS IN THE EASTERN MEDITERRANEAN

For Cyprus, the issue is how and when to monetize the Aphrodite gas field in the context of low price market conditions.

POLITICAL FACTORS

The Eastern Mediterranean is a volatile region fraught with complex geopolitics. There is a broad understanding that Turkey constitutes a natural market for Eastern Mediterranean gas production—and also that the Turkish market cannot be accessed by Eastern Mediterranean gas in the absence of a solution to the Cyprus problem. Likewise, there is an understanding that Egypt's new gas discoveries should result in a revival of Egyptian gas exports, but that this requires effective implementation of government plans to phase out domestic subsidies and thus control domestic consumption and free up some of the new offshore production for export via the LNG facilities at Idku and Damietta (see map 1).

Additionally, significant political factors have been delaying Israel's exploration activities—Lebanon's offshore gas development is at a standstill due to internal political paralysis, and development of Palestine's small 28 bcm Gaza Marine field off the Gaza Strip remains blocked by de facto Israeli government action (see map 1).

"Terrorism, government stability, adherence to formally signed contracts, ability to maintain payments, are some of the key risks to be considered when committing to gas exports to Egypt,"⁵ or the possibility of Egypt becoming a regional gas export hub. This is particularly important when one considers that project viability and profitability require export certainty and continuity over the fifteen to twenty-year contract period.

Terrorism has both direct and indirect commercial consequences. The sabotage of the gas pipelines crossing Sinai in 2011 and 2012 and the shutting

down of the EMG gas pipeline to Israel in 2012 not only led Israel to lose confidence in gas imports, but also resulted in an arbitration decision by the International Chamber of Commerce to award \$1.76 billion in compensation to Israel Electric Corporation.⁶ This, in turn, led to Egypt's immediate suspension of gas negotiations with Israel. Even though this dispute is likely to be resolved, such inability to espouse arbitration and accept its results poses a significant risk to future investments.

Similarly, when Egypt ran into gas shortage problems amid political turmoil, it unilaterally decided to divert all gas going to the LNG plants at Damietta and Idku to support domestic consumption.⁷ This prompted an arbitration action, which left LNG plant operators Union Fenosa and BG awaiting the outcome of international arbitration claims.

CYPRUS PROBLEM

Arguably the best export prospect for Israeli gas is delivery from Leviathan by pipeline to Turkey, which is highly dependent on resolution of the Cyprus problem and resolution of the uncertainties created by the failed July coup in Turkey.

In addition, all development in the region has to be considered against the background of the conflict in Syria. Involvement in the conflict of participants who are both well-armed and have an antipathy to one or more of the states developing Eastern Mediterranean resources ensures

a degree of external political risk that has to be taken into account. This has already shaped Israeli attitudes toward development of onshore gas facilities, which are seen as prospective targets for Hezbollah, the Lebanese Shia militia currently aiding the Assad regime in Syria.

Arguably the best export prospect for Israeli gas is delivery from Leviathan by pipeline to Turkey, which is highly dependent on resolution of the Cyprus problem and resolution of the uncertainties created by the failed July coup in Turkey.

⁵ Ibid.

⁶ Reuters, "Egypt to appeal \$1.76 billion award to Israel in gas dispute, freeze gas import talks," December 6, 2015, <http://www.reuters.com/article/us-iec-egypt-natgas-appeal-idUSKBN0TP0HL20151206>.

⁷ Charles Ellinas, "East Med gas export risk," *in-cyprus*, January 10, 2016, <http://in-cyprus.com/east-med-gas-export-risk/>.

EGYPT: THE IMPACT OF ZOHR

Egypt has gone through turmoil over the last few years. The government of President Abdel Fattah al-Sisi has brought a degree of stability, but terrorism and security risks remain quite serious, as evidenced by the downing of a Russian passenger jet last year and regular incidents on the Sinai.

A major reduction in tourist revenues, coupled with reduced foreign government grants due to the oil-price crisis, has led to foreign exchange shortages and fiscal deficits. The shortfalls create difficulties for Egypt in maintaining its payments for LNG imports and reducing its debt to international oil companies, thus representing a serious factor in 2016.

GAS PRODUCTION

There are grounds for optimism, however, with the development of Zohr (see map 1), Eni is progressing appraisal drilling, and has embarked on a fast-track development program in 2016, with first gas expected end 2017–early 2018.⁸ Appraisal drilling has already confirmed that Zohr, in Egypt's Shoruk block, is a truly giant reservoir and is likely to lead to the discovery of more gas beneath Zohr. On this basis, it is estimated that peak production could be 27 bcm/y by 2019-20. There are also good indications that there is oil at greater depths, possibly extending into Block 11 in the Cyprus EEZ (see map 2). If so, this would more than justify French energy company Total's readiness to extend their lease (to search for oil and gas off the coast of Cyprus) by two more years.

Following the successful conclusion earlier this year of negotiations on prices for gas brought on shore, BP and other gas companies are progressing exploration and development of their assets. 2016 is seeing the development of new gas fields, which is helping Egypt achieve its goals to become self-sufficient by 2020 and to restart LNG exports by 2022.⁹

2016 is seeing the development of new gas fields, which is helping Egypt achieve its goals to become self-sufficient by 2020 and to restart LNG exports by 2022.

BP is proceeding with development of the 5,140 bcm West Nile Delta concession with an estimated investment of around \$12 billion by BP and its partner. Production is scheduled to start in 2017 and is expected to reach up to 1.2 billion cubic feet a day (bcf/d, equivalent to around 12.25 bcm/y),¹⁰ which is roughly equivalent to around one quarter of Egypt's current gas demand.¹¹ All the produced gas will be fed into the country's national gas grid. BP is also developing the Atoll gas field in the East Nile Delta, which could add another 3 bcm/y to the Egyptian grid by 2017.¹²

Italian energy company Edison could be announcing a gas discovery similar in size to the Zohr discovery in the near future, according to an Egyptian Natural Gas Holding Company (EGAS) official. The results of seismic investigations of its North Thekah and North Port Fouad concessions, adjacent to Eni's Shorouk concession, will be announced later in 2016/2017.¹³

The Anglo-Dutch company Shell is expected to progress development of its shale gas prospects in Egypt, in partnership with Apache and, following completion of its \$52 billion acquisition of BG, will likely announce how it intends to operate, or dispose of, BG's assets in Egypt, including the Idku LNG facility (see map 1). However, given Shell's commitment to dispose of \$30 billion assets on completion of the BG integration, the huge reduction in Shell's 2015 anticipated profits, its

8 Charles Ellinas, "ENI's giant discovery," *in-cyprus*, September 5, 2015, <http://in-cyprus.com/enis-giant-discovery/>.

9 Charles Ellinas, "Egypt gas impact: Cyprus and Israel," May 1, 2016, <http://in-cyprus.com/egypt-gas-impact-cyprus-israel/>.

10 MidnightTrader.com Staff, "ETF Preview: Broad Market ETFs Gain in Line With Futures as Oil Prices Rise: Focus on Fed Minutes," *MidnightTrader.com*, April 5, 2016, available via NASDAQ: <http://www.nasdaq.com/article/mid-day-etf-update-etfs-stocks-extend-losses-as-concerns-over-weak-q1-earnings-mixed-economic-data-weigh-cm601975#ixzz49Cx7ocf5>.

11 Oil Review Middle East, "BP to develop Egypt's West Nile Delta gas fields," March 9, 2015, <http://www.oilreview.me/gas/bp-to-develop-egypt-s-west-nile-delta-gas-fields>.

12 Karolin Schaps, "BP agrees to fast-track Egyptian Atoll gas field," *Reuters UK Business*, November 5, 2015, <http://uk.reuters.com/article/uk-bp-egypt-gas-idUKKCNOSU22120151105>.

13 *Arab Energy News*, "Petroceltic & Edison finished 3d Seismic on North Port Fouad Block," December 29, 2015, <http://arabenergynews.com/en/?p=7407>.

decision to pull out of an Abu Dhabi project, and to shelve a major gas project in Canada with the dismissal of over ten-thousand staff, contraction rather than expansion is to be expected.

EGYPT'S PRIORITIES

The Egyptian General Petroleum Corporation's (EGPC) own immediate main priorities are boosting overall energy supply, addressing its historic accumulated debt, reforming energy subsidies, and modernizing governance of the sector—formidable tasks. It also needs to create the right environment to encourage renewed investment and thus ensure results from the licensing round of October 2015. In this round, Eni, BP, Total, and Edison were awarded new exploration rights in four blocks out of the twelve offered. The outcome was good but less than expected, so EGAS is launching a new licensing round in 2016.

Egypt is facing many problems. Ian O. Lesser, senior director of foreign and security policy at the German Marshall Fund of the United States recently said: "The economic outlook in Egypt is anything but positive. This will be observed by foreign investors. It does not mean that projects cannot go ahead, but it seems that the overall climate is simply not a healthy one."¹⁴ Recent bombings, terrorism, and insurgency in the Sinai epitomize Egypt's security problems.

Egypt also has a huge financial exposure due to decades of energy subsidies and population growth, which led to an ever-increasing gas demand that has resulted in EGPC struggling to meet its payment obligations to foreign energy operators. These factors created the current situation of energy shortages and the need to import expensive LNG to guarantee electricity supplies.

Recent data on gas production highlight the problems. Egypt's average natural gas production declined by 4.5 percent in 2015, close to 4.4 bcf/day, down from 4.6 bcf/day in 2014.¹⁵ This comes at time when Egypt is experiencing acute gas supply shortages. The

slowdown is a result of foreign gas companies not keeping pace with depleting reserves, by bringing up new gas production. The Egyptian Petroleum Ministry expected natural gas production to reach an average of 5.4 bcf/day, and consumption to reach 5.57 bcf/day in fiscal year 2015-16.¹⁶ Initial indications show the beginnings of a recovery process but not to these levels until later this decade.¹⁷

Increasing the gas price is one of the measures the Egyptian government has taken in recent months to control the ever increasing domestic consumption and to encourage exploration in order to boost declining domestic gas production. Recently, Egypt increased the price of gas it will pay to Eni and Edison from new discoveries to a maximum \$5.88 per mmBTU, and a minimum of \$4, up from \$2.65 in 2015.¹⁸

Egypt has now opened its oil and gas sector by offering more exploration blocks in its latest licensing rounds. In this way, Egypt hopes to increase production of oil and gas to feed its domestic energy demand and contribute to recovery of the economy. Egypt potentially has over 2,000 bcm of gas (excluding Zohr), enough to cover its needs for a long time to come. It has a target to reach self-sufficiency in energy by 2020, and it looks likely to achieve it—new gas development projects, already initiated, can add 50-60 bcm per year by 2020.¹⁹ This goal is reflected in the LNG import contracts Egypt has entered into, which have durations between three to five years.

