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Mediterranean Energy
Corridor?
Natural Gas Developments
Between Market Opportunities
and Geopolitical Risks**

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Towards a New Eastern Mediterranean Energy Corridor? Natural Gas Developments Between Market Opportunities and Geopolitical Risks

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Summary

The Eastern Mediterranean region is rapidly changing. The turbulent political transition in Egypt after the Arab Spring, the civil war in Syria, the emergence of Turkey as leading regional power, the tensions between Israel and Gaza and the never-ending dispute between Turkey and the Republic of Cyprus are -all together- reshuffling the regional geopolitical equilibrium. At the same time natural gas findings are flourishing in the offshore of Egypt, Israel, and Cyprus, reshaping the regional energy map and rapidly making the Eastern Mediterranean a world-class natural gas province. These geopolitical and energy pressures are rapidly converging, generating a number of new challenges and opportunities for each player in the region. The aim of this paper is to provide a comprehensive overview on these new regional developments and to propose a critical discussion of the market opportunities and geopolitical risks related to the potential emergence of a new Eastern Mediterranean Energy Corridor.

Keywords: Eastern Mediterranean, Natural Gas, Energy Geopolitics, Turkey, Israel, Egypt, Cyprus, Lebanon, European Union, Security of Gas Supply, Energy security

JEL Classification: Q40, Q42, Q48

This paper represents the second outcome of FEEM research on this specific issue that analyses how energy could represent a major tool to strengthen the economic, political and social integration in the Euro-Mediterranean region. The study focuses particularly on Turkey, a crucial country both for the EU energy security and for the regional balance of power in the aftermath of the Arab spring.

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TOWARDS A NEW EASTERN MEDITERRANEAN ENERGY CORRIDOR?

Natural gas developments between market opportunities and geopolitical risks

by

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Keywords: Eastern Mediterranean / Natural gas / Energy geopolitics / Turkey / Israel / Egypt / Cyprus / Lebanon / European Union / Security of Gas Supply / Energy security /

Introduction

The politics and economics of eastern Mediterranean energy are rapidly changing. The political transition in Egypt after the Arab Spring, the civil war in Syria, the emergence of Turkey as leading regional power, the tensions between Israel and Gaza, the repeated strains between Turkey and Israel and the never-ending dispute between Turkey and the Republic of Cyprus are -all together- reshuffling the regional geopolitical equilibrium.

At the same time natural gas findings are flourishing in the offshore of Egypt, Israel, and Cyprus, reshaping the regional energy map and rapidly making the eastern Mediterranean a world-class natural gas province.

These geopolitical and energy pressures are rapidly converging, generating a number of new challenges and opportunities for each player in the region. The aim of this paper is to provide a wide framework of understanding of this situation, through the lens of natural gas geopolitics.

To this end, the paper will first provide an overview on the eastern Mediterranean natural gas market, also illustrating the most important project of natural gas cooperation ever attempted in the region: the Arab Gas Network. Secondly, the paper will describe how the recent unilateral halt of Egyptian gas supplies to Israel and the interruption of the Arab Gas Pipeline in the aftermath of the Arab Spring ended the expectations of regional gas cooperation embodied by the Arab Gas Network project.

The Arab Spring has transformed the geopolitical architecture of the region, making extremely difficult any form of comprehensive regional cooperation in the natural gas market, which now appears to be entering a new phase of anarchy. Furthermore, a second element has come to make obsolete the cooperation scheme designed with the Arab Gas Network: the unprecedented wave of natural gas discoveries in the offshore eastern Mediterranean.

For this reason, the paper will widely discuss these new developments, which could reshuffle the old regional natural gas cooperation scheme, shifting influence away from the regional gas exporter to new gas producing countries. A power shift that has the potential to generate new energy and political alliances in a region in transition, and that could finally represent the cornerstone of a new potential Eastern Mediterranean Energy Corridor.

The eastern Mediterranean gas market: from the Arab Gas Network to anarchy?

Over the last decades natural gas consumption has soared in eastern Mediterranean countries. According to OME (2011), in 1990 the regional share of natural gas in the primary energy mix was only 5%, while in 2009 it was 27%¹. This trend is expected to further increase over the next years, as all countries in the region will increase their energy consumption because of rapid population growth, urbanization and economic growth.

All eastern Mediterranean countries are net gas-importers, with the only exception of Egypt: the regional gas-exporter. This is the reason why Egypt used to represent a cornerstone in the emergent regional gas market as well as the core of the most ambitious energy cooperation project ever attempted in the eastern Mediterranean region: the Arab Gas Network.

Egypt's proven gas reserves were estimated at 2200 bcm in 2011², representing the third-largest reserves in Africa after Nigeria and Algeria. Egypt's natural gas sector has expanded rapidly over the last decades, with production quadrupling between 1998 and 2011³. In the aftermath of the Arab Spring and with the new government led by the Muslim Brotherhood's Mohammed Mursi, Egypt has entered a new phase also with regard to the natural gas sector. In fact, also if gas production hasn't been directly hit by Egypt's 17 months of political unrest, the attendant decision-making vacuum in government ministries has effectively blocked the inflow of needed upstream investment⁴.

Already a net oil importer, in the short term Egypt could thus become a gas importer if it cannot find a way to boost its production to meet its growing domestic demand (+8% per year⁵) and its export commitments. Egyptian officials visited Qatar and Algeria in September 2012 to discuss potential LNG imports⁶. The Egyptian Natural Gas Holding (EGAS) is now asking local and foreign companies to import LNG, establish a regasification terminal and market imported gas to local consumers. EGAS is likely to give priority to proposals with the earliest first delivery date, starting in May 2013⁷.

Egyptian private equity firm Citadel Capital and QInvest -a Qatari investment bank linked to the Qatar Investment Authority, the country's Sovereign Wealth Fund- have jointly worked on plans to install a floating storage and regasification unit (FRSU)

¹ OME (2011), "*Mediterranean Energy Perspective*", Nanterre, p. 102.

² Cedigaz (2012), "*Natural Gas in the World 2012*".

³ BP (2011), "*BP Statistical Review of World Energy*".

⁴ The Egyptian upstream has been hit by delays in payments, permit approvals and license awards, including for blocks provisionally awarded in previous 2009 and 2010 bid rounds.

⁵ *Ibidem*

⁶ MEES (2012), "*Growing Gas Shortage Forces Egypt to Import LNG*", October, 26.

⁷ Petroleum Intelligence Weekly (2012), "*Egypt*", November 12.

offshore Egypt to start importing LNG in mid-2013. The imports will allow Egypt to meet long-term LNG export commitments while also satisfying local demand and cutting use of diesel and fuel oil.

This Egyptian-Qatari joint project would fit within a broader framework for cooperation being established between the two countries in the aftermath of the Arab Spring. For instance, in May 2012 EFG Hermes -the largest Egyptian investment bank- and QInvest announced an agreement to enter into a joint venture to be 60% owned by QInvest and 40% owned by EFG Hermes⁸: EFG Hermes Qatar LLC. The aim of the alliance was to create a leading investment bank with operations in the Arab world and beyond, comprehensively covering the Middle East and North Africa (MENA)⁹. This new wide strategic partnership between Egypt and Qatar has the potential to play a pivotal role in the long-term development of the MENA region and for this reason any joint project on the energy sector between the two countries should be evaluated in this light¹⁰.

Egypt's international gas transport infrastructure system is composed by two LNG plants -located in Damietta and Idku- and two pipelines -the El Arish-Ashkelon Pipeline and the Arab Gas Pipeline-.

The Damietta LNG complex is located 60 km west of Port Said and has one train with a total capacity of 4.8 Mt/year of LNG. It is owned and operated by SEGAS, a Spanish-Egyptian gas company composed by Union Fenosa Gas (80%), EGAS (10%) and EGPC (10%). The Idku LNG complex is located 50 km east of Alexandria and has two trains with a total capacity of 7.2 Mt/year. The structure was designed to accommodate up to six trains in total, so there is space for expansion. The complex is owned by Egyptian LNG, a joint venture comprising local shareholders (such as the Egyptian General Petroleum Company and EGAS) and foreign shareholders (such as British Gas, Petronas and Gaz de France)¹¹.

Notwithstanding the crucial importance of these facilities for Egypt's natural gas export, in terms of regional energy cooperation the country's key infrastructure elements are the two international pipelines previously mentioned: the El Arish-Ashkelon Pipeline and the Arab Gas Pipeline.

⁸ Qinvest (2012), *"EFG Hermes and Qinvest enter into a definitive agreement to create the leading investment bank in the Arab world and beyond"*, May 6.

⁹ Reuters (2012), *"Egypt's EFG and Qatar's Qinvest to create regional investment bank"*, May, 5.

¹⁰ For a more comprehensive overview on the financial cooperation between Egypt and Qatar please refer to: Tagliapietra S. (2012), *"The Geoeconomics of Sovereign Wealth Funds and Renewable Energy"*, European Energy Studies Series, Claeys&Casteels, Deventer.

¹¹ For a wider overview on Egypt's LNG facilities please refer to: Tagliapietra S., Hafner M., El Andaloussi H. (2012), *"Outlook for Oil and Gas in Southern and Eastern Mediterranean Countries"*, MedPro Technical Report n. 17, Center for European Policy Studies, Brussels.



