

THE VIABILITY OF A MEDITERRANEAN ENERGY HUB AND THE INTERESTS OF EUROPEAN UNION AND RUSSIA; COMMON OR CONFLICTED?

Antonios M. Stratakis*
Theodore Pelagidis**

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It has been a decade since the Southeastern Mediterranean region came to the forefront after the discovery of significant gas deposits in offshore fields located within the Exclusive Economic Zones (EEZ's) of Egypt, Cyprus and Israel. Gradually, the region drew the attention of major oil companies (Total, Statoil, ENI, Exxon Mobil, BP, Rosneft Qatargas) who proceeded in a series of drilling operation projects in order to share the exploitation of the potential regional gas deposits with the involved countries in the future. The aim of this paper on the first level, is to investigate the viability and competitiveness of a forthcoming energy hub in Southeastern Mediterranean, its role and the inevitably fierce competition by other well-established or emerging gas producing areas. In this task, there are a number of direct and indirect parameters that need to be taken under deep consideration. For example, the dominant options of implementing a Mediterranean energy hub, translated into the construction of the EastMed Pipeline or the promotion of an LNG Terminals Network respectively. On the second stage the paper examines and evaluates the interests of European Union and Russia in terms of energy demand and supply. Undoubtedly, the European Union is reconsidering its energy policy, seeking to enhance its steady gas supply by implementing a strategy of diversification in counterparts, routes and sources. On the other hand, Russia's energy policy is aiming to raise market share and global influence. Is there any common ground?

* **Antonios M. Stratakis**, PhD Candidate, Department of Maritime Studies, University of Piraeus (Greece)
e-mail: stratakismaritime@gmail.com
ORCID ID: 0000-0003-2276-5832

** **Theodore Pelagidis**, Professor of Economics, University of Piraeus (Greece), NR Senior Fellow, Brookings Institution (USA)
e-mail: pelagidi@unipi.gr; tpelagidis@Brookings.edu
ORCID ID: 0000-0001-8985-7171

Introduction

Energy has always been a key component of enhancing European sustainability and welfare. Since 2008, the global economy has entered into a new era of economic instability, where globalisation faces protectionism and transnational relations are tested while, in reference to Europe and Eurasia, a new pillar is emerging and it is called Energy Geopolitics. Since 2009, the region of the South-East Mediterranean holds the lion's share of world's interest as the first potential gas deposits in the Levantine Basin came into light. On a pragmatism level, the proven reserves could supply the involved countries (Egypt, Israel and Cyprus) with sufficient quantities of gas and provided them with the appropriate energy independence in order to meet the needs of their domestic markets.

As global oil prices seem to stabilise around USD65-USD75 per barrel and the drilling technology is being updated in a cost-saving direction, the region draws again the attention of major oil and energy companies; the ongoing drilling operations of which, are bringing into light new potential reserves of many trillion cubic feet in offshore blocks of Cyprus. Under this scope, different energy policies come to the forefront as there is a vast necessity to ensure Europe's energy independence in turbulent times. Europe seems to be willing to reduce its energy dependence from Russia, by promoting alternative options, such as the future exploitation of Southeast Mediterranean gas deposits, among others. As a result, the status quo of the region and its energy impact on a worldwide level are about to change.

It needs to be pointed out though, that market dynamics of the global energy sector seem to be very fragile nowadays and status quo is changing; traditional players such as OPEC (mainly Saudi Arabia) seem to step aside

via production cuts, while newcomers such as the US (via shale oil and gas production), Russia (via gas production in the Arctic), Qatar (via gas production in South Pars field) and other energy superpowers come to the forefront. Additionally, in terms of consumption, the lion's share is being concentrated in Asia (China, India, Japan and South Korea) under the implementing decarbonisation policies towards a new "green era".

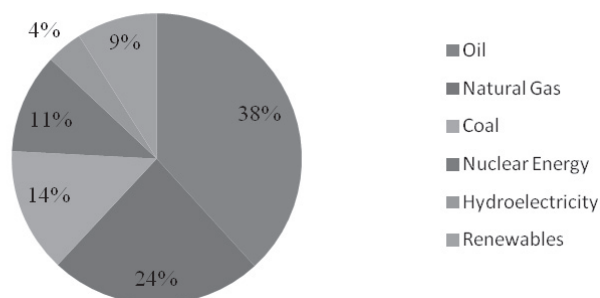
The implementation of a Mediterranean energy hub consisted of Cyprus, Israel and probably Greece, through their gas deposits, creates numerous economic and geopolitical benefits to European Union and the countries involved. Attracting investments and a boost in the regional LNG trade through a potential worldwide acceptance of East Mediterranean gas are only some of the benefits. Additional factors such as close proximity to key maritime routes, the dominance of Greek LNG shipping sector and the existence of all the appropriate infrastructure (port terminals, refineries, shipyards, human capital) ensures Europe's will for gradual energy independence. On the other hand though, it should seriously taken into deep consideration that proven difficulties such as conflicted geopolitical interests, high infrastructure costs and competitiveness in terms of pricing by other global gas suppliers (Russia, the US, Qatar etc.) and networks, might jeopardise the Mediterranean Energy Hub Project on the long term.