Also, there is increasing activity and interest in developing non-conventional gas and renewable energy projects, mostly solar and wind, to increase the power production in Egypt and bridge the electricity supply-demand gap.

At a government level, Egypt remains optimistic about energy stability, not only about catching up with gas production for its own needs, but also resuming gas exports after 2022.

14 Sergio Matalucci, "Situation in Egypt is Deteriorating, says GMF's Ian Lesser," *Natural Gas Europe*, July 13, 2015, <http://www.naturalgaseurope.com/situation-in-egypt-is-deteriorating-says-gmf-ian-lesser-24607>.

15 Mohammed Adel, "Egypt's gas production declines in 2015 by 205m cubic feet," *Daily News Egypt*, June 28, 2015, <http://www.dailynewsegypt.com/2015/06/28/egypts-gas-production-declines-in-2015-by-205m-cubic-feet/>.

16 Ibid.

17 Charles Ellinas, "Egypt gas impact: Cyprus and Israel," May 1, 2016, <http://in-cyprus.com/egypt-gas-impact-cyprus-israel/>.

18 *allAfrica*, "Egypt: EGPC Agrees with Eni On Gas Prices Between U.S.\$4 and U.S.\$5.88," November 24, 2015, <http://allafrica.com/stories/201511251037.html>.

19 Ellinas, "Egypt gas impact: Cyprus and Israel," op. cit., <http://in-cyprus.com/egypt-gas-impact-cyprus-israel/>.

CYPRUS: GAS DEVELOPMENT AND A CYPRUS SETTLEMENT

Gas development in—or rather off—Cyprus has two contrary characteristics: slow progress regarding development of the already discovered Aphrodite field, and anticipation that Egypt's Zohr discovery will prove the precursor of a successful third licensing round in Cyprus. The tension between these two elements contributes to the uncertainty surrounding the role that gas might play in contributing to a solution of the Cyprus question, as potential benefits appear to be receding, well into the next decade.

EXPLORATION AND PROSPECTS

Cyprus has granted a two-year extension to Eni's lease of Blocks 2, 3, and 9 (see map 2), until 2018, but further drilling appears to have been postponed into 2017. The two wells drilled by Eni in Block 9 in 2014-5 failed to reveal exploitable quantities of hydrocarbons. Eni's priority in 2016 will be the appraisal and development of Zohr, while limiting other spending including for exploration drilling. Drilling off Cyprus is scheduled to take place later in 2017.

Similar comments apply to Noble, which ended up selling half of its stake in Block 12 and Aphrodite to BG on the cheap. Noble and its partners, which now include Shell, have relinquished the remainder of Block 12 in May and plan to concentrate on developing Aphrodite (see map 1). Total is faring better and is planning to drill in Block 11 (see map 2), late in 2016-early 2017. Prospects look reasonable.

Cyprus declared on March 21, 2016, a third licensing round for hydrocarbon exploration in its EEZ involving blocks 6, 8 and 10 (see map 2).²⁰ This is in the wake of a series of meetings which the president of Cyprus held with the CEOs of Eni and Total, who confirmed their interest for further exploration in the Cyprus EEZ. Energy Minister Yiorgos Lakkotrypis confirmed that there had been great interest from a number of energy companies. New companies are thought to be interested in taking positions in the Cypriot EEZ, while Total is understood to be interested in taking back Block 10.

The plan is to award new licenses in December 2016 or early 2017. By that time, oil prices should be on the

way to recovery and hopefully talks on the Cyprus problem will have run their course, creating the right environment for a successful new licensing round.

APHRODITE AND EXPORT PLANS

The companies developing Aphrodite formally declared the field's commerciality in June 2015 and have been discussing a formal development plan for the field since then. With BG joining the partnership, and with Shell now taking over BG, a further review of this plan has been implemented. So far, no gas sales have yet been identified.

Until recently, the central plank of Cyprus gas export plans consisted of sales to Egypt for its domestic use, as well as liquefaction at Idku (see map 1), and subsequent export as LNG to Europe. However, in 2016 efforts to export Aphrodite gas to Egypt will probably come to an end, challenged by the economics of low LNG prices (in Europe and globally) which are expected to last well into the 2020s. Previous efforts to develop a liquefaction facility at Vasilikos, either to serve Eastern Mediterranean gas development as a whole or simply to serve Cypriot gas alone, were missed and are simply not viable in the current environment. It is best to view the prospective development of an LNG terminal at Vasilikos in a ten-year-plus framework, strictly dependent on both the discovery of further resources and a recovery in international gas prices.

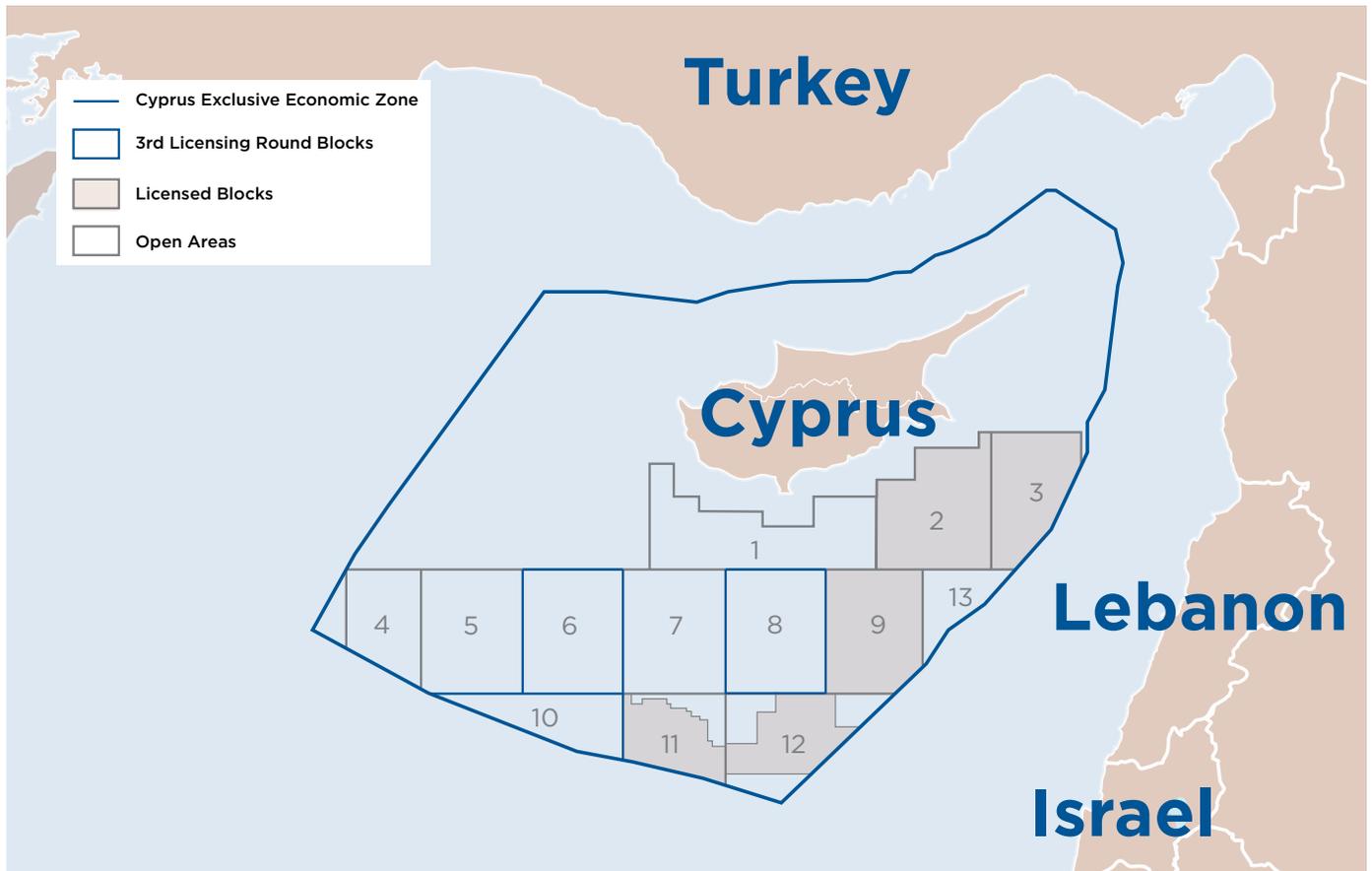
As of 2016, much will depend on progress in resolving the Cyprus problem. At this stage, two possible outcomes can be usefully considered.

1. In the absence of a Cyprus solution: With the opportunity for gas sales to Egypt gone, and with low prices making the development of an indigenous LNG liquefaction plant at Vasilikos only possible in a long-term context, the only other options left would appear to be those based on marine options, either floating compressed natural gas (FCNG) or floating liquefied natural gas (FLNG). However, despite their merits, neither of these has been considered seriously so far. So 2016 may see development of Aphrodite back on the planning table, with gas exports receding well into the 2020s.²¹

²⁰ *Natural Gas Europe*, "Cyprus Declares Third offshore round," March 24, 2016, <http://www.naturalgaseurope.com/cyprus-declares-third-offshore-round-28786>.

²¹ Charles Ellinas, "Gas dynamics and prospects in East Med," *in-*

Map 2. Cyprus' EEZ and offshore exploration blocks



Source: Ministry of Energy, Commerce, Industry, and Tourism of Cyprus.

2. *With a Cyprus solution:* If current talks between the leaders of the two Cypriot communities do lead to a solution of the Cyprus problem, options for export-led development of both Cypriot and Israeli gas become much more clear. Israel and Turkey would be able to progress negotiations on a subsea export pipeline more seriously, especially following re-establishment of diplomatic relations, since such a line would have to pass through Cypriot EEZ or territorial waters. Moreover, Cyprus would be in a position to negotiate itself into such a deal, so that it could use the line to export Aphrodite gas to Turkey. Given Turkey's determination to reduce its reliance on Russian gas, it is worth noting that the growing Turkish market could potentially accommodate all the gas that Israel and Cyprus are able to produce for export, which could amount to as much as 25 bcm per year for twenty years, either for its own use or for onward export to Europe. Thus, providing quite an incentive for Turkey to work toward a resolution on the Cyprus problem.