Source: OME (2011)

The El Arish-Ashkelon Pipeline is a 90 km submarine gas pipeline connecting Egypt with Israel. The pipeline is built, owned and operated by the East Mediterranean Gas Company (EMG). Operational since 2008, EMG buys Egyptian gas for resale in Israel. In 2010 the pipeline supplied approximately half of the natural gas consumed in Israel¹². The total physical capacity of the pipeline is 9 bcm/year and agreements between the two nations used to provide a framework for the purchase of up to 7.5 bcm/year of Egyptian gas by Israeli entities, making Israel one of Egypt's most important natural gas export markets¹³.

In 2010 some Egyptian activists appealed for a legal provision against governmental authorities to stop gas flow to Israel according to the obscure contract and very low price compared to the global rates, whatever it means. However, the provision was

¹² Initially Egypt and Israel had agreed to supply through this pipeline 1.7 bcm of natural gas per year for use by the Israel Electric Corporation (IEC). This has been raised to 2.1 bcm per year to be delivered through the year 2028. In addition, by late 2009, EMG had signed contracts to supply through the pipeline additional 2 bcm per year to private electricity generators and various industrial.

¹³ Upstream (2008), "Egyptian gas flows to Israel", March 10.

denied by the Mubarak regime. In 2011, after the 25 January revolution, many Egyptians called for stopping gas exports to Israel. According to EGAS, gas supplies to Israel were unilaterally halted by Egypt in 2012 because Israel had allegedly breached its obligations and stopped payments a few months prior¹⁴. This decision represented a new low in the relations between the countries, in a moment of which Israeli-Egyptian relations reached their lowest level since the 1979 peace treaty.

The Arab Gas Pipeline (also known as Trans-Mashreq Gas Pipeline) is an infrastructure of 1200 km linking Egypt with Jordan, Syria and Lebanon up to Turkey, considered as the backbone of the future Arab Gas Network. The pipeline, financed by the Arab Fund, the Kuwait Fund, the Egyptian Government and different Egyptian and Jordanian banks¹⁵, has a capacity of 10 bcm/year¹⁶. Natural gas flows through the pipeline commenced in 2003 to Jordan¹⁷, and then reached Syria in 2008 and Lebanon in 2009. In the recent past an ambitious project to expand the Arab Gas Pipeline to Iraq was also proposed. Natural gas transportation on the Arab Gas Pipeline has always been far below the design capacity of 10 bcm/year, and since March 2012 the pipeline is inoperable due to several attacks that have taken place since the beginning of the Egyptian revolution, mainly carried out by Bedouin Islamists and Jihadist activists in the Sinai Peninsula¹⁸.

In January 2008 Turkey and Syria signed an agreement to construct a 63 km pipeline between Aleppo and Kilis (at the Turkish border) as the first segment of a Syrian-Turkey connection with the Arab Gas Pipeline¹⁹. In 2008 the European Union, Turkey, Iraq, Egypt, Jordan, Lebanon and Syria reached a consensus to extend the Arab Gas Pipeline to Turkey and Europe with a connection to Iraq. Syria and Turkey started talks in 2010 concerning gas imports through Turkey that could be supplied by Iran or Azerbaijan.

¹⁴ According to Mohamed Shoeb, the head of the state-owned EGAS the "decision we took was economic and not politically motivated. We canceled the gas agreement with Israel because they have failed to meet payment deadlines in recent months". Israeli Prime Minister Benjamin Netanyahu also said that according to him the cancellation was not "something that is born out of political developments but rather a business dispute between the Israeli company and the Egyptian company".

¹⁵ Official website of the Arab Fund: <http://www.arabfund.org/>

¹⁶ The major stakeholders in the Arab Gas Pipeline are: EGAS (Egyptian Natural Gas Holding Company) of Egypt, ENPPI (Engineering for the Petroleum and Process Industries) of Egypt, PETROJET (The Petroleum Projects and Technical Consultations Company) of Egypt, GASCO (Egyptian Natural Gas Company) of Egypt and SPC (Syrian Petroleum Company) of Syria. Other subsidiaries and companies with smaller shares come from the United States, Britain, Germany, Canada, and Russia.

¹⁷ Prior to the downfall of the Mubarak regime in January 2011, Jordan's electricity generation was 80% fuelled by Egyptian gas, sold at concessionary prices. But since then Egyptian gas exports to Jordan were severely disrupted because of the frequent acts of sabotage to the Arab Gas Pipeline. This forced Jordan to switch to the more expensive fuel oil or diesel to generate electricity, and at the same time to import more crude from mainly Saudi Arabia, and to a lesser extent from Iraq to offset the loss of Egyptian gas.

¹⁸ Globes (2011), "Sixth Attack on Sinai Gas Pipeline", September 27.

¹⁹ Turkey expected to buy about 2 bcm/year of gas from the Arab Gas Pipeline.

This project of cooperation was supported by the European Union, which also launched in 2005 the “Euro-Arab Mashreq Gas Market Project”. The project was aimed at contributing to the integration of the gas markets of Egypt, Jordan, Lebanon, Syria in order to create a regional gas market in the Mashreq, as a first step towards integration with the EU gas market. The project focused on developing a Gas Master Plan and network development for the region, as well as on putting the necessary regulatory frameworks in place. After a first phase (2005-2009) where Iraq and Turkey participated as observers, the project has been extended for a second phase (2010-2013), with Iraq as a full partner²⁰. However, this cooperation effort has presently been completely nullified by the Arab Spring.

Summarizing, the recent unilateral halt of Egyptian gas supplies to Israel through the El Arish-Ashkelon Pipeline and the recent halt of the Arab Gas Pipeline due to several attacks on the infrastructure in the aftermath of the Egyptian revolution, ended the expectations of natural gas cooperation embodied by the Arab Gas Network project. The political turmoil in Egypt, the civil war in Syria and the new conflictual relations between Egypt and Israel have undermined the existing geopolitical equilibrium of the region, making for the time being extremely difficult any form of comprehensive regional cooperation in the natural gas market. Furthermore, a second element has come to make obsolete the cooperation scheme designed with the Arab Gas Network: the unprecedented wave of natural gas discoveries in the offshore eastern Mediterranean. A game-changer that can reshuffle the old regional natural gas cooperation scheme, shifting influence partially away from the traditional regional gas exporter to new gas producers.

Mapping the new natural gas discoveries in offshore eastern Mediterranean

Offshore exploration in the waters of the eastern Mediterranean region started in the late 1960's and early 1970's with a series of wells drilled by Belpetco. These wells targeted structural culminations on the shallow shelf of Israel and northern Sinai, but all were found dry²¹. Although unsuccessful in terms of hydrocarbon production, these early wells provided important information and established the initial geologic model of the eastern Mediterranean region. A second exploration campaign, occurred between the mid-1970's and the mid-1980's, resulted in more success. Several wells were drilled offshore Sinai and light oil was found in several areas, although no commercial production was established²².

²⁰ Please refer to the official website of the Neighborhood Info Centre: <http://www.enpi-info.eu>

²¹ For a detailed overview of oil and gas explorations in Israel, please refer to: Ministry of Energy and Water Resources of the State of Israel, “*Index of Oil and Gas Wells in Israel*”, Haifa.

²² Gardosh M., Druckman Y., Binyamin B., Rybakov M. (2008), “*The Levant Basin offshore Israel: stratigraphy, structure, tectonic evolution and implications for hydrocarbon exploration*”, Study prepared

Exploration activity in the offshore eastern Mediterranean experienced a significant renaissance since 1999-2000 when five modest natural gas fields were discovered at a shallow depth west of the coastal town of Ashqelon and the Gaza Strip²³. These discoveries speeded up exploration efforts and promoted the acquisition of geophysical data throughout the entire eastern Mediterranean area, particularly in the Levant basin.

The real turning point in terms of natural gas discoveries came in 2009, when Noble Energy announced the discovery of the Tamar field (250 bcm) in offshore Israel. After this first major discovery, Noble Energy announced other two major findings in the Levant Basin: the Leviathan field (476 bcm) in offshore Israel (2010) and the Aphrodite field (140-220 bcm) in offshore Cyprus (2011). Moreover, other natural gas reserves are likely to be discovered in offshore Lebanon and Gaza.

**Natural gas volumes in the offshore eastern Mediterranean
(discovered and yet-to-find)**

Egypt	
Nile Delta Province	6310 bcm (yet-to-find)
Israel	
Leviathan	476 bcm
Tamar	250 bcm
Dolphin	2 bcm
Dalit	14 bcm
Tanin	33 bcm
Mari-B	30 bcm
Noa	1 bcm
Cyprus	
Aphrodite	140-220 bcm
Gaza	
Gaza Marine 1-2	28 bcm (yet-to-find)
Lebanon	
Phase 1	672 bcm (yet-to-find)
Total East Med	8014 bcm

Source: U.S. Geological Survey, Energy Intelligence and companies' information

Egypt

The country's proven gas reserves were estimated at 2.2 tcm in 2011, representing the third-largest reserves in Africa after Nigeria and Algeria. Most of these reserves are

by the Geophysical Institute of Israel and the Geological Survey of Israel for the Ministry of National Infrastructure of Israel, Lod and Jerusalem.