The Energy Sector of European Union

Facts and Figures

It is widely known that the European Union is mainly an energy consumer and not a producer. In the last decade energy production levels in Europe have declined, from 471 million tons in 2007, to 301 million tons in 2017, a decrease of 36%. In terms of global production levels,

Figure 1. Allocation of EU's Energy Consumption by fuel



Source: BP Statistical Review of World Energy – June 2018

European Union holds a market share of only 2,6%. On the contrary, in 2017 European Union held 13% of the world's primary energy consumption, reaching 1689 million tons. It is more than obvious, that European energy needs outpace production levels by almost five times. Consequently, in order to support its heavy industry, European Union adopts a diversified energy policy that includes the use of oil, natural gas, coal, nuclear energy, hydroelectricity and renewable energy as it is depicted in Figure 1.

Oil and natural gas account for 62% of energy consumption in Europe¹. It needs to be pointed out though, that EU's energy consumption levels have been declined in the last decade by 7,4%, due to certain reasons, such as the economic recession, supply disruptions of Russian gas and weather conditions. It is of massive importance though, the increasing use of renewable energy in power generation (wind and solar parks). European Union's change of direction towards "green energy projects" is clearly depicted in Table 1.

Table 1. EU's Energy Consumption Levels 2007 vs 2017 (in mil tonnes)

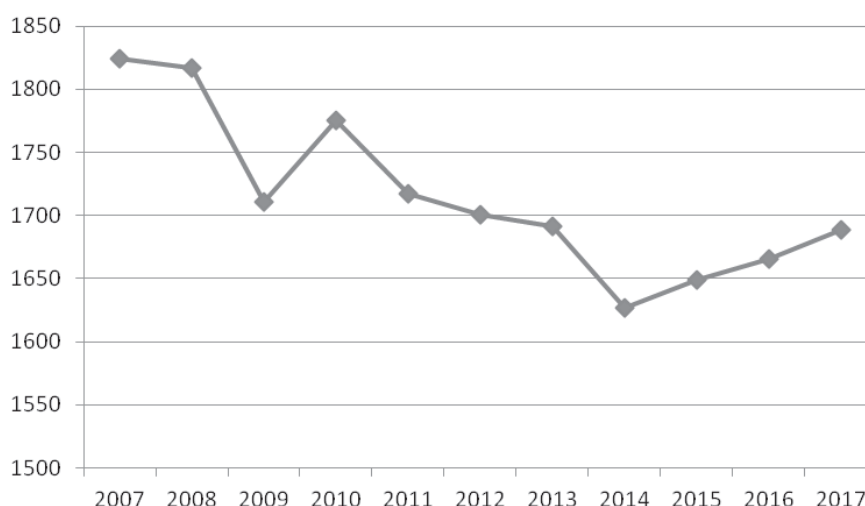
Type of fuel	2007	2017	% change
Oil	732.5	645.4	-11.8%
Natural Gas	434.6	401.4	-7.6%
Coal	328.3	234.3	-28.6%
Nuclear Energy	211.7	187.9	-11.2%
Hydroelectricity	71.1	67.8	-4.6%
Renewables	45.7	152.3	233%
Total	1823.9	1689.2	-7.4%

Source: BP Statistical Review of World Energy – June 2018

Global economy seems to enter in a recovery mode period and so does the European Economy. The global GDP growth for 2018 stood at 3,6% and European GDP growth for the same year was 2,2% respectively².

Furthermore, it should be highlighted that since 2014 EU's energy consumption levels are again on the rise, by achieving a 3,8% growth on a three-year basis, as depicted in Figure 2.

Figure 2. EU's Energy Consumption Levels 2007-2017 (in mil tonnes)



Source: BP Statistical Review of World Energy – June 2018

¹ BP Statistical Review of World Energy (June 2018), available at <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review-2018-full-report.pdf>

² International Monetary Fund Statistics Data, available at https://www.imf.org/external/datamapper/NGDP_RPCH@WEO/OEMDC/ADVEC/WEOWORLD/EUQ