However, before any agreement on such a pipeline can be negotiated, in addition to resolution of the Cyprus problem, there is the key issue that a federal system of government will have to be both created and installed in Cyprus, while so far there has been no preparation concerning plans for hydrocarbons development within such a system.

DEVELOPMENT OF HYDROCARBONS IN A FEDERAL CYPRUS

Promising progress has been made in negotiations to solve the Cyprus problem. What follows is predicated on the assumption that current negotiations between Greek Cypriots and Turkish Cypriots will be completed successfully, leading to a federal solution for Cyprus.

The Cyprus government's position regarding hydrocarbons is well known. These will come under the federal government and will be developed for the benefit of all Cypriots. But this topic will not be addressed until near the end of negotiations. However, for a Federal Cyprus to work effectively, some form of preparation is needed during the negotiations phase,

cyprus, February 21, 2016, <http://in-cyprus.com/dynamics-and-prospects/>.

HYDROCARBON DEVELOPMENTS IN THE EASTERN MEDITERRANEAN

as far as business-orientated associations and ways of cooperation are concerned.

The success of the federal system will depend greatly on the ability of the two sides to work together. This needs to be underpinned by joint business-orientated associations in all sectors to develop the necessary working relationships and conditions. Also, human relations need to be in place between members of both communities, so as to facilitate cooperation after a solution. A good example of successful cooperation is the interaction between the two Chambers of Commerce. This success could be harnessed and replicated by organizing informal contacts between hydrocarbons experts from the two communities, under joint auspices.

CURRENT SITUATION

At present, there is hardly any contact between the two communities concerning hydrocarbons. There has been some contact at internationally organized meetings, but even though such interactions have generally been positive, both sides admit that “they do not know each other.”

The need for greater interaction was discussed at a meeting of the Greek-Turkish Forum in Nicosia in 2014, where it was received positively. There was general support for the view that contacts should be established—and that they should be broached from a business angle.

Not much has been done since then. But, perhaps now is the time to revisit this. There is a window of opportunity as leaders of the two communities continue their discussions on how to frame a new federal administration.

DANGERS

Doing nothing is an option fraught with danger, particularly at a time when Turkey appears to be taking an assertive position that there is only one route for export of Cyprus gas post-solution: through Turkey to Europe. The failed July coup in Turkey may bring other complexities.

Unless Cyprus prepares its own arguments carefully, in a timely fashion—and for the clear benefit of the whole island—Turkey will remain in a strong position to dictate the agenda.

WHAT NEEDS TO BE DONE

Developing gas fields and ensuring profitability is the business of gas companies, not governments. Politically driven projects have little chance to proceed,

or succeed, as the know-how and funding needs to come from industry. Industry will not support these unless risks are managed, and the best commercial options are chosen.

This was amply demonstrated by the stand-off between Noble/Delek and the Israeli government on the monopoly issue. The companies stopped all activities and investment. It led to a solution framework acceptable to them.

Cyprus needs to plan. There is a need for a longer-term master plan to be prepared in conjunction with industry that maps the way forward for the future development of the hydrocarbons sector in Cyprus. Plans prepared with industry participation should be valid whether they are developed within a federal system or not.

In parallel with the above, Cyprus should also draw from relevant international experience to develop ways to enable Greek Cypriots and Turkish Cypriots and industries to get to know each other now, so that they can subsequently work together in hydrocarbons development within a federal Cyprus.

Regardless of the outcome of the Cyprus negotiations, Cypriot authorities will have to be prepared to recover lost ground and to develop hydrocarbons for the benefit of all Cypriots. Expediting this, and ensuring financial benefits from gas development in particular, will be much needed if the island is to get out of its present troubles.

Cyprus needs a credible plan to secure gas sales and to develop Aphrodite. Gas in the ground is not worth anything. Cyprus needs a plan that is responsive to global markets, which together with political developments will play a leading role in dictating the timing for project investment and field development. Miss the right moment and Cyprus may not realize the full benefits of its natural resources. With global oil and gas moving into an era of “plenty,” the risks for Cypriot gas becoming stranded are increasing.

This means that the Cyprus government has to proceed with the preparation of plans to facilitate exploration and development when the time should prove appropriate, building on the launch of the third licensing round. Such plans cannot be delayed if, in the event of a solution to the Cyprus problem, Cypriots are to benefit. Plans should also be prepared in case a solution is not achieved. However, expectations that there will be quick fiscal benefits from the development of hydrocarbons are unrealistic and need to be managed.

ISRAEL: DEVELOPMENT AND REGULATION

A host of questions currently surrounds Israeli gas development. Is energy a national security issue? Is it a social justice issue? What balance should be struck between the retention of gas resources to ensure domestic energy security and their availability for exports? Is the approval of the agreement on the gas regulatory framework going to put a stop to these arguments?

REGULATORY UNCERTAINTY

Such questions prompted both uproar and introspection throughout 2015. The new gas regulatory framework deal, brokered by the government and Noble/Delek (the principal shareholders in Leviathan, and Tamar, (see table 1)) and which Prime Minister Benjamin Netanyahu signed in December 2015, is critical to industry, since it is intended to provide regulatory stability for ten years, to encourage investment. It is difficult to invest \$6-7 billion in Leviathan when the rules keep changing. One view holds that the Israeli public has had its say; now, it is time to move on.²² Approval of the revised deal in May 2016 is helping to bring gas developments in Israel back on track.

A key goal of this deal is to unlock development of the 620 bcm Leviathan gas field, with a view to developing export-oriented production as well as supplies for domestic consumption. Under the deal, Noble/Delek will have to meet a 2019 deadline for bringing Leviathan's gas to the market. It is this deadline that gives urgency to the development of Leviathan.

Israel has been looking for a solution to the gas regulatory issue since late 2014, when the head of the country's Antitrust Authority decided to withdraw an agreement reached earlier on the monopoly issues surrounding the development and sale of gas from the Tamar and Leviathan gas fields (see map 1).

When he signed off on the gas regulatory framework agreement, Netanyahu had to invoke Article 52 of the Restrictive Trade Practices Law (1988) to circumvent the Antitrust Commissioner's objections to the gas deal, which seeks to settle what companies should have a stake in which fields.²³

However, in 2016, Israel was still looking for a complete solution to a messy situation that has seen complex monopoly issues become enmeshed with local politics, since it is not clear that the government's use of

Article 52 to circumvent the ruling of the Antitrust Commissioner is sufficient to bind subsequent governments to observe the ruling, and thus ensure operational and regulatory stability for investments covered by the agreement. On March 27, 2016, Israel's High Court suspended the gas regulatory framework agreement reached between the government and Noble/Delek as unconstitutional, giving the government one year to sort it out.²⁴ However, on May 22, 2016, a revised deal was approved by the government.

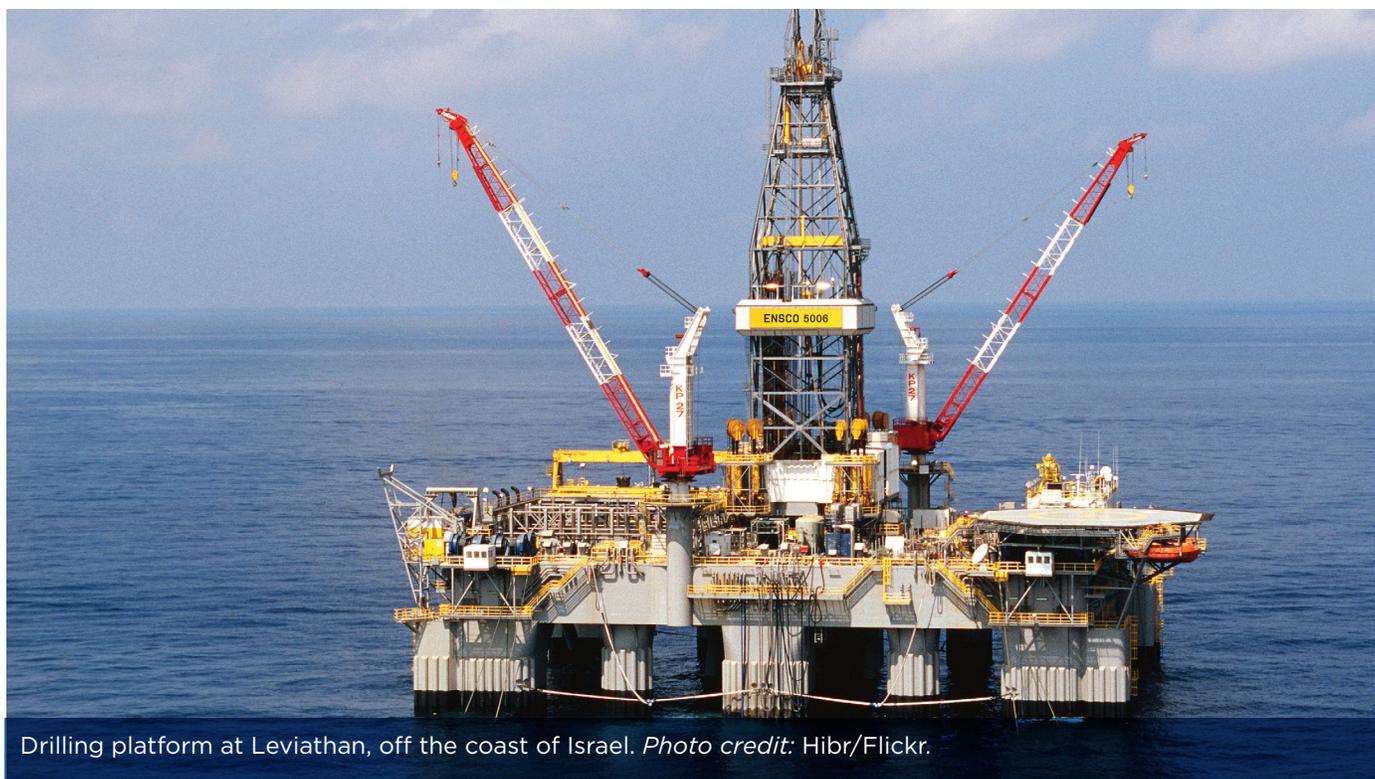
Regulatory uncertainty was not only jeopardizing development of Leviathan, but it has also been

driving international oil companies (IOCs) away. In May 2014, Australia's Woodside Petroleum was ready to sign a deal to enter Leviathan. But at the last minute, Woodside walked away saying it would be willing to reconsider its decision if Israel enacts "material changes" in the regulatory and investment environment.²⁵

Regulatory uncertainty was not only jeopardizing development of Leviathan, but it has also been driving international oil companies (IOCs) away.