²³ Noa, Or, Mari-B and Nir in offshore Israel, and Gaza Marine in offshore Gaza Strip. For further information please refer to: Ministry of Energy and Water Resources of the State of Israel, "*Index of oil and gas wells in Israel*", Haifa.

located in the Mediterranean area and in the Western Desert. Significant proven amounts also exist in the Gulf of Suez and to a lesser extent onshore Nile Delta²⁴. In 2010 the U.S. Geological Survey released the assessment of the Nile Delta Basin Province. An estimated 6310 bcm (mean estimate) of undiscovered, technically recoverable natural gas would be located in the Basin²⁵. This assessment was based on published geologic information and on commercial data from oil and gas wells, fields, and field production.

In the aftermath of the political turmoil that reversed the regime of Hosni Mubarak with the new elected-government of Mohamed Morsi, key operators such as British Petroleum (BP), BG Group, Shell and Eni have been promoting their commitments to Egypt via multi-billion investment plans. The commitments come after new Oil Minister Usama Kamal called on the country's key foreign operators "to develop and increase their investment and accelerate development of gas discoveries, especially in the deepwater offshore Mediterranean"²⁶. BP promised an investment of \$11bn on the offshore West Nile Delta project. BG pledged an investment of \$3-5bn in the country over the coming years. Shell and Eni also publicized their commitment to Egypt via multi-billion investment plans. In part these commitments are already being undertaken, as Eni, BP and BG are already increasing gas production in offshore Egypt.

Eni and BP have started the production of natural gas from the offshore field of Seth, located in the Ras El Barr concession²⁷, approximately 60 km from the Mediterranean coast of Egypt. After an initial ramp-up phase, the field is expected to produce approximately 4.8 million cubic meters of gas per day. The Seth project, whose construction and operations has been assigned by Eni and BP to Petrobel, a joint venture between IEOC and the Egyptian state company EGPC, consists of a platform placed at a water depth of 80 meters, two production wells and a pipeline of 11 km. A pipeline links the platform to the onshore processing facility in El Gamil, which handles around 20% of the natural gas produced in Egypt, through the existing transport network²⁸. BP has also announced in August 2012 two gas discoveries in offshore Egypt's Nile Delta²⁹.

The two finds -Taurt North and Seth South- are located in the North El Burg Offshore Concession, which BP operates with a 50% stake³⁰. BG started in June 2012 gas

²⁴ Cedigaz (2012), "Natural Gas in the World 2012".

²⁵ Kirschbaum, M.A., Schenk, C.J., Charpentier, R.R., Klett, T.R., Brownfield, M.E., Pitman, J.K., Cook, T.A., and Tennyson, M.E. (2010), "Assessment of Undiscovered Oil and Gas Resources of the Nile Delta Basin Province, Eastern Mediterranean", U.S. Geological Survey Fact Sheet 2010-3027.

²⁶ MEES (2012), "Billion-Dollar Exploration Commitments Fail To Disguise Delays", September 21.

²⁷ The partners of the Ras El Barr license are Eni (50%), through its subsidiary IEOC, and BP (50%).

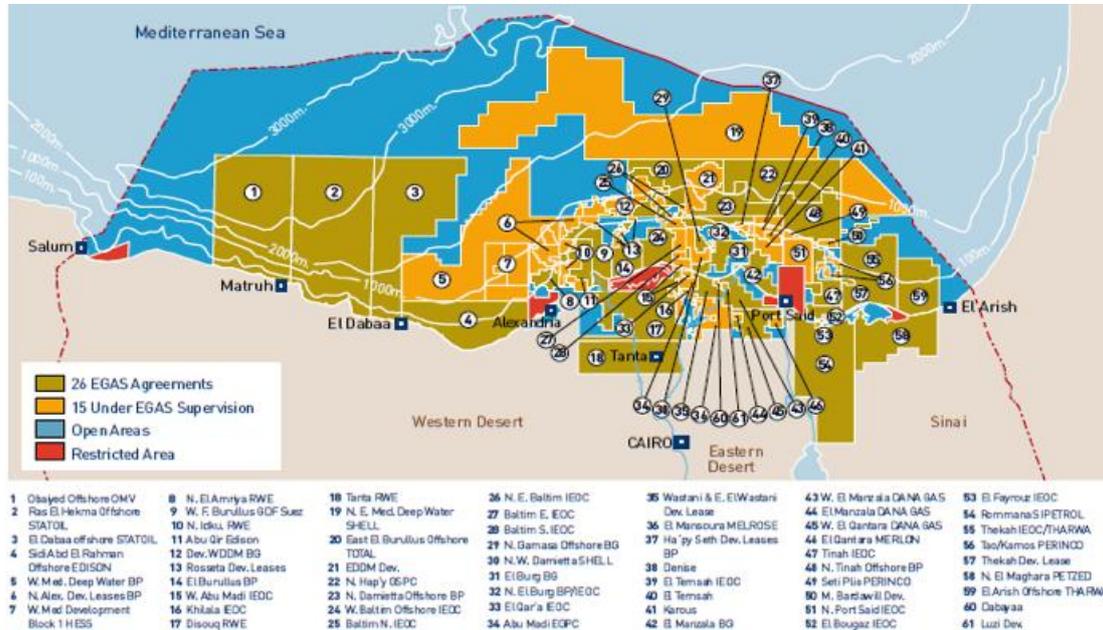
²⁸ Eni (2012), "Eni Starts Gas Production at Seth Field Offshore Egypt", Press release, June 28.

²⁹ Petroleum Intelligence Weekly (2012), "Gas Dilemma Awaits Egypt's New Leadership", July 2.

³⁰ Oil Daily (2012), "BP Makes Egypt Gas Finds", August 28.

production in the Egypt's West Delta Deep Marine concession, where it holds 50% in the concession, alongside Petronas³¹.

Gas concessions in the Mediterranean Nile Delta and North Sinai



Source: OME (2011) on EGAS

Looking further ahead, gas-focused licensing rounds both this year and next, and the promise of more flexible gas-pricing terms for would-be bidders, should give impetus to the development of new fields. The danger remains that ongoing political uncertainties and bureaucratic inertia slow progress on these fronts. EGAS is expected to launch a round offering offshore blocks before the end of 2013. However, required parliamentary approval before final agreements can be signed, could lead to delays in awarding blocks to bidding companies³².

Israel

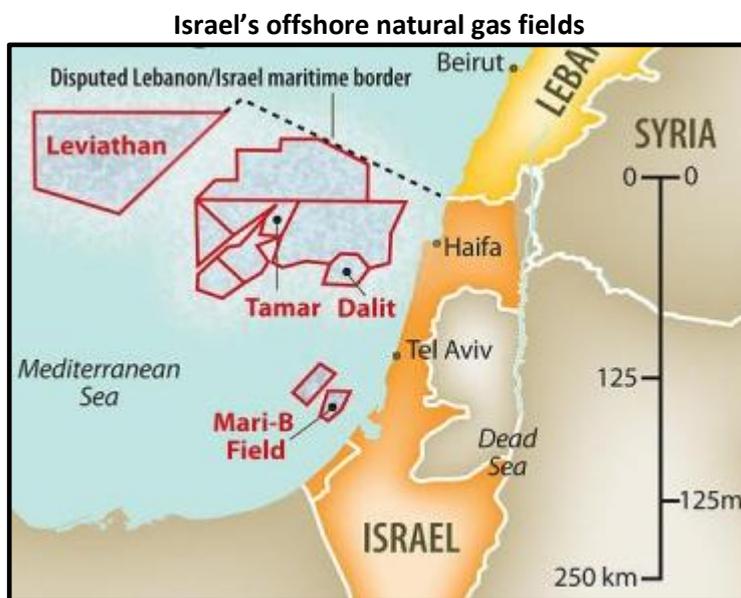
Israel has traditionally relied on imports to meet its energy demand. However, with the discovery of the Mari-B gas field occurred in 2000³³, Israel suddenly had a domestic supply natural gas. After this discovery, Noble Energy and Delek continued to pursue gas exploration in offshore Israel, discovering two massive offshore natural gas reservoirs: Tamar and Leviathan. These two finds are the biggest deep-water gas discoveries ever occurred in the eastern Mediterranean region, and could help Israel not

³¹ International Oil Daily (2012), "BG Adds to Gas Output From West Delta Deep Marine Block in Egypt", July 5.

³² Petroleum Intelligence Weekly (2012), "Gas Dilemma Awaits Egypt's New Leadership", July 2.

³³ The Economist (2010), "Israel and its natural resources. What a gas!", November 11.

just to cover a large part of its own growing energy needs, but even to become a net exporter of natural gas.



Source: Noble Energy

The offshore Tamar field was discovered 90 km off the northern coast of Israel in February 2009. The field holds 250 bcm of gas reserves and is expected to come on-stream in 2013³⁴. The main investors in Tamar include Noble Energy (36%), Delek (15.6%), Houston-based Isramco (28.7%) and Israeli firm Dor Alon Energy with 4%³⁵. When fully operational, it is expected to produce about 10 bcm/year of gas. This gas will be devoted to satisfy Israel's growing domestic gas demand, a very urgent concern for the country. In fact, natural gas consumption in Israel has grown from zero in 2000 to 5.3 bcm in 2010³⁶, of which 40% had been supplied by Egypt via the El-Arish-Ashkelon Pipeline. After the already mentioned halt of Egyptian gas supplies to Israel occurred in 2011, the country is due to begin receiving LNG equivalent to 2.5 bcm/y of gas through a floating regasification and storage unit (FRSU). The LNG will help Israel cope with a gas shortage created by the halt of Egyptian gas deliveries, until the gas production in the Tamar field will begin.