²² Ibid.

²³ Ya'acov Zalel, "A Short History of the Regulatory Gas Framework in Israel," *Natural Gas Europe*, December 24, 2015, <http://www.naturalgaseurope.com/short-history-regulatory-natural-gas-framework-israel>.
²⁴ Yonah Jeremy Bob, Herb Keinon, Niv Elis, Michelle, and Malka Grossman, "Gas bombshell: Netanyahu's policy struck down by High Court," *Jerusalem Post*, March 27, 2016, <http://www.jpost.com/Israel-News/gas-draft-449319>.
²⁵ Sharon Udasin, "Woodside terminates Leviathan deal," *Jerusalem Post*, May 21, 2014, <http://go.shr.lc/1RF1bCw>.



Even with a deal now in place, it is still unlikely that in an uncertain regulatory environment Israel will attract any other company to develop a hugely complex, deep offshore gas field or to carry out further exploration. Investors need to be protected from retroactive changes to the regulatory system and the terms of operating licenses that they receive from Israel, and in this respect they may wait to see how the new deal works out in practice.

EXPORT UNCERTAINTY

It had been hoped that the gas regulatory framework deal in Israel would remove the prospect of court action and clear the way for the development of Leviathan. This is now the case, but surmounting export hurdles offers a fresh set of challenges.

In signing the deal, Israel's Prime Minister Netanyahu stressed the importance of engaging with Israel's neighbors in the gas sector, particularly with Cyprus, Egypt, Jordan, the Palestinian Authority, and Turkey. He considers this important to Israel's economy, security, and foreign relations.²⁶

In terms of exports, the government and the companies developing Israel's gas fields, notably Leviathan, view Israel's neighbors in very different ways. For commercial reasons there is less clarity as to whether exports to Egypt should be encouraged, although there is corporate understanding of the Israeli government's determination to ensure gas sales to both Jordan and the Palestinian Authority for strategic reasons. The region is fraught with risk and solutions that might seem justifiable and appropriate today but may not prove so tomorrow.²⁷

From time to time, gas pipelines to Turkey or Egypt might appear good options, but what happens if situations change in the future, as happened to the Egypt-Israel gas pipeline? Multiple export routes might be needed to minimize risk.²⁸

With a compromise agreement in place, Egypt is likely to lift the ban on gas imports from Israel originally imposed in the wake of the International Chamber of Commerce arbitration award. This has prompted fresh negotiations with BG (now Shell) on possible delivery of Israeli gas to Egypt for export as LNG. But in a low-price market and a febrile domestic Egyptian political atmosphere, commercial and geopolitical

²⁶ Sharon Udasin, "Netanyahu signs off on controversial natural gas deal," *Jerusalem Post*, December 17, 2015, <http://www.jpost.com/Israel-News/Politics-And-Diplomacy/Netanyahu-signs-off-on-natural-gas-deal-437620>.

²⁷ Ellinas, "Gas dynamics and prospects in East Med," op. cit., <http://in-cyprus.com/dynamics-and-prospects/>.

²⁸ Ibid.

challenges may thwart this. Shell's view is that the politics surrounding the major gas reserves in the Eastern Mediterranean, such as Cyprus and Israel, as well as Egypt, have to be dealt with before gas could flow into Shell's idle Idku liquefaction plant—provided of course it is also commercially viable, which is a separate challenge. It is too early to say what the solution might be.

However, Egypt may still buy gas from Tamar in the short term, i.e., over the next five years until it becomes self-sufficient, provided it gets access to a pipeline.

This means that Turkey is likely the main, and preferred, market for Leviathan gas. And if export systems involving Turkey cannot be secured, then the risk for Israel is that the gas may well stay in the ground for a long time, unless of course FLNG or FCNG are implemented. Noble is not likely to sell its stake in Leviathan and will proceed with development of Leviathan only when there is an acceptable, comprehensive solution to these problems.

| OTHER PROSPECTIVE PRODUCERS

LEBANON

Lebanon is surrounded by a complex and troubled region, particularly Syria and Israel, with inevitable consequences on the balance of power between rival entities, both inside and outside. Seismic surveys conducted over 70 percent of Lebanon's exclusive economic zone show prospective gas reserves are high.²⁹ After a flurry of activity, gas

exploration in Lebanon has been frozen for more than two years. Without a stable environment and government, it is difficult to see when activities will be resumed.

GREECE

Greece is currently too preoccupied with its many problems, and therefore development of its hydrocarbons does not appear to be a priority at present. In addition, such development may also require resolution of EEZ boundary issues with Libya and Turkey. However, there is renewed interest in restarting offshore licensing.

²⁹ Middle East Strategic Perspective, Archive | Lebanon-East Med Oil & Gas, "A national oil company for Lebanon? A premature and incomplete debate," *Executive Magazine*, May 11, 2016, <http://www.mesp.me/category/oilgasupdates/>.

EXPORT PROSPECTS: REGIONAL COOPERATION

Regional cooperation is required in order to ensure the effective development of Eastern Mediterranean resources as a whole. At its most basic level, this requires bilateral cooperation. For example, Cyprus and Israel will need to finally conclude their long-standing negotiations on a unitization agreement to ensure development of any resources that may span the boundary between their respective EEZs (see map 1), such as Aphrodite. Egypt and Cyprus concluded a unitization agreement in December 2013.

MEDITERRANEAN ENERGY COOPERATION FRAMEWORK

Closer cooperation within the Mediterranean framework can be built block by block, as demonstrated by the January 27, 2016 tripartite summit of Israel, Cyprus, and Greece (a parallel process already links Egypt, Cyprus, and Greece and, indirectly, Jordan as well).³⁰ Export-oriented gas policies can help cement links between the countries. This was not an effort to isolate Turkey, but rather to create a regional balance of power in which Turkey can find its place once its leaders change course.³¹

The opportunities provided by the significant offshore energy finds in recent years, including Leviathan and Zohr, are dramatic insofar as they can positively bolster the ability of the forces of stability to hold and consolidate power in the face of various disruptive forces in the region. Important as this may be, it cannot yet be translated into concrete policy agendas without other contributing factors, which might help cement the sense of “like-mindedness,” and re-affirm the profound historical and cultural affinities of key players. Restoration of diplomatic relations between Israel and Turkey, and talks between the two Cypriot communities, demonstrate that this journey has already begun. Hopefully the aftermath of the failed July coup in Turkey will not change this.

The potential for cooperation is particularly important in developing energy prospects. It is a necessary

condition for the proper exploitation of the Eastern Mediterranean gas finds of recent years, and others that may yet follow, as well as for better utilization of modern clean technologies and the harnessing of renewable resources. All this lends emphasis to the options for growth and cooperation implicit in improving economic ties among Mediterranean nations.

EASTERN MEDITERRANEAN'S PROSPERITY AND FUTURE

These opportunities are now more vital than ever for the future of the region.³² Economic trends in the Mediterranean basin as a whole have been largely negative over the last five years. Southern European economies have suffered either long-term stagnation or worse, a distinct decline accompanied by very high levels of unemployment. Greece, which found itself at the epicenter of the worst crisis in the history of the Eurozone, was engulfed by political as well as social turmoil, bringing her economy to the point of collapse. The financial crisis in Cyprus threw a hitherto lively economy into a dangerous tailspin, although fortunately the Cypriot economy now looks to be on the road to recovery. Egypt's economic predicament is another aspect of this problem.

All this lends emphasis to the options for growth and cooperation implicit in improving economic ties among Mediterranean nations. The exact trajectory of development and use of the gas fields has yet to be determined. It is clear, however, that exports would serve more than just economic interests: they can, and indeed must, be seen as a tool for cementing relations with key neighbors.

Even more dramatic in terms of the immediate impact of opportunities for trade and cooperation could be, and should be, joint ventures in the broad field of energy, and specifically, the effective use of the large gas fields discovered in the Eastern Mediterranean in recent years. These have been the subject of heated controversy in Israel throughout 2015, leading to complex political maneuvers under the pressure of populist opposition to gas exports. As it happens, this has also obliged Israel's government to take a clear

30 Charles Ellinas, “The power of three (Tripartite summit),” *in-cyprus*, February 6, 2016, <http://in-cyprus.com/41583-2/>.

31 Charles Ellinas, “Energy Goals May Unify Eastern Med: Interview with Eran Lerman,” *Natural Gas Europe*, February 17, 2016, <http://www.naturalgaseurope.com/energy-goals-may-unify-eastern-med-academic-28199/>.

32 Ibid.



Cypriot President Nicos Anastasiades, Israeli Prime Minister Benjamin Netanyahu, and Greek Prime Minister Alexis Tsipras shake hands in Nicosia, Cyprus, on January 28, 2016. *Photo credit: Reuters/ Yiannis Kourtoglou.*

stand on the importance of regional cooperation. With the gas regulatory framework clearing its final hurdle, Israel is pursuing potential gas export deals proactively to enable development of Leviathan, important also to Israel's security of energy supply. In the immediate future, this will see Israel looking to dispatch gas to Jordan and the Palestinian territories in order both to ease their power generation problems and to improve regional security. Following rapprochement, Israel is also in discussions to export gas to Turkey and Egypt. In the longer term, it also means finding more distant markets for gas from Leviathan, should commercial factors allow it.

Regional cooperation can be secured through political alliances of like-minded forces, willing to confront the firestorm of destructive forces threatening the future of the countries in the region. But they must first find ways to put their capabilities and efforts together. Through the evolution of existing architectures of

cooperation, and the emergence of new ones, it may be possible to create the conditions under which the vision of regional commonality and prosperity can be realized.

As Turkey charts its course after the Russian crisis and the failed coup in July, and as work on a Cyprus settlement continues (with an expectation that these talks will make real progress), it remains to be seen whether political conditions will enable Turkey to be woven into this network. Meanwhile other Mediterranean players, with Italy in the lead, are taking note of these emerging alliances and may be looking for opportunities to expand this type of modular dialogue. This may be the path to future prosperity for the countries of the Eastern Mediterranean.³³

³³ Ellinas, "The power of three (Tripartite summit)," op. cit., <http://in-cyprus.com/41583-2/>.

EXPORT PROSPECTS: THE ISRAEL-CYPRUS-TURKEY TRIANGLE³⁴

Gas is changing Israel's national security and foreign policy perceptions. Eastern Mediterranean policy, in particular, is being driven by energy considerations, both in terms of field development and export markets.