The offshore Leviathan field (476 bcm) was discovered in December 2010, 135 km off the northern coast of Israel. Since Tamar can fulfill a significant part of Israel's gas requirements for the foreseeable future, the Leviathan output will likely be directed

³⁴ Please refer to the official website of Noble Energy: <http://www.nobleenergyinc.com/>

³⁵ International Oil Daily (2012), "Delek Consortium Continues Pursuit of Cyprus Blocks", November 16.

³⁶ Domestic demand for natural gas in Israel is mainly driven by electricity generation, and more specifically by the Israel Electricity Company (IEC), which produces 98% of Israel's electricity. Natural gas demand in Israel is projected to increase to 12 bcm in 2020 and 18 bcm in 2030.

towards exports, expected to start in 2017³⁷. Noble Energy has recently brought into the Leviathan field an experienced LNG partner with a 30% stake: Australian LNG specialist Woodside Petroleum. This new partner is expected to help Noble Energy to resolve some of the logistical and economic challenges complicating possible LNG development.

Gaza

In 1999 British Gas secured from the Palestinian Authority a license to explore the wedge of the Palestinian offshore territory between Israeli and Egyptian waters³⁸. In 2000 the British company drilled two successful wells 36 km off the Gaza Strip, making the first gas discoveries in the offshore eastern Mediterranean after Egypt³⁹: Gaza Marine-1 and Gaza Marine-2 gas fields, with total estimated reserves at 28 bcm.



Source: MEES

A technical review made in 2001 recommended subsea development of the field and the construction of a pipeline to shore⁴⁰. The Palestinian Authority approved an outline of a development plan in 2002. However, Israel has always been reluctant to allow the development of the Gaza Marine gas field. In 2001 Ariel Sharon stated that “Israel would never buy gas from Palestine” and in 2003 he vetoed a deal that would enable

³⁷ Please refer to the official website of Noble Energy: <http://www.nobleenergyinc.com/>

³⁸ MEES (2012), “No Advance Towards Development For Offshore Gaza Marine”, September 28.

³⁹ Gaza Marine 1 and Gaza Marine 2. BG holds a 60% stake in the license, Athens-based Consolidated Contractors Company (CCC) holds 30% and the Palestinian Investment Fund 10%.

⁴⁰ BG official website: <http://www.bg-group.com>

British Gas to supply Israel with natural gas from the Gaza wells⁴¹. In the following years talks between Israel and British Gas for the development of the field made no progress, also because Hamas' election victory in January 2006 further complicated the situation. In 2008 British Gas decided to close its office in Tel Aviv. More recently, Israel has declared its intention to engage in a meaningful discussion with the Palestinian Authority with the aim of developing the Gaza Marine gas field⁴². This new Israeli decision came after talks between Israeli Prime Minister Benjamin Netanyahu and the Quartet⁴³ Representative to the Middle East Tony Blair and an approach made by the Palestinian Authority to Tel Aviv⁴⁴. However, the conflict between Israel and Gaza occurred in November 2012 has closed every little glimmer of cooperation.

In the long-term scenario the development of the Gaza Marine gas fields could represent a win-win solution for Israel and the Palestinian Authority. First of all, it could be clearly very much beneficial for the Palestinian natural gas demand outlook, which is projected to expand from the current level of 0.3 bcm/y to almost 1 bcm/y over the course of the next decade as the Palestinian power sector is developed. The Gaza Marine gas fields could supply the Gaza power station (140 MW) and the two planned power stations in the West Bank (both in Jenin, 200 MW each).

Moreover, revenues earned through the sale of Gaza Marine gas could help to ease recent financial problems faced by the Palestinian Authority⁴⁵ due to a lack of international aid, significantly contributing to the Palestinian fiscal sustainability. In addition, the development of the Gaza Marine gas fields could also be economically beneficial for Israel, considering that today the Gaza Strip and the West Bank receive almost all of their electricity from Israel at an extremely poor payment regime⁴⁶.

Cyprus

In 2011 Noble Energy discovered in offshore Cyprus (Block 12) a natural gas reservoir with a resource estimated at 140-220 bcm: the Aphrodite field⁴⁷. According to the Cyprus' Energy Department, the country's offshore may contain as much as 1700 bcm

⁴¹ The Daily Star (2010), "*British Gas and Israel eyeing Gaza's natural gas reserves*", April 26, 2010.

⁴² Government of Israel, "*Measures Taken by Israel in Support of Developing the Palestinian Economy and Socio-Economic Structure*", Report submitted to the Ad-Hoc Liaison Committee (a 15-member committee, based in Norway, made up of international donors and organizations that acts as a body to provide development assistance to the Palestinian people) in September 2012.

⁴³ The Quartet is made up of the United States, the European Union, the United Nations and the Russian Federation.

⁴⁴ Oil Daily (2012), "*Palestinians Seek to Develop Gas*", September 25.

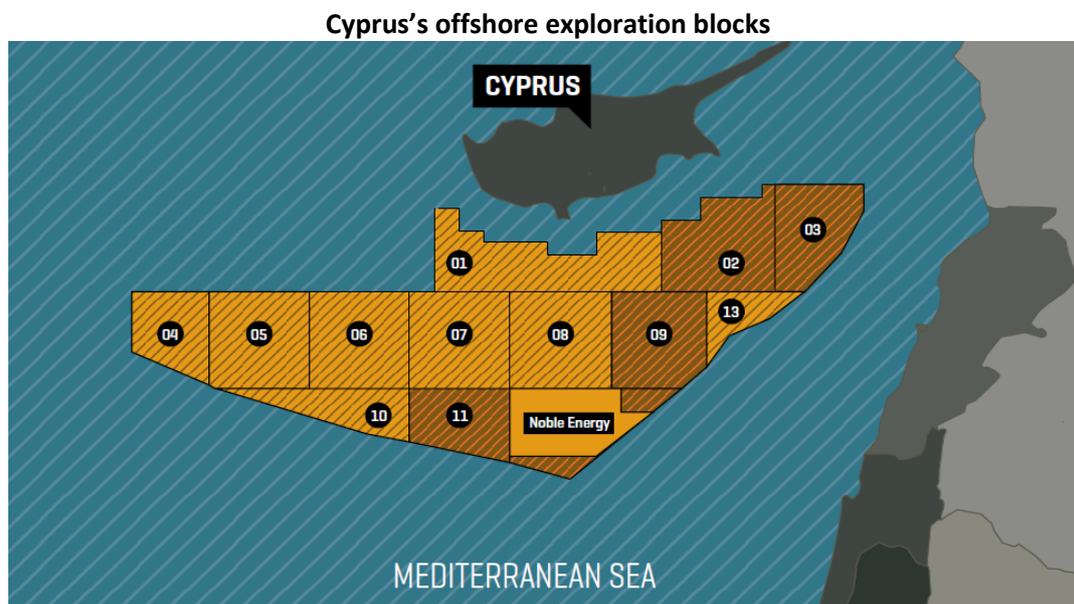
⁴⁵ The revenues from the natural gas would go directly to the Palestinian Authority, bypassing the Hamas Islamist government who control Gaza.

⁴⁶ Shaffer B. (2012), "*Energy resources and markets in the Eastern Mediterranean Region*", Mediterranean Policy Program, The German Marshall Fund of the United States, Washington D.C., p. 7.

⁴⁷ MEES (2012), "*TPAO Completes Well In Turkish Cyprus, Plans Second*", September 21.

of gas-in-place⁴⁸. The Cyprus government is now engaged with Noble Energy in designing a development plan for the Aphrodite field, which will likely first address the island's domestic gas demand for power generation and later be used to supply gas to a LNG export plant.

The Aphrodite field lies in waters that the Turkish Republic of Northern Cyprus also claims. This position is backed by Turkey, which claims that the Greek-Cypriot government in the south does not have the authority to make decisions concerning the island's natural resources and insists that exploration work stop until a settlement to the decades-old 'Cyprus Problem' be found.



In response to the offshore drilling program being carried out by the Republic of Cyprus in its offshore exclusive economic zone, the Turkish Republic of Northern Cyprus has commissioned to Turkish Petroleum (TPAO) the exploration of offshore areas in northern Cyprus. For these reasons, gas exploration in the territorial waters of the Republic of Cyprus is highly politically charged. In fact, Turkey has also threatened to blacklist firms taking part on this development. However, several majors seem to be ready to risk their relations with Turkey in favor of offshore exploration for natural gas in the offshore Republic of Cyprus⁴⁹.

Eni signed in January 2013 Exploration and Production Sharing Contracts with the Republic of Cyprus for Blocks 2, 3 and 9, thus marking the entry of Eni in the country. The Italian company was awarded the three blocks whilst leading a consortium formed by Eni (80%, as operator) and the Korean company Kogas (20%) in an international

⁴⁸ MEES (2012), "Political Agenda Emerges as Cyprus Kicks Off Gas Block Talks", November 16, p. 18.

⁴⁹ International Oil Daily, "Eni's Cyprus Ambitions Undeterred by Turkey's Threats", November 5.

competitive tender (Cyprus 2nd Offshore Licensing Round) which was completed in May 2012⁵⁰.