A key focus is Turkey. Israel and Turkey have been negotiating on a pipeline to transport and sell Israeli gas to Turkey and possibly to Europe via Turkey, since 2014. About 8-10 bcm/y could be consumed within Turkey,³⁵ but additional volumes of Israeli and Cypriot gas could be exported to Europe through Turkey, provided this is commercially viable.

Two political developments are required to enable such a project: the restoration of diplomatic relations between Israel and Turkey and a resolution to the Cyprus problem. The first has already been achieved, the latter is still a work in progress.

Normalization of relations between Turkey and Israel are expected to enable negotiations for gas sales to proceed. This would place Cyprus in an important position, since such a pipeline will have to pass through its EEZ (see map 1). It would also affect development of Aphrodite.

At the Wilson Center in Washington, DC, the idea was discussed that a possible reconciliation between Israel and Turkey would be a good sign for Cyprus, where both Greek and Turkish Cypriots are trying to reach a final solution to the island's forty-one-year-old partition.³⁶

According to the Atlantic Council's Nonresident Senior Fellow with the Dinu Patriciu Eurasia Center and former US Ambassador to Azerbaijan Matthew Bryza, a comprehensive settlement of the Cyprus problem "is required for any Israel-Turkey gas pipeline to attract financing, since no major bank or private equity

fund is likely to press ahead with such a big project against the expressed will of an EU member-state like Cyprus."³⁷ Based on international treaties, such a pipeline could, in theory, still be built even if Cyprus disagrees, however, the risk is that it could unravel the fragile regional balances achieved so far. Likewise, any potential gas exports from Cyprus to Turkey would first require achieving a Cyprus problem solution.

Israeli views about the Eastern Mediterranean remain a work in progress.³⁸ There is a burgeoning alignment with Cyprus and Greece, which Israel considers increasingly important, particularly with regards to security and support within the EU. But alignments are not necessarily alliances, and in this regard Israel does not see this alignment as a substitute for improved relations with Turkey, which is also an important priority. Relations with Cyprus and Greece will be developed in parallel, rather than at the expense of relations with Turkey, or vice-versa.

Israeli cooperation with Turkey has clear advantages for both countries, but still involves a degree of uncertainty. In addition to commerce and gas, it now contains another dimension important to both sides: containment of Iran. However, there is also uncertainty. In Israel, Turkey is seen as economically important but politically complex, and potentially unreliable, with too much dependence on one man, the Turkish president. Turkey needs Israel now, but questions remain about the status of the relationship if geopolitical conditions should change, as, for example, through another Gaza flare-up. Turkey's naval policy in the Eastern Mediterranean might constitute a threat to Israeli interests, and also to Cyprus, especially since it is energy-driven.

GEOPOLITICS OF EASTERN MEDITERRANEAN ENERGY

In the Eastern Mediterranean, the picture is changing all the time. Not that long ago, and probably to some

34 Charles Ellinas, "Turkey-Israel-Cyprus could this be the next gas triangle?" *Sigma Live*, December 23, 2015, <http://www.sigmalive.com/en/blog/charles.ellinas/2015/12/993/turkeyisraelcyprus-could-this-be-the-next-gas-triangle>.

35 Amiram Barkat, "10 bids for Leviathan export tender to Turkey," *Globes*, March 23, 2014, <http://iglob.es/?en926526>.

36 Charles Ellinas, "Time for Regional Alliances," *in-Cyprus*, January 16, 2016, *Tekmor Monitor Blog*, <http://tekmormonitor.blogspot.com/2016/01/time-for-regional-alliances-in.html>.

37 Ya'acov Zalel, "Ambassador Bryza Speaks About the Strategic and Economic Interests of Israel and Turkey," *Natural Gas Europe*, December 30, 2015, <http://www.naturalgaseurope.com/ambassador-bryza-reconciliation-israel-turkey-economic-interests-27316>.

38 Ellinas, "Gas dynamics and prospects in East Med," op. cit., <http://in-cyprus.com/dynamics-and-prospects/>.



extent now, an energy link between Israel and Cyprus with Egypt was considered a high priority, partly driven by US diplomatic efforts to strengthen cooperation in the region. However, commercial realities are challenging this approach and, with a glimmer of hope that the Cyprus problem may be resolved, Israeli interest is turning to Turkey. Some say gas exports to Egypt and Turkey are not mutually exclusive; others doubt it.³⁹

Israel is mindful that gas deliveries to Turkey must not be driven just by Turkey's reactions following its dispute with Russia and Turkey's new-found need for alternative gas supplies. It is a long-term project requiring substantial investment and must be justifiable on its merits, longevity, and manageable risks.⁴⁰

The Cyprus problem is a key risk. In the absence of a solution, Turkey has already shown its determination to disrupt exploration and exploitation of hydrocarbons by Cyprus, demonstrating this when Noble was drilling in Block 12 in 2011 and more recently when Eni was drilling in Block 9. What will happen when further drilling and exploration licensing resume early next year, as currently planned? Additionally, what would

happen if Cyprus were to reach an agreement and proceed to export its gas to Egypt, given Turkey's views on both Cyprus and the current Egyptian government?

TURKEY: BOTH MARKET AND HUB?

Turkey is at the crossroads of Europe and Asia and as such it offers itself as a natural oil and gas transit hub from Asia, the Caspian, the Middle East, and the Eastern Mediterranean to Europe. But Turkey's problems and security risks could undermine this role.

Turkey is the sixth largest economy in Europe, with an energy demand expected to grow by around 4-5 percent both this year and next. It is particularly reliant on gas imports, which totaled close to 49 bcm in 2014, with 27 bcm coming from Russia.

The Turkish view is that the region is unstable: Until recently, Russia was confrontational; Syria is in turmoil; the Eastern Mediterranean is a region of unresolved disputes, including Cyprus.

At present, Russia seems to dominate Turkish thinking, particularly with regard to energy. Russia was, and probably still is, considered a reliable energy partner and, in view of existing long-term gas contracts, Ankara has maintained its dialogue with Moscow,

³⁹ Ibid.

⁴⁰ Ibid.

especially now that relations have thawed. Although Russia has not used energy to punish Turkey, its growing gas demand makes Turkey vulnerable. The gas supply contract whereby Russia delivers 14 bcm/y of gas to Turkey via a western route through Ukraine and the Balkans is due to end in 2021 and, if Gazprom goes ahead with its declared intention to terminate exports via Ukraine at that time, there is a risk that it may not be renewed. The contract to deliver 16 bcm/y via the Blue Stream pipeline under the Black Sea is due to expire in 2025.⁴¹

With Turkish gas demand expected to reach 65 bcm/y by 2025, Turkey has to find not only an extra 15 bcm/y in increased imports to cover growing demand but potentially also a 14 bcm/y to cover loss of western route imports, should that happen. However, with the re-establishment of relations Russian gas supplies to Turkey are not considered to be under threat. In 2014, Turkey imported 26.9 bcm from Russia, 8.9 bcm from Iran, 5.3 bcm from Azerbaijan and 7.3 bcm in LNG.

Turkey is also paying high prices for its gas, about \$15 per mmBTU to Iran, \$12 to Russia, and \$10 to Azerbaijan. This delicate balance is perhaps one of the reasons that led Turkey's president to say in January 2016: "Israel is in need of a country like Turkey in the region. We have to admit that we also need Israel."⁴²

In terms of diversification, Turkey is looking to cap reliance on any one supplier to not more than 50 percent of its needs. It is also looking to increase LNG imports from Qatar, but a major increase would require construction of new or enlarged regasification facilities. Meanwhile, its main focus is on developing a new gas pipeline to enable it to import as much as 10 bcm/y of gas from Iraqi Kurdistan by 2020 and a further 10 bcm/y shortly after that. However, given the problematic relations between the Turkish government and its own Kurdish communities, there are increasing concerns about the security and viability of such a project. This means that supplies from the Eastern Mediterranean might not only be viewed as a complement to Russian gas but possibly as a partial replacement.

Ankara realizes that import of gas from the Eastern Mediterranean and Iraq requires cooperation with its neighbors and potential partners. This may be achieved by playing an active role in promoting stability in its neighborhood. Talks with Israel and between Greek and Turkish Cypriots are part of this process, and are supported by Ankara. But Turkey needs to be more proactive in promoting such cooperation and add Egypt and Iraq into this process. Overtures to Egypt have already been made. Nonetheless, Turkey's decision-making model is in need of revision.⁴³

It is in this context that Turkey has been re-evaluating its energy strategy. It is aiming for future energy mix diversification, with natural gas demand being revised downwards through increasing use of coal, hydro, renewables, and LNG imports. Depending on how this develops, and with no threats to Russian gas supplies continuing, its need for Eastern Mediterranean gas may no longer be a priority.

Internally, Turkey is facing increasing instability, while past problems with Russia and Israel raise questions concerning the volatility of Turkish policy and thus the prospective reliability of Turkey as an energy partner.

As a result of the Mavi-Marmara incident in May 2010, Turkey severed all links with Israel.⁴⁴ Should there be a gas pipeline between Israel and Turkey, could one take its operation for granted in the event of a future flare-up between Israel and Gaza?⁴⁵

However, normalization of the Turkey-Israel relationship has now taken place. The Foundation for Political, Economic and Social Research (SETA) in Washington, an influential think tank closely associated with the Turkish government, said in January 2016 that the ongoing regional turmoil has required regional actors to adjust their positions and adapt to the new realities on the ground. However, it also notes that Turkey and Israel needed an acceptable compromise over the Gaza blockade; that has now been achieved. SETA added that the energy equation in the Eastern Mediterranean cannot be considered without Turkey, which should not be seen merely as a gas transit country to Europe, given its own domestic needs for gas and its drive to reduce reliance on Russian and Iranian gas.⁴⁶

41 Charles Ellinas, "Turkey Changes Tack for the 2020s: Energy Specialist, Interview with Hasan Ozertem," *Natural Gas Europe*, <http://www.naturalgaseurope.com/interview-turkeys-energy-strategy-towards-2020s-28302/>.

42 "Turkey and Israel need each other, says President Erdoğan," *Hurriyet Daily News*, January 2, 2016, <http://www.hurriyetdailynews.com/turkey-and-israel-need-each-other-says-president-erdogan.aspx?pageID=238&nID=93319&NewsCatID=338>.

43 Ellinas, "Gas dynamics and prospects in East Med," op. cit., <http://in-cyprus.com/dynamics-and-prospects/>.

44 Charles Ellinas, "Israel-Turkey rapprochement," *in-cyprus*, February 28, 2016, <http://in-cyprus.com/israel-turkey-rapprochement>.

45 Ibid.

46 Charles Ellinas, "Time for Regional Alliances," January 16, 2016, op. cit., <http://tekmormonitor.blogspot.com/2016/01/time-for-regional-alliances-in.html>.

HYDROCARBON DEVELOPMENTS IN THE EASTERN MEDITERRANEAN

Turkey has many muscles to flex in its economic and foreign policy. Yet, it is important to inspire confidence in its partners and neighbors. For example, “as a result of disagreements with Turkish Cypriots about who would manage water distribution, Turkey for a while shut down the water pipeline it built to the north of Cyprus. Would similar actions be taken with gas pipelines in response to disputes with the gas-supplying countries?”⁴⁷

In order to deal with geopolitical risks, Turkey needs to develop resistance tools to control repercussions coming from its regional, and potentially internal, instability. It needs to adopt a positive agenda, cooperate with potential partners and play an active role for stability building in its neighborhood.

Cyprus is a good case in point, where Turkey can both assist in and benefit from a solution. There are positive signals coming from Cyprus, with resolution of the Cyprus problem potentially in sight. Energy could be developed for the mutual benefit of two communities on the island and the countries in the region. This would open up the possibility of Israeli and Cypriot gas exported through its EEZ to Turkey and Europe (see map 1).

Overall, developing an Israeli-Turkish pipeline through Cypriot waters may indeed be a good option, particularly if Aphrodite gas exports follow the same route. However, this needs to be demonstrated through techno-economic studies, particularly for onward exports to Europe. It depends greatly on gas quantities, project costs, and gas prices. And if it all fails to materialize, other export routes include Egypt, if commercially viable and if it can accommodate gas imports, and FCNG or FLNG discussed later.

RUSSIAN INTERESTS IN THE EASTERN MEDITERRANEAN⁴⁸

In considering the Israel-Cyprus-Turkey triangle it is important to examine Russian interest in energy, and particularly gas, in the wider Eastern Mediterranean and Cyprus.

With Russia still maintaining a strong military and political presence in Syria and the region, Turkey could face a formidable barrier to its aspirations. This includes its quest to access Eastern Mediterranean gas in general and Israeli gas in particular.

Russian interest in Eastern Mediterranean hydrocarbons may be wider than just Syria. The further development of Leviathan almost certainly requires a new strategic partner. In October 2015, President Putin suggested that Israel should again consider inviting Gazprom to play a role in developing the field. In February 2016, Gazprom itself, despite being rebuffed in a 2012 attempt to secure a 30 percent stake in Leviathan, reopened talks begun in 2013 on possibly purchasing or marketing LNG from the Tamar field. For its part, the Israeli Energy Minister recently invited Russian oil and gas companies to participate in offshore exploration in Israel’s EEZ (see map 1). However, apart from the political challenges, this option faces commercial challenges due to the low price of gas. It remains to be seen if, in the present low price climate, Gazprom follows this up.

There is considerable speculation in Israel concerning a possible role for Gazprom in future Eastern Mediterranean developments. A widely publicized blog by former USAID staffer Josh Cohen, published by Reuters on February 23, argued that bringing in Gazprom to help develop Leviathan could enhance Israel’s security and strengthen its broader geopolitical position.⁴⁹

There are various prospective reasons for renewed Russian interest in the Israeli fields. Russia may not be happy with the prospect of Israeli gas competing with Gazprom on European markets in general, should that be commercially viable, and on the Turkish market in particular. Such opposition may have significant impact on Israel. Israeli national security decision-makers fully recognize the role that Russia plays in regional security, so Israel is not likely to do anything that would unnecessarily antagonize Russia. Moreover, deteriorating ties with Russia could, from an Israeli perspective, worsen conditions in Syria by strengthening Russian support for both Iran and Hezbollah in Syria and weakening the de facto freedom enjoyed by the Israeli Air Force to operate over the Israeli-Syrian borderlands.

However, at a time when the United States and the EU are both seeking to lessen Gazprom’s influence on European gas, Israel can expect intense American pressure not to work with Gazprom. But with Israel’s dwindling options to develop Leviathan, engagement with Gazprom may still receive support.

47 Ellinas, “East Med gas export risk,” op. cit., <http://in-cyprus.com/east-med-gas-export-risk>.

48 Charles Ellinas, “Russian interest in East Med and Cyprus Gas,” *in-cyprus*, March 20, 2016, <http://in-cyprus.com/russian-interest-east-med-cyprus-gas/>.

49 Josh Cohen, “Why Russia may be a smart business partner for Israel,” Reuters Africa, February 23, 2016, <http://af.reuters.com/article/commoditiesNews/idAFL2N1622FO>.



Israeli Prime Minister Benjamin Netanyahu and Russian President Vladimir Putin meet in March 2011.
Photo credit: Prime Minister of Israel/Flickr.

There is also a view in Israel that restoration of a close Israeli-Turkish cooperation will not materialize as long as President Recep Tayyip Erdoğan's AK Party remains in power.⁵⁰ Turkey also has an interest in preventing any axis emerging between Russia, Cyprus, and Egypt in the Eastern Mediterranean. And, in Israel at least, there is a strong argument that Turkey has only sought reconciliation with Israel because of its political weakness, its problems with Russia, and its desire to access Israeli natural gas. These views may gain further ground through the Israeli government reorganization, with Avigdor Lieberman having joined the government as defense minister.

This means that there are those in Israel who consider that Israel should not be in a hurry to sign any gas agreements with Turkey, while other factors, such as the failed coup in July, could also contribute to delay. Israeli officials have said that several issues still need to be resolved. Moreover, global gas prices, Noble's financial problems, and the questioning of any gas export deals pose further obstacles to the swift implementation of either Leviathan development or any deeper Israeli-Turkish cooperation. In addition,

Israel may wait until next year, to see how the Cyprus negotiations progress, before it decides on an Israel-Turkey gas export pipeline. But in the meanwhile, plans are being drawn.

RUSSIA AND CYPRUS

Russian interests in Eastern Mediterranean hydrocarbons also include Cyprus. The Russian Ambassador to Cyprus confirmed in a television interview on March 3, 2016 that Russian oil companies might be interested in taking part in the forthcoming third licensing round in Cyprus. There have already been sounding meetings with Cyprus government, and the response was positive.⁵¹

Clearly, Russia's energy interests in the region, its longer-term commitment to Syria, and its relationship with Turkey are interlinked, mostly for geo-strategic reasons. How these issues will manifest themselves in the medium term remains to be seen, but it is likely that we are only seeing the beginning of evolving Russian interests in Eastern Mediterranean gas.

⁵⁰ Ya'acov Zalel, "Israeli General says that Turkey is Unreliable," *Natural Gas Europe*, March 18, 2016, <http://www.naturalgaseurope.com/another-blow-to-israel-turkey-relationships-israeli-general-says-turkey-is-not-a-reliable-partner-28693>.

⁵¹ Ellinas, "Russian interest in East Med and Cyprus gas," op. cit., <http://in-cyprus.com/russian-interest-east-med-cyprus-gas/>.

MARINE TRANSPORTATION AND A PIPELINE TO GREECE

MARINE TRANSPORTATION

Exporting Eastern Mediterranean gas through pipelines is subject to multiple risks, particularly those with their origins in historic and current tensions between the prospective producers and consumers in the region. Only options that are under the full control of the exporting country, such as FLNG or FCNG, can eliminate this risk. The first CNG transport ship in the world, certified by the technical and inspectional services company ABS Group, has been successfully launched in Indonesia.⁵²

Such systems “could potentially unlock the full potential of Eastern Mediterranean hydrocarbons. FLNG and FCNG could also be commercially viable, limiting costs so as to compete in the southeast Europe and Turkish gas markets. They offer export flexibility [since they are] not limited to fixed destinations.”⁵³ For example, Israel could export gas to Turkey through FCNG even without a solution of the Cyprus problem. FCNG or FLNG could also unlock the development of Aphrodite, if pipeline solutions were not possible and exports to Egypt do not materialize.

FCNG

FCNG, in particular, would enable Eastern Mediterranean gas to open up new markets in the Greek islands, since it is more competitive than FLNG on short-haul operations of under 2,000 km or so. For Cyprus, Israeli adoption of FCNG as a first phase in the development of Leviathan could also assist in resolution of the Cyprus problem. With Israel and Turkey normalizing their relationship, making gas sales possible, initial exports could be in the form of FCNG. Because this would not need the consent of Cyprus, it would reduce the pressure on both sides in the ongoing delicate inter-communal negotiations. Indeed, it could serve as an incentive to the Greek Cypriots and Turkish Cypriots to conclude their negotiations successfully and thus benefit from such a major project, first by allowing a pipeline to go from Israel to

Turkey through Cyprus’ EEZ, and second, by possibly using such a system to export Aphrodite gas.

A PIPELINE TO GREECE

There has been considerable discussion in recent years about a possible Eastern Mediterranean pipeline that would carry Eastern Mediterranean gas to Europe by way of a 1,200 km subsea pipeline to Greece, and from there on to Europe. Thus, at an unprecedented tripartite summit in Nicosia on January 28, 2016, Israeli Prime Minister Benjamin Netanyahu said that Israel, Cyprus, and Greece had agreed “to plan the possibility of a pipeline that would take our common resources of gas and export them to Europe via Greece—a pipeline from Israel, Cyprus through Greece to Europe. He described this as “an audacious plan which goes alongside with our other plans vis-à-vis the exploitation of this energy resource.” He also noted that the three countries had agreed to pursue plans to install an undersea electric cable linking the electricity networks of the three countries and Europe.⁵⁴

Both the gas pipeline and the subsea cable are included in the EU’s current list of projects of common interest (PCI). But while this makes them eligible for seed funding for initial studies, it does not resolve the greater issue: whether such projects make sound commercial sense. Even if technically feasible, by the time such a gas pipeline is ready for use in six or seven years’ time (and that is an optimistic assessment) the cost for production and transporting the gas would be roughly double the expected price of gas on European markets, making such a pipeline uneconomical.⁵⁵

In this context, it should be noted that Israeli Energy Minister Yuval Steinitz has carefully kept open the option of a pipeline to Turkey, and it is reasonable to assume that in seeking to stress his interest in an Eastern Mediterranean pipeline to Greece, the Israeli Prime Minister is simply doing his best to strengthen his hand in negotiations for a pipeline to Turkey, which seems to be the preferred option.