Cyprus' decision to include Eni in the country's gas exploration and production activity is in line with its intention to strengthen its economic connection with other EU member states.

The awards have been made despite Turkey's objections to the licensing round. In fact, Turkey threatened to exclude any company that participated from future energy projects within Turkey. However, it seems that there is not much Turkey can do to prevent exploration in the waters of the Republic of Cyprus. Turkey seems to be isolated on this issue, as the EU, the US and Arab states in the region do not support its position. Cyprus has been careful to build up political support from its neighbors and has agreed maritime boundary delineations with Israel, Egypt and Lebanon. Also given the breakdown in previously close relations between Turkey and Israel over a range of issues including the Gaza flotilla raid in May 2010, when Turkish peace activists were killed, both Greece and Cyprus have developed closer ties in the meantime with Israel at the expense of Turkey.

Lebanon

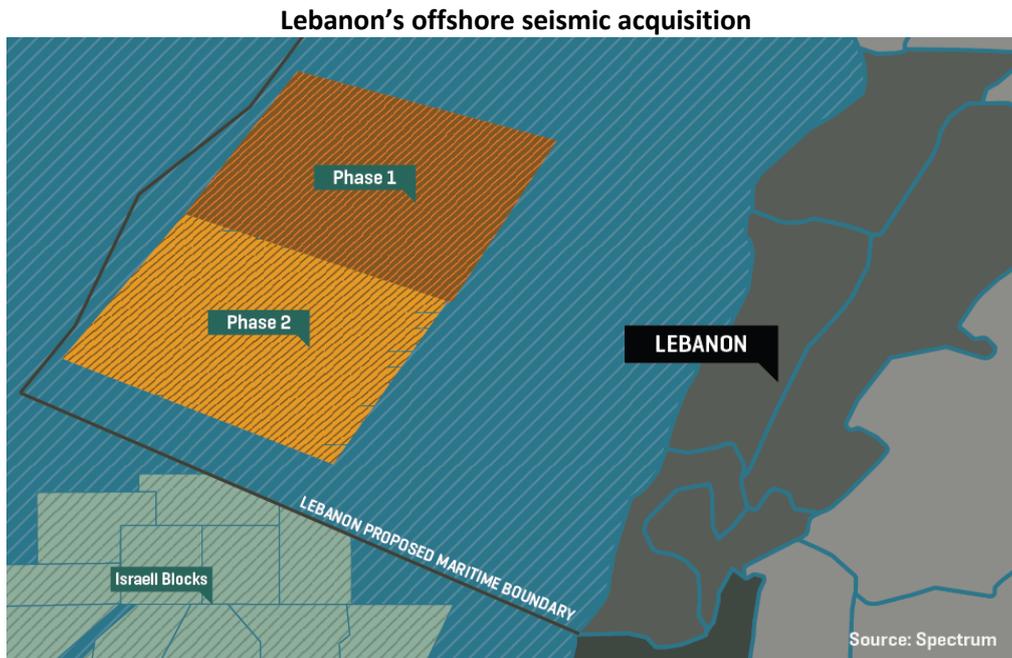
Lebanon has never experienced a hydrocarbon exploration activity on its territory⁵¹. However, considering that the country's offshore geology is a continuation of that offshore Israel, after the massive natural gas findings in this area a detailed 3D seismic survey of Lebanon's offshore has been undertaken⁵². The survey, carried out by the UK-based Spectrum ASA in the "Phase 1" area offshore Lebanon, was completed in September 2012. This survey estimates Lebanon's natural gas reserves at 700 bcm⁵³, a level even higher than Cyprus's offshore potential. A new offshore 3D seismic project is currently underway in the "Phase 2" offshore area.

⁵⁰ Eni (2013), "Eni: awarded three offshore exploration blocks in the Republic of Cyprus", press release, January 24, 2013.

⁵¹ MEES (2012), "Lebanon Could Leapfrog Cyprus as East Med Hotspot", September 14.

⁵² The multi-client survey -contracted by Lebanon's Ministry of Energy and Water- focused on the southwest sector of Lebanon's exclusive economic zone (EEZ).

⁵³ The Daily Star (2012), "Experts Estimate \$40 bln Gas Reserves Off Lebanese Coast", September 22.



Source: MEES on Spectrum

The development of Lebanon's natural gas sector mainly depends on the country's capability to move forward with its long-stalled offshore bid licensing round. A launch was planned in early 2013, despite ongoing negotiations between Israel, Lebanon and the United Nations over a disputed maritime border between Israel and Lebanon⁵⁴. The round's launch was said to mainly depend on the finalization of the country's Petroleum Administration, the government body that is to administrate Lebanon's hydrocarbon sector under the supervision of the Ministry of Energy and Water⁵⁵.

The establishment of this institution took time, as the new government body had to be made up of members representing each of Lebanon's religious communities. In fact, Lebanon is a parliamentary democratic republic within the overall framework of confessionalism, a form of consociativism in which the highest offices are proportionately reserved for representatives of the country's numerous religious communities⁵⁶. Lebanon has finally named the long-awaited Petroleum Administration in November 2012⁵⁷ and the country's first offshore bid licensing round is now planned

⁵⁴ LNG Intelligence, "Lebanon Bid Round to Proceed", October 22, 2012.

⁵⁵ *Ibidem*

⁵⁶ As Obeid (2010) pointed out: "In Lebanon, you are never simply Lebanese. You are Sunni from Beirut, Maronite Catholic from Jounieh, or Shia from the South. Whether seeking to marry or applying for a job, the first question is always what "confession," or religious sect, you belong to. That is the reality of Lebanese society".

⁵⁷ The members of the Petroleum Authority reflect the diverse nature of the political and religious communities across the country which all needed to be represented on the new body. It includes Wissam Chbat, a Maronite and former adviser to the ministry; Wissam al-Zahabi, a Sunni and another ministerial adviser; Gaby Daaboul, a lawyer and a Greek Orthodox member; Nasser Hoteit, a Shiite representative; Assem Abu Ibrahim, a Druze member; and Walid Nasser, a Greek Catholic. Ibrahim will be the first

to be launched by mid-2013⁵⁸. The ministry is expected to offer potential agreements on the basis of a 10-year exploration period and a 30-year production period, with the state likely to take a 50% stake in any discovery made⁵⁹.

To conclude, the political stability of the country will be crucially important for the development of the natural gas resources. With this regard, an exogenous element should be always taken into consideration: the on-going civil war in Syria. The final outcome of this turmoil is currently unpredictable and -among the different scenarios- it is necessary to also consider an eventual spread of the conflict to other neighbouring countries and in particular to the north of Lebanon. Such a scenario would clearly halt any natural gas development in the area for an undefined period of time.

Greece

In 2010 Greece's Energy Ministry commissioned a group of experts to research potential natural gas reserves in Greek waters. The study, recently presented to Greece's Prime Minister Antonis Samaras, outlined a number of geological similarities between the area offshore Crete and the natural gas-rich area encompassed between offshore Israel and Cyprus⁶⁰ and estimates the potential natural gas reserves in offshore Greece at 3.5 Tcm. While it will take years to explore and develop any offshore natural gas sector, Greece has launched a licensing round and has commissioned Norway-based Petroleum Geo-Services (PGS) to carry out offshore seismic tests in the area⁶¹. The results are expected in mid-2013. Such a development would be extremely significant for the country, under several aspects. Taking into account savings from fuel imports - Greece spends 5% of GDP on energy imports - discoveries on the scale envisaged could provide the country with an important amount of annual cost savings, in a moment on which this is very much needed. Furthermore, Greece could also become a transit hub for natural gas to Europe if it establishes an exclusive economic zone allowing it to legally extract hydrocarbons, which it currently lacks south of Crete and in other areas. The consortium supporting the ITGI pipeline project, which lost out in the race to carry

president and will head up the Quality, Health, Safety and Environment functions of the committee. Nasser will direct the Strategic Planning Unit while Technical and Engineering Affairs will come under Hoteit. Daaboul is head of the Legal Affairs Unit and al-Zahabi is in charge of Economic and Financial Affairs. The Geology and Geophysics Unit will be run by Chbat.

⁵⁸ The round was also supposed to have been launched early this year but political wrangling over the composition of the Petroleum Authority held up the process.

⁵⁹ LNG Intelligence (2012); "*Lebanon's Offshore*", November 12.

⁶⁰ The study affirms that there is an indication of the presence of large reservoirs based on the subsea methane emissions and gas hydrate mounds on the seabed.

⁶¹ Reuters (2012), "*Greece picks PGS for offshore oil, gas tests*", September 5.

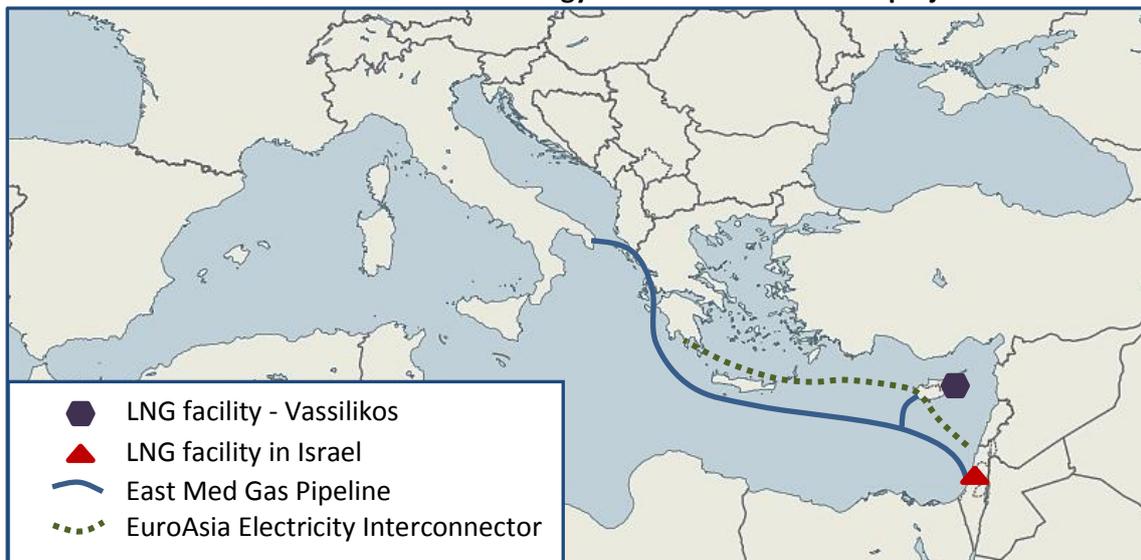
Caspian supplies to Europe⁶², hopes to convert his project into a conduit linking eastern Mediterranean discoveries with the European market⁶³.

A new Israel-Cyprus-Greece axis? Energy and geopolitical aspects

Once described the vast natural gas reserves in the offshore eastern Mediterranean, it is necessary to understand if and how this gas could flow to the most likely export market in the region: Europe. As always in the natural gas market it is this step -the infrastructure- that opens the real geopolitical "Great Game".

In November 2012 Israel, Cyprus and Greece signed an agreement to set up working groups to discuss an Eastern Mediterranean Energy Corridor meant to enable gas exports from Israel and Cyprus to Greece⁶⁴. There are three main options on the table, none of them front runners yet: (i) the joint Israel-Cyprus LNG plant at Vassilikos; (ii) the LNG plant in onshore Israel; (iii) the East Med Pipeline, which could carry Cypriot and Israeli gas to Europe. Another opportunity on the table is the construction of the EuroAsia Electricity Interconnector from Israel and Cyprus to Greece.

The Eastern Mediterranean Energy Corridor: infrastructure projects



Source: own elaboration

Israel-Cyprus joint LNG export plant at Vassilikos

The project of a joint Israeli-Cypriot LNG facility at Vassilikos, in Cyprus' southern coast, involves bringing gas from Israeli and Cypriot offshore gas fields to a liquefaction plant, and then exporting it by ship to Greece for regasification. This

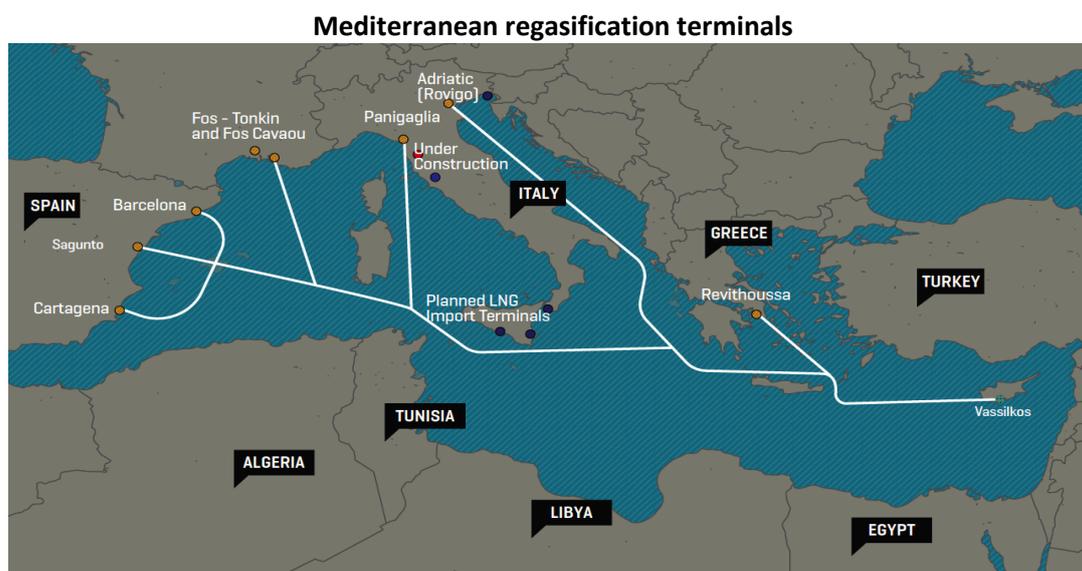
⁶² Tagliapietra S. (2012), *"The Rise of Turkey and the New Mediterranean"*, FEEM Nota di Lavoro n. 66, Milano.

⁶³ Euractive (2012), *"Greece sits on huge offshore gas reserve, study says"*, October 4.

⁶⁴ LNG Intelligence (2012), *"Eastern Med Corridor"*, November 13.

project -supported by the Cypriot government and Noble Energy- presents a series of strengths and weaknesses.

On one hand, a joint LNG plant at Vassilikos seems to make the most economic sense given the Leviathan field's proximity to the Aphrodite field, and to be the only realistic and viable way to deliver Israeli and Cypriot natural gas to the EU. There are several LNG regasification terminals in the Mediterranean that could serve as entry points to Europe. This would permit the Eastern Mediterranean LNG to be not restricted to any particular market.



Source: MEES on European Rim Policy and Investment Council

Moreover, building a joint plant at Vassilikos would allow Israel to bypass opposition that has raised against domestic LNG export plans in the port cities of Ashdod, Ashkelon and Eilat. Furthermore, this option would allow Israel to benefit from preferential terms for importing into other EU countries as well as EU grants.

On the other hand, the size of the area in Vassilikos is only about 2 sq. km, so various industry sources have questioned whether the area has enough space for a modern-sized export plant of at least three trains of 5 million tons/yr of LNG each.

An even more relevant weakness of the project relates to Israeli concerns on the control of revenues earned from exports (control over what will be significant state revenues is vital for Israel) as well as potential security risks should Cyprus become embroiled in a situation of higher political tensions with Turkey⁶⁵. From a military point of view,

⁶⁵ World Gas Intelligence (2012), "Majors Look for East Med Openings", October 24.

Israel's generals appear to have no doubts over the necessity of putting the export facility firmly within Israeli sovereignty⁶⁶.

LNG export plant in Israel

Potential sites for an LNG export terminal in Israel include the Red Sea port of Eilat, and the Mediterranean ports of Ashkelon, Ashdod and Haifa. Plans for a new Israeli LNG export terminal are already attracting interest from international companies. Noble is currently evaluating offers received on September 2012 for a 30% stake in its operated Leviathan field, which would be the flagship field feeding any Israeli LNG scheme. However, a strong environmental and residential opposition against domestic LNG export plans has risen in the port cities of Ashdod, Ashkelon and Eilat over the last months.

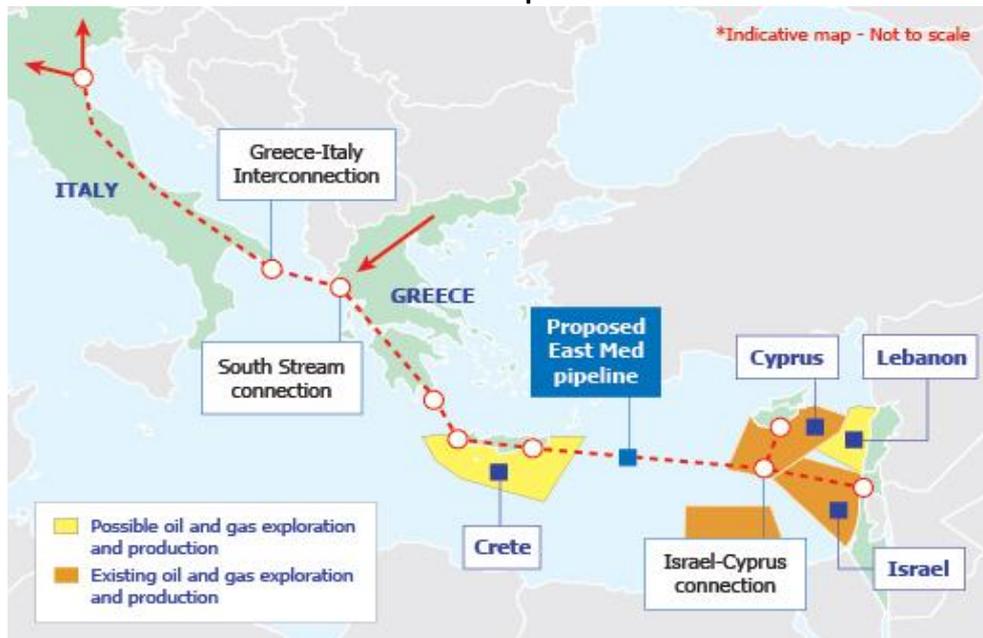
Moreover, a number of technical problems exist as well. For instance, the first location to be proposed for an LNG facility had been the Red Sea port of Eilat, which could be connected to the Leviathan field via a new gas pipeline built parallel to an existing oil pipeline running along the Israeli coast from the port of Ashkelon. Considering that the Gulf of Aqaba measures only 24 km at its widest point, LNG tankers would have difficulty maneuvering in such a tight space. Any Eilat LNG plant would also have to share space with Israel's and neighboring Jordan's biggest tourist hubs, and with major container terminals in both countries.