52 China Energy News, The First CNG Transport Ship in the World Successfully Launched by Jiangsu Hantong Ship Heavy Industry Co., Ltd, February 1, 2016 (February 15, 2016 adds), <http://www.enricgroup.com/en/newsinfo.asp?id=305>.

53 Ellinas, “East Med gas export risk,” op. cit., <http://in-cyprus.com/east-med-gas-export-risk/>.

54 “Woodside terminates Leviathan deal,” op. cit., <http://go.shr.lc/1RF1bCw>.

55 “The power of three (Tripartite summit),” op. cit., <http://in-cyprus.com/41583-2/>.

| EUROPE'S INTEREST⁵⁶

The European Commission has been expressing strong interest in the Eastern Mediterranean in terms of promoting regional security and stability, but also “as an important source of hydrocarbons for Europe and to assist the countries of the region to cooperate in order to achieve this. In a regional environment of rapidly changing realities, there is a sense of urgency for regional platforms of dialogue, including civil society in addition to regional governments, to contribute to the social and economic welfare of the local populations and the protection of the regional environment.”⁵⁷

Gas consumption in Europe is recovering slowly, with 7 percent increase in demand in 2015, but is facing increased competition from renewables and energy efficiency, and future demand growth is expected to be slow. With Europe still needing to replace depletion of indigenous gas resources in the North Sea and the Netherlands, and with the European Commission backing the diversification of supplies, there are clear opportunities for new gas suppliers, such as those in the Eastern Mediterranean.

But there are major competitors as well, notably US LNG, and these are contributing to keeping prices low. Gazprom is still the major gas supplier to Europe with even lower gas prices. “East Med gas will have to compete with cheap gas if it is to gain an entry into Europe. In the end when it comes to gas sales commercial realities prevail, not politics.”⁵⁸

56 This section draws on the following article: Charles Ellinas, “Messages from Europe,” *in-cyprus*, September 15, 2015, <http://in-cyprus.com/messages-from-europe/>.

57 Ibid.

58 Ibid.

There is awareness that lack of transparency in the Eastern Mediterranean is feeding corruption. Europe supports the Extractive Industries Transparency Initiative, but it is up to the individual countries of the region to adopt and apply such practices.

“With regards to safety of offshore oil and gas operations and protection of the environment, the EU offshore directive should help. But it needs to be adopted by all countries in the region, not just Cyprus.”⁵⁹

The EU is ready to assist Cyprus to develop its hydrocarbons, especially if it appears that gas can assist reconciliation between the divided Cypriot communities. The EU may be interested to support construction of a gas pipeline through Cyprus’ EEZ to Turkey, provided the Cyprus problem is resolved and depending on Turkey’s actions following the failed coup in July. However, it has also declared a pipeline to Greece, the Eastern Mediterranean Pipeline project, to be a project of common interest (PCI) worthy of EU backing and thus entitled to receive at least a little seed funding for preliminary studies.

The Eastern Mediterranean is a region with major geopolitical challenges. As such it is a region of top priority to the EU, not just because of its gas but because of the need to achieve stability and cooperation in the development of this gas to satisfy national and regional gas demand and help regional economies.⁶⁰

59 Ibid.

60 Ibid.

PROSPECTS FOR AN EASTERN MEDITERRANEAN GAS TRADING HUB⁶¹

The Eastern Mediterranean potentially holds substantial amounts of natural gas, some already discovered but with a lot more to come. Even though substantial quantities of this gas can be consumed within the region, mostly by Egypt, Israel, and Turkey, potential discoveries are such that eventually there will be exports to Europe and beyond. One question is whether export-led development will lead to the creation of a regional trading hub.⁶²

Gas trading hubs are well established in the northwestern states of the EU and are gaining ground in parts of Southern Europe, such as Italy, and in Central Europe. But elsewhere the concept is often misunderstood, especially around the Eastern Mediterranean. In the Eastern Mediterranean, there is neither a market mechanism to buy or sell gas in an efficient manner, nor a pricing mechanism to determine spot prices. Gas sales are still based on traditional long-term oil-indexed bilateral agreements.

The lack of established market conditions, as well as physical interconnectors, hampers market liquidity and increases the potential for these markets to be coerced by dominant players. The development of a regional natural gas trading hub can prove critical to overcoming such inefficiencies.

A key element of such a hub is pricing indices that reflect regional/EU supply and demand fundamentals, rather than the traditional oil-indexation.

Trading hubs can help prevent the emergence of dominant market players keen to dictate their terms or serve political interests. In fact, under the energy hub trading framework players become more inter-dependent, hence the former can foster cooperation, economic and political stability in a region, and limit conflicts.⁶³

“Against the backdrop of the EU energy security debate and the discussions over new infrastructure projects, there is growing interest to establish a gas hub in the region. Adoption of and compliance with EU regulatory systems can help harmonize the operation of such a hub with European energy markets . . . A hub requires a deregulated gas market, where suppliers are free to produce or import energy and buyers are free to choose their suppliers, which is not the case today in East Med countries.”⁶⁴

Of the prospective producer countries in the Eastern Mediterranean region, only Cyprus and Egypt can be considered as candidates for the establishment of a gas trading hub. Israel, Lebanon, and Syria have constraints and problems that would not permit this in the foreseeable future. As a consumer state located at a crossroads of major gas pipelines, Turkey should be in a strong position to become a major trading hub, but although it has enacted major legislation that is intended to achieve the kind of gas market deregulation necessary for the evolution of a trading hub, in practice much of this legislation is evolving, and it is far from clear as to when it might be fully in place.

EGYPT

Egypt was already producing 46bcm/year in 2015 and has “substantial proven gas reserves, about 2.9 tcm according to IEA, with Zohr still to come. It also has extensive infrastructure in place, with two LNG export plants at Damietta and Idku (see map 1), capable of liquefying and exporting 16 bcm/year but at present lying idle.”⁶⁵

Egypt it is not an EU member-state and lacks all else required to establish a virtual hub. However, it has the potential to become a physical trading hub, with gas exported in the form of LNG. Eni’s CEO Claudio Descalzi has already made such a proposal based on the development of the giant gas field Zohr.⁶⁶ He said “By sharing future resources as well as export and transportation infrastructures of Israel, Cyprus and

61 The following section draws upon a previously published article by the author: Charles Ellinas, “Cyprus as an East Med gas trading hub - Centre of attraction,” *in-cyprus*, January 24, 2016, <http://in-cyprus.com/40174-2/>.

62 Ibid.

63 Ibid.

64 Ibid.

65 Ibid.

66 Ibid.

Egypt, the area could become a regional gas hub able to also provide an important contribution to European energy security.”⁶⁷

“The geopolitics of the region and commercial challenges will need to be overcome to attract Israeli and Cypriot gas for liquefaction in Egypt and export to Europe and beyond. Such discussions have been in progress for a while now, but they are facing both political and commercial hurdles. The total cost of taking the gas from Israel and Cyprus to Egypt, liquefying it, transporting it to Europe and regasifying it, makes it difficult to compete with piped Russian gas.”⁶⁸

But Egypt’s own offshore gas production may tell a different story. As such development of various gas field projects as North Alexandria, Atoll, and Zohr get underway, this should enable Egypt to resume LNG exports from Damietta and Idku, possibly around 2022.⁶⁹

CYPRUS

Cyprus, which has so far discovered only the modestly-sized 128 bcm Aphrodite gas field, possesses neither the gas volumes nor the infrastructure required to establish a physical gas hub in the immediate future. However, there is potential in the longer term, especially given its strategic geographic

Creating
an Eastern
Mediterranean gas
hub could benefit
all countries of the
region to better
exploit their gas
reserves.

location. Moreover, since Cyprus is the only EU member-state in the Eastern Mediterranean region and is fully aligned to EU regulatory systems, it has the long-term potential to develop into a trading hub—a location where gas trades are conducted.⁷⁰

It is feasible to establish a gas trading hub in Cyprus. But with limited infrastructure and no gas trading platforms, lack of pricing transparency and liquidity, and no market culture, there is a long way to go to achieve this, perhaps more than ten years. Moreover, it will require concerted effort and support from the EU to turn the Eastern Mediterranean into a gas trading hub. The good news is that during his visit to Cyprus on January 11 and 12, 2016, Maroš Šefčovič, the EU vice-president for Energy Union, confirmed that such a concept would be of interest to the EU and could secure EU support. It has also been included in the EU’s energy security package.⁷¹

OBSERVATIONS

There are three main reasons why Cyprus has the potential to become a gas trading hub in the longer term. It is in a highly strategic geographical location; it is the only EU member-state in the Eastern Mediterranean region; and it is the only commercial

environment fully aligned to EU regulatory systems.

Creating an Eastern Mediterranean gas hub could benefit all countries of the region to better exploit their gas reserves. It is in the EU’s interests to support such a scheme. Clearly, the political benefits of cooperation in the energy sector would be immense for the Eastern Mediterranean, which has always been characterized by inherent political fragility and tensions.⁷²

67 Eni, “Israeli Prime Minister, Benjamin Netanyahu, and the Infrastructure, Energy and Water Minister, Yuval Steinitz, meet Eni’s CEO, Claudio Descalzi,” October 29, 2015, http://www.eni.com/en_IT/media/press-releases/2015/10/Eni_CEO_Descalzi_meets_Israeli_PM_Netanyahu.shtml?home_2010_en_tab=editorial; Charles Ellinas, “Rapid developments,” May 8, 2016, <http://in-cyprus.com/rapid-developments/>.

68 Ellinas, “Cyprus as an East Med gas trading hub - Centre of attraction,” op. cit., <http://in-cyprus.com/40174-2>; Ellinas, “Egypt gas impact: Cyprus and Israel,” op. cit., <http://in-cyprus.com/egypt-gas-impact-cyprus-israel/>; Ellinas, “Rapid developments,” op. cit., <http://in-cyprus.com/rapid-developments/>.

69 Ellinas, “Cyprus as an East Med gas trading hub - Centre of attraction,” op. cit., <http://in-cyprus.com/40174-2>.

70 Ibid.

71 Ibid. and Charles Ellinas, “EU energy security,” *in-cyprus*, March 6, 2016, <http://in-cyprus.com/eu-energy-security/>.