The East Med Gas Pipeline

The East Med Gas Pipeline would link Israel and Cyprus to Greece and Italy. This option, which presents a number of technical and financial difficulties, could represent a good long term option only in the case further gas discoveries will emerge in the offshore eastern Mediterranean. Bearing in mind that -in the case gas discoveries in offshore Greece will actually materialize- a pipeline would anyhow have to be constructed from the Cretan gas fields to mainland Greece, the challenging part of this project would be the construction of the pipeline between Cyprus and Crete. An infrastructure with an approximate stretch of 675 km to be built at depths of about 800 to 2000 meters: a major technical challenge, but which can be overcome.

⁶⁶ MEES (2012), "Israel Gas Export Options Blurred", November 9.

The East Med Pipeline route



Source: Pytheas Limited

However, the main weakness of the East Med Pipeline project relates to finance. Pytheas estimates that the construction cost of a pipeline from Cyprus to Crete with a capacity of 28 bcm/year at depths of around 2000 meters is likely to be around US\$ 25 million per km⁶⁷. The estimated capital cost for the pipeline from Cyprus to Crete would thus be around US\$ 20 billion. An amount that could be justified only in case further natural gas discoveries will materialize in the offshore eastern Mediterranean.

The EuroAsia Electricity Interconnector

The EuroAsia Electricity Interconnector is a proposed interconnector to link Greek, Cypriot and Israeli power grids via the world's longest submarine power cable.

The 287 km cable would link Israel with Cyprus. Cyprus will be connected with the Greek island of Crete. From Crete, an existing cable will be used for connection to mainland Greece providing a connection to the pan-European electricity grid. If built, the total length of the interconnector will be about 1000 km and it would be laid depths of up to 2000 metres under sea level. It will have a capacity to transmit 2000 MW of electricity in either direction. It is expected to cost €1.5 billion, of which €500 million is the cost of the Israel–Cyprus link⁶⁸.

A memorandum of understanding for conducting the feasibility study was signed in Jerusalem on 4 March 2012 between the project company, DEH Quantum Energy, and

⁶⁷ Please refer to the study carried out by Pytheas (2012), “*Southeastern Mediterranean –Hydrocarbons. A new Energy Corridor for the EU?*”, Nicosia.

⁶⁸ Reuters (2012), “*Cyprus group plans Greece-Israel electricity link*”, January 23.

the Israeli Electric Corporation. If the final investment decision will be positive, the project could be launched in 2013. The project is expected to be completed within 3 years from the beginning of construction⁶⁹.

Geopolitical implications of a new Israel-Cyprus-Greece energy axis

The emergent energy axis between Israel, Cyprus and Greece represents a new element in the Mediterranean geopolitical landscape⁷⁰. This could represent a potential element of destabilization in the region and also a source of new tensions with Turkey.

In fact, this cooperation scheme on natural gas fits into a wider scheme of collaboration also involving the defense sector. Israel and Greece and the US are already conducting joint air and naval exercises -in part to simulate defending seaborne gas drilling installations around the eastern Mediterranean- with the Operation Noble Dina, inaugurated in 2011⁷¹. The US had conducted similar exercises -the Operation Reliant Mermaid- with Turkey and Israel from 1998 to 2009, but these were canceled after Turkish president Tayyip Erdogan suspended military cooperation with Israel in 2010. Since then Israel has pursued more military and economic ties with Greece and Cyprus⁷².

For Turkey, the development of defense and energy cooperation between Israel, Cyprus, and Greece is scarcely welcome. As underlined by Ögütçü (2012) beyond its different legal claims, Turkey looks suspiciously at the prospect of closer cooperation among three countries that it views, to different degrees, as antagonists. While the notion of a new alignment between Israel, Cyprus, and Greece, with tacit support from Moscow, runs ahead of the realities on the ground, it is a prospect that cuts across a number of the objectives of Turkish foreign and energy policy⁷³, such as the concept of Turkey as regional natural gas hub.

Moreover, the geopolitics of the eastern Mediterranean region does not involve only the regional actors but also other actors placed along a series of imaginary concentric circles: the European Union, the Russian Federation, the United States.

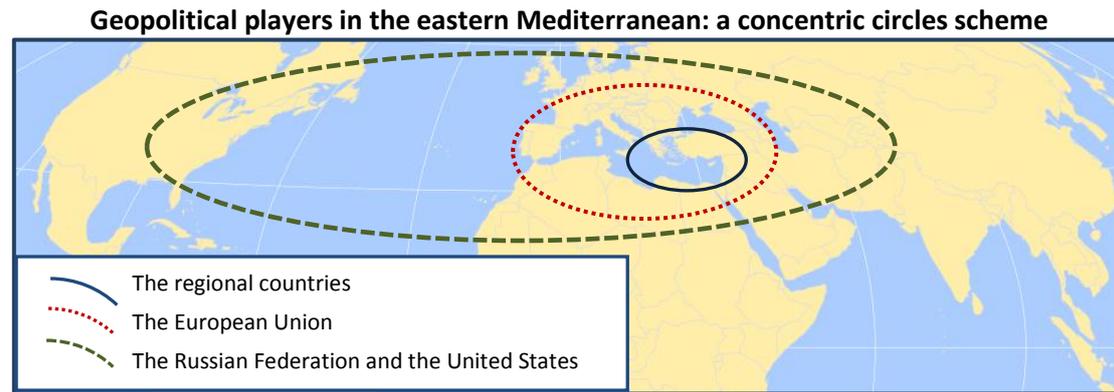
⁶⁹ Reuters (2012), *"Israel-Cyprus underwater power cable takes shape"*, March 4.

⁷⁰ A second new element in the Mediterranean geopolitical landscape is represented by the emerging axis between Turkey and Qatar. The two countries are strengthening their commercial and strategic partnership, also because of complementary interests on natural gas market: the need for gas from the Turkish side and the intention to act as a natural gas hub to Europe is complementary with the need of Qatar to sell its gas through long-term contracts. Moreover, the two countries converge also in terms of geopolitical objectives, as the common support to the Muslim Brotherhood, to Hamas and to the Syrian rebels has already exemplified.

⁷¹ According to Haaretz, the 2012 exercises simulate possible conflict with forces that resemble the Turkish navy and were scheduled to begin in Greek waters near the Turkish coast, continue near Cyprus and end in the port of Haifa.

⁷² The Times of Israel (2012), *"Joint Israeli-Greek military drill seen as rebuff to Turkey"*, April 1.

⁷³ Ögütçü M. (2012), *"Rivalry in the Eastern Mediterranean: the Turkish dimension"*, Mediterranean Policy Program, The German Marshall Fund of the United States, Washington D.C.



The EU has a primary interest on the eastern Mediterranean natural gas prospects, as natural gas will continue to play an important and increasing role in the European energy mix for coming decades. The European Commission has recently stated in its Energy Roadmap 2050 that natural gas will be critical for the transformation of the energy system, foreseeing that medium-term European gas demand will stay high, especially in the power generation sector. In 2010, about 80% of EU gas imports derived from only three suppliers: Russian Federation, Norway and Algeria. This heavy dependence on such a few suppliers stimulated the European Commission to make the concept of diversification a cornerstone of its energy policy. This concept has been interpreted on its broader definition, including both diversification of suppliers and diversification of transit countries, because of the strong geopolitical issues related to gas infrastructure. For this reason a new Eastern Mediterranean Energy Corridor would be primarily important for the EU and its energy outlook.

The Russian Federation wants to establish a strong presence in the emerging East Mediterranean gas province, firstly to maintain its preeminent position as the number one supplier to Europe and secondly to counter Turkish efforts to establish itself as a key new transit country for Caspian gas. The Russian Federation already has close ties with Israel, Cyprus and Greece. As underlined by Mankoff (2012), Moscow views the Republic of Cyprus as an important partner and continues to back it in disputes with Turkey. Cyprus is the single largest channel for foreign direct investment in Russia, totaling more than \$179 billion at the end of 2010. Moscow provided a €2.5 billion loan in December 2011 to help out the troubled Cypriot banking sector, which has been badly hit through overexposure to Greece. Talks are underway for a further €5 billion Russian loan⁷⁴. These financial ties represent a potentially significant source of Russian influence. Moscow supports Cyprus's right to prospect for and produce gas offshore despite Turkey's objections. This has put Russia at odds with Turkey, despite the wide-ranging rapprochement between Moscow and Ankara over the past decade. Russia

⁷⁴ MEES (2012), "Political Agenda Emerges as Cyprus Kicks Off Gas Block Talks", November 16, p. 18.

deployed naval vessels, including one or two submarines and the aircraft carrier “Admiral Kuznetsov”, to the eastern Mediterranean near Cyprus in late 2011⁷⁵.

The United States has an interest in maximizing the gains and minimizing the risks associated with the natural gas developments in the eastern Mediterranean. Key elements of the US foreign policy in the region are: to support Israel’s security; to provide an incentive for political reconciliation among states in the region; to promote European energy security through supply diversification. The increasingly tense relationship between Israel and Turkey has in recent years become one of Washington’s most delicate and unwelcome foreign policy challenges. It is thus possible to expect that the US will try to ensure that energy rivalry does not spark a crisis that complicates its efforts to promote an eventual reconciliation. The US has no interest in seeing the Cyprus conflict and the rift between Israel and Turkey become interlinked as this would make both even more difficult to resolve.