72 Ellinas, “Centre of attraction,” op. cit., <http://in-cyprus.com/40174-2>.

| CONCLUSION: A NEED FOR REALISM

There is a need for realism throughout the Eastern Mediterranean. If it is to secure export markets, then the development of Eastern Mediterranean gas, whether in Egypt, Israel, or Cyprus, will have to be competitive in a European gas price environment. And, faced with the challenge posed by the arrival of US LNG, it will have to meet some tough time schedules as well.

Zohr should serve as a catalyst for revived Egyptian export prospects. But Zohr cannot deliver an Egyptian gas trading hub. That may be a longer term target and will require Egypt to reform its internal price structures, by removing subsidies, and to create a liberalized regulatory regime designed to encourage both imports and exports at a much faster rate than is practicable given the country's current highly subsidized domestic market. At this stage, concentrating on achieving self-sufficiency and revival of Egyptian gas exports and the return of the Idku and Damietta LNG plants to near or full operation is a far more important and practical goal.⁷³

Israel needs to work out a viable export-led development program for Leviathan, since its own domestic requirements are not sufficient to justify the kind of investments required to bring such a major field as Leviathan into full-scale production. This means Israel will have to develop and implement an export strategy. Turkey is a logical market, but that requires a solution to the Cyprus problem in addition to the restored Israeli-Turkish diplomatic relations, and depends also on Turkey's actions following the failed coup in July.

Cyprus needs to work out how to balance short- and long-term priorities. It has been negotiating with Egypt since 2014 over the possible supply of gas from the Aphrodite gas field either to Egypt for domestic use,

or for liquefaction at Idku and then export to Europe. It now needs to face up to the complex commercial challenges posed by the fact that it owns a field that is too big to serve the tiny Cypriot domestic market (including both parts of the island), but which is too small to justify export-led development on its own. If it can conclude an agreement to monetize Aphrodite's resources by means of sales to Egypt, that is fine. But if not, and it looks commercially challenging, it will have to take a fresh look at other options such as FCNG or FLNG, including a cooperative solution involving Israeli gas development, and that means focusing on common markets as well as common exports. With continuously evolving global gas markets, such decisions should be taken sooner rather than later if other export opportunities are not to be missed.

One advantage of this, however, is that with solution of the Cyprus problem such development could fit neatly into a program intended to deliver Eastern Mediterranean gas to Turkey via Cyprus, and which would thus include the gasification of both parts of the island under a post-solution federal government.

The region is volatile and experience shows that regional geopolitics and instabilities undergo frequent upheavals. The commercial development of Eastern Mediterranean gas can attract the necessary investments from oil and gas companies and banks only if risks are satisfactorily addressed and commercial viability is ensured. Political will alone will not make projects happen.

Clearly, the political benefits of cooperation in the energy sector would be immense for the Eastern Mediterranean, which has always been characterized by inherent political fragility and tensions.

Eastern Mediterranean gas dynamics are changing rapidly, and global markets and prices are undergoing a long-term structural shift. The era of plenty is with us, and low prices are here to stay. The region needs to plan with realism and pragmatism if it is to succeed developing its gas and profitably.

⁷³ Ellinas, "Egypt gas impact: Cyprus and Israel," op. cit., <http://in-cyprus.com/egypt-gas-impact-cyprus-israel/>; Ellinas, "Rapid developments," op. cit., <http://in-cyprus.com/rapid-developments/>.

| ABOUT THE AUTHORS



Charles Ellinas is a Nonresident Senior Fellow with the Atlantic Council's Eurasian Energy Futures Initiative. He has over thirty-five years of experience in the oil and gas sector and is CEO of Cyprus-based energy consultancy e-CNHC. Prior to joining e-CNHC, he served as CEO for the Cypriot National Hydrocarbon Company (KRETYK). He was a Director at consultancy Mott MacDonald for twenty-five years before leaving in 2012. While at Mott MacDonald, he served as the Managing Director of the firm's oil, gas, and petrochemicals business world-wide.



John M. Roberts is a Senior Fellow at Atlantic Council's Dinu Patriciu Eurasia Center and Global Energy Center. He is also a Senior Partner with Methinks Ltd, a consultancy specializing in the interrelationship between energy, economic development, and politics. He has a particular expertise in the development of energy in the Caucasus and Central Asia and in the pipelines connecting or intended to connect the Caspian to China, Russia, India, and Europe.

Roberts is one of Europe's leading energy security specialists. He served as Managing Editor at Platts for twelve years and previously with Financial Times Energy, focusing on the development of energy and on the impact of energy on development. In assessing global energy security issues, he has regularly toured the Gulf and the Caspian, as well as visited the Alaskan North Slope, the Athabasca Tar Sands, China, Norway, and Venezuela. He has also testified to UK parliamentary committees on Turkish, Russian, Caspian, and Mideast energy security issues. He is currently researching shale gas development in China and hydrocarbons development in the Eastern Mediterranean and Northern Iraq.



Dr. Harry Tzimitras is a Nonresident Senior Fellow with Dinu Patriciu Eurasia Center. He is also the Director of Peace Research Institute Oslo (PRIO) Cyprus Centre. Before joining PRIO, Dr. Tzimitras held a post at Istanbul Bilgi University, where he was the Director of the International Relations Master's Program and the Director of the Turkish-Greek Studies Division.

Dr. Tzimitras has served as an Adjunct Professor of International Law at Koc University. Educated at the London School of Economics and the Panteion University of Athens, he has held positions at the University of Cambridge and the Institute of International Relations, Athens. His teaching, research, and policy interests lie primarily in the fields of public international law, the law of the sea, foreign policy, energy geopolitics, the Eastern Mediterranean, Greece, Cyprus, and Turkey, and he has published extensively in these areas.

Atlantic Council Board of Directors

CHAIRMAN

*Jon M. Huntsman, Jr.

CHAIRMAN EMERITUS, INTERNATIONAL ADVISORY BOARD

Brent Scowcroft

PRESIDENT AND CEO

*Frederick Kempe

EXECUTIVE VICE CHAIRS

*Adrienne Arsht

*Stephen J. Hadley

VICE CHAIRS

*Robert J. Abernethy

*Richard Edelman

*C. Boyden Gray

*George Lund

*Virginia A. Mulberger

*W. DeVier Pierson

*John Studzinski

TREASURER

*Brian C. McK. Henderson

SECRETARY

*Walter B. Slocombe

DIRECTORS

Stéphane Abrisal

Odeh Aburdene

Peter Ackerman

Timothy D. Adams

Bertrand-Marc Allen

John R. Allen

Michael Andersson

Michael S. Ansari

Richard L. Armitage

David D. Aufhauser

Elizabeth F. Bagley

Peter Bass

*Rafic A. Bizri

Dennis C. Blair

*Thomas L. Blair

Philip M. Breedlove

Myron Brilliant

Esther Brimmer

*R. Nicholas Burns

William J. Burns

*Richard R. Burt

Michael Calvey

James E. Cartwright

John E. Chapoton

Ahmed Charai

Sandra Charles

Melanie Chen

George Chopivsky

Wesley K. Clark

David W. Craig

*Ralph D. Crosby, Jr.

Nelson W. Cunningham

Ivo H. Daalder

*Paula J. Dobriansky

Christopher J. Dodd

Conrado Dornier

Thomas J. Egan, Jr.

*Stuart E. Eizenstat

Thomas R. Eldridge

Julie Finley

Lawrence P. Fisher, II

*Alan H. Fleischmann

*Ronald M. Freeman

Laurie S. Fulton Courtney

Geduldig

*Robert S. Gelbard Thom-

as H. Glocer

*Sherri W. Goodman

Mikael Hagström

Ian Hague

Amir A. Handjani

John D. Harris, II

Frank Haun

Michael V. Hayden

Annette Heuser

Ed Holland

*Karl V. Hopkins

Robert D. Hormats

Miroslav Hornak

*Mary L. Howell

Wolfgang F. Ischinger

Reuben Jeffery, III

*James L. Jones, Jr.

George A. Joulwan

Lawrence S. Kanarek

Stephen R. Kappes

Maria Pica Karp

Sean Kevelighan

*Zalmay M. Khalilzad

Robert M. Kimmitt

Henry A. Kissinger

Franklin D. Kramer

Philip Lader

*Richard L. Lawson

*Jan M. Lodal

Jane Holl Lute

William J. Lynn

Izzat Majeed

Wendy W. Makins

Mian M. Mansha

Gerardo Mato

William E. Mayer

T. Allan McArtor

John M. McHugh

Eric D.K. Melby

Franklin C. Miller

James N. Miller

*Judith A. Miller

*Alexander V. Mirtchev

Susan Molinari

Michael J. Morell

Georgette Mosbacher

Thomas R. Nides

Franco Nuschese

Joseph S. Nye

Hilda Ochoa-Brillembourg

Sean C. O'Keefe

Ahmet M. Oren

*Ana I. Palacio

Carlos Pascual

Alan Pellegrini

David H. Petraeus

Thomas R. Pickering

Daniel B. Poneman

Daniel M. Price

Arnold L. Punaro

Robert Rangel

Thomas J. Ridge

Charles O. Rossotti

Robert O. Rowland

Harry Sachinis

John P. Schmitz

Brent Scowcroft

Rajiv Shah

Alan J. Spence

James G. Stavridis

Richard J.A. Steele

*Paula Stern

Robert J. Stevens

John S. Tanner

*Ellen O. Tauscher

Frances M. Townsend

Karen Tramontano

Clyde C. Tuggle

Paul Twomey

Melanne Verveer

Enzo Viscusi

Charles F. Wald

Jay S. Walker

Michael F. Walsh

Mark R. Warner

Maciej Witucki

Neal S. Wolin

Mary C. Yates

Dov S. Zakheim

HONORARY DIRECTORS

David C. Acheson

Madeleine K. Albright

James A. Baker, III

Harold Brown

Frank C. Carlucci, III

Robert M. Gates

Michael G. Mullen

Leon E. Panetta

William J. Perry

Colin L. Powell

Condoleezza Rice

Edward L. Rowny

George P. Shultz

John W. Warner

William H. Webster

*Executive Committee Members
List as of August , 2016



The Atlantic Council is a nonpartisan organization that promotes constructive US leadership and engagement in international affairs based on the central role of the Atlantic community in meeting today's global challenges.

© 2016 The Atlantic Council of the United States. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without permission in writing from the Atlantic Council, except in the case of brief quotations in news articles, critical articles, or reviews. Please direct inquiries to:

Atlantic Council

1030 15th Street, NW, 12th Floor,
Washington, DC 20005

(202) 463-7226, www.AtlanticCouncil.org