The Eastern Mediterranean Energy Corridor: fantasy or reality?

This paper has tried to provide a wide framework of understanding of the multidimensional issues related to the recent natural gas developments in the eastern Mediterranean region. At this point the crucial question is the following: will the Eastern Mediterranean Energy Corridor materialize or will it remain on paper? Looking at the overall situation is possible to consider that the answer to this question will depend on two key elements: the EU natural gas demand and the commitment of Israel to export part of its natural gas.

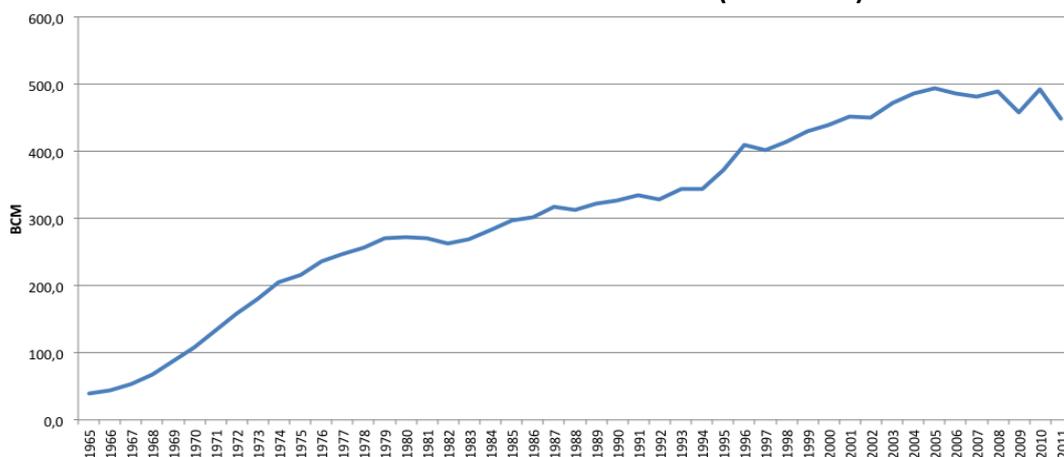
The EU natural gas demand

The EU natural gas demand has gradually increased over the last decades: it grew on average by 4,2% per year during the 1990s, and by 2% per year from 2000 to 2008⁷⁶. European gas demand strongly decreased in 2009 for the first time, primarily because of global financial turmoil. In 2010, the level of EU gas demand bounced back, reaching a new all-time high of 493 bcm, mainly because of a slight economic recovery and a cold winter. However, in 2011 EU gas demand declined to 448 bcm, due to the worsening of the economic crisis and a mild winter.

⁷⁵ Mankoff J. (2012), “*Resource rivalry in the Eastern Mediterranean: the view from Washington*”, Mediterranean Policy Program, The German Marshall Fund of the United States, Washington D.C., p. 5.

⁷⁶ All data in this paragraph refer to: BP (2012), “*BP Statistical Review of World Energy June 2012*”.

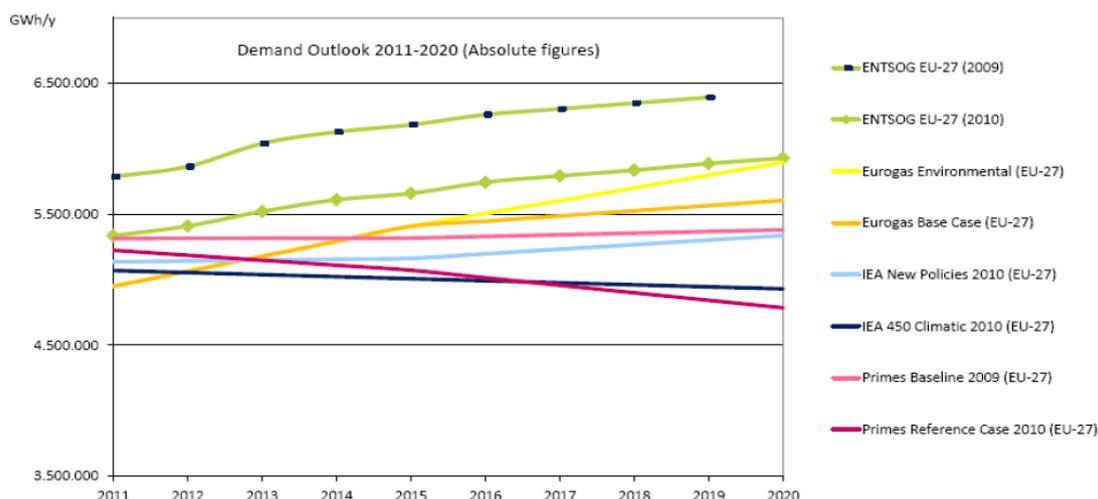
Gas demand in the EU-27 member states (1965-2011)



Source: author's elaboration on BP Statistical Review (June 2012)

There is a great uncertainty as to the role of natural gas in the future mid- to long term EU energy mix. With its EU Energy Roadmap 2050 the European Commission has affirmed that natural gas will be critical for the transformation of the EU energy system. However, looking at the variety of projections on future EU natural gas demand made by different institutions, it is possible to perceive a high level of uncertainty. Some projections (mainly industry based) show an increasing gas demand, while others (integrating strong climate policies) show a declining gas demand⁷⁷.

Different demand projections for EU-27



Source: ENTSOG TYNDP

⁷⁷ For a comprehensive overview on the different scenarios regarding the EU natural gas demand outlook, please refer to: Tagliapietra S., Hafner M., Glachant J.M., De Jong J., Ahner N. (2012), "A New EU Gas Security of Supply Architecture", European Energy Studies, Claeys & Casteels, Deventer.

Together with the mid-to-long term EU natural gas demand also the EU natural gas import needs thus remain a major question mark. This major uncertainty could postpone investment decisions on the Eastern Mediterranean Energy Corridor up to the moment on which the EU natural gas demand outlook will appear clearer.

The commitment of Israel to export part of its natural gas

Surprisingly, a major threat to the development of the Eastern Mediterranean Energy Corridor could be represented by Israel itself. Owning the largest natural gas reserves in the offshore eastern Mediterranean, the country has a pivotal role in the emerging eastern Mediterranean natural gas architecture. In other words, a large-scale development of the Eastern Mediterranean Energy Corridor seems to be very difficult without a strong commitment of Israel to export a substantial part of its natural gas.

In October 2011 the Government of Israel appointed an inter-ministerial committee to examine government policy on the natural gas industry in Israel⁷⁸. The committee, chaired by Mr. Shaul Tzemach, Director General of the Ministry of Energy and Water Resources, conducted a comparative study of the accepted policy in the natural gas sector around the world. The goal was to learn from accrued international experience and identify best practices, and accordingly to recommend to the Government of Israel the optimal policy for the natural gas industry in Israel. Because of the importance of the gas resources for the future of the Israeli economy and society, the committee attributed great importance to ensuring that these limited resources would be utilized in such a way as to maximize their value for the Israeli public and contribute to the country's foreign relations.

The government policy proposed by the committee gives total preference to supplying natural gas for the needs of the local economy in a way that weighs considerations of economic feasibility and constitutes social-wide optimization, particularly in view of the perception that gas resources are a public resource. For this reasons, the committee suggested that Israel could export by 2037 no more than 500 bcm of its existing and perspective gas resources. However, the Committee's recommendations are not expected to be implemented quickly, especially because of the change of government in Israel. For this reason Israel's gas sector development seems to have reached an impasse that only the government that will come out from the forthcoming elections can unlock.

For the time being, unclear government policy does not allow rights holders to take the necessary decisions and obtain the funding that is essential for developing the

⁷⁸ For a detailed information please refer to: "*The Inter-ministerial Committee to Examine the Government's Policy Regarding Natural Gas in Israel - Executive Summary*", available at: <http://energy.gov.il/>

reservoirs, and therefore creates uncertainty all along the natural gas industry's supply chain. The price of this uncertainty could be very high not only for Israel but also for the overall concept of Eastern Mediterranean Energy Corridor.

Conclusion: technical responses to policy uncertainties

In conclusion, it seems too early to fully understand what will be the final shape of the eastern Mediterranean Energy Corridor. However, also if the Israeli gas export perspectives remain uncertain, it is possible to expect the other active players in the area to find technical responses to policy uncertainties. In particular, rather than considering a rigid and costly solution like a pipeline, they will probably turn towards more flexible and cheaper solutions such as onshore LNG or floating LNG export plants. This is the case of the Republic of Cyprus, which is expected to be the first-mover in the area through the development of an LNG export plant. Such a development could also be applied to other eastern Mediterranean countries, in case new natural gas reserves will materialize. The flexibility provided by LNG could also help these actors to overcome the uncertain outlook of the EU natural gas demand, thereby facilitating the necessary investment for the implementation of what could be defined as the first phase of the eastern Mediterranean Energy Corridor.

If a second phase, also concerning the construction of the East Med Gas Pipeline, will ever materialize is -paraphrasing Socrates- *unknown to anyone but God*.

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