European Gas Demand

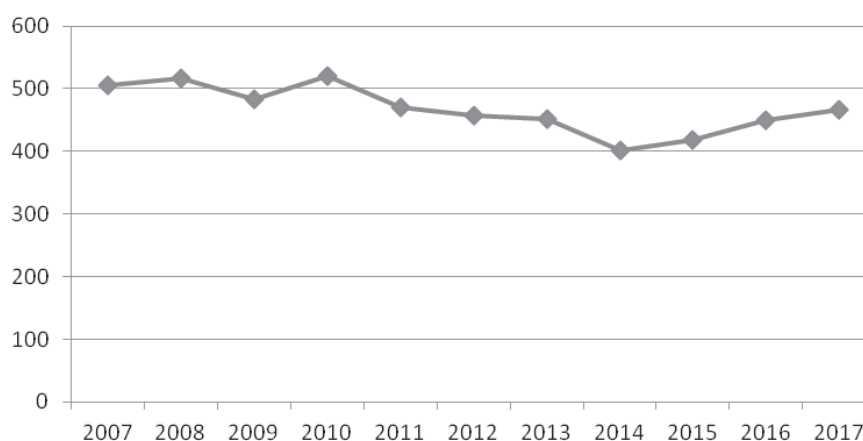
Despite the fact that global economy is on a recovery mode, many analysts project that, by 2040 natural gas will be the primary source of energy, not only as it refers to the European Union's energy needs but also, on a worldwide level³. The re-shape of global gas market is based on: a) consecutive shutdowns of coal plants around the globe, b) the rise of Asian gas demand (mainly attributed to China's energy shift)⁴, c) the optimisation of drilling costs and d) the new drilling technology (such as fracking) that has led to US shale revolution. Moreover, gas might well play an increasing role in the transportation sector, as a fuel for trucks and vessels (lng-fuelled)⁵.

As it refers to the European Union, gas is an essential component of the region's energy mix by constituting 24% of primary energy consumption, contributing mainly to electricity generation, heating and fuel for industry and transportation⁶. On a worldwide level, European gas demand holds a share of 12,7%; during the last decade it have plunged from a peak of 505 billion cubic meteres (bcm) in 2007, to 401 bcm in 2014, in order to rise again in 2016 (due to lower global energy prices) at 449 bcm

and reach 467 bcm in 2017, as depicted in Figure 3. Currently, gas demand in Europe seems to be in a modest process, totally corellated with the economic recovery of the Union. On the contrary, the annual gas production in the European Union during the last decade is on a declining mode, from 197 bcm in 2007 to 118 bcm in 2017, covering only 25% of European gas needs.

European Union holds only 0,6% of world total proved gas reserves, translated into 1.2 trillion cbm (or 41.7 trillion cbf). If the analysis proceeds into a wider region, Eurasia for example that holds 32% of world's proven gas reserves (62.2 trillion cbm), it comes as no surprise why Europe targets on specific regions in its eastern borders, such as Russia, Ajerbaijan and others, in order to cover its energy deficit. In 2017, European Union's natural gas trade movements that took place by pipeline stood at 423 bcm (86% market share) while the LNG imports -via LNG vessels- stood at 66 bcm (14% market share). The European Union imports natural gas via pipelines mainly from Russia and Norway, accounted for 189 bcm (40%) and 109 bcm respectively, while in terms of LNG imports (via vessels), Qatar supplied 24 bcm and Algeria 14 bcm respectively.

Figure 3. EU's Gas Consumption Levels 2007-2017 (in billion cubic meters)



Source: BP Statistical Review of World Energy – June 2018

³ Geropoulos C., "BP: Global LNG supplies more than doubling by 2040", *New Europe* (2018, September 24), available at <https://www.neweurope.eu/article/bp-global-lng-supplies-more-than-doubling-by-2040/>

⁴ Due to the implementation of decarbonization policies, Asia is the second largest gas consumer with 21% market share of global gas consumption (770 bcm), following North America with 26% market share respectively (943 bcm). In terms of gas imports, LNG trade movements into Asia are on the rise as the Asia Pacific region (China, India, Japan, South Korea etc) holds the lion's share in global LNG trade (72% for 2017)

⁵ "Saenz de Santa Maria C., "Conditions right for LNG to set sail", *Hellenic Shipping News* (2018, April 16) available at <https://www.hellenicshippingnews.com/conditions-right-for-lng-to-set-sail/>

⁶ Hafner, M., Tagliapietra S., (2013), "The Globalization of Natural Gas Markets: New Challenges and Opportunities for Europe". Deventer, Netherlands: Claeys & Casteels Publishing

It is more than obvious that European Union's energy needs are highly depended on a small number of external suppliers and that exactly had generated over the years a broad European debate on the issue of gas supply security⁷. Moreover, after consecutive and long lasting gas disruptions in many European countries amid Russian-Ukrainian disagreements on pricing and other geopolitical issues, the European Union took the decision in 2008 to launch a strategic plan about the diversification of its gas supplies. Furthermore, the recent findings in Eastern Mediterranean gas deposits support the European Union to achieve a steady and reliable gas supply by implementing a strategy

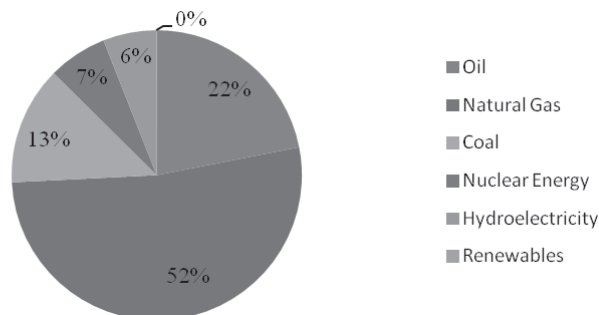
of diversification in counterparts, routes and sources⁸.

The Russian Energy Sector

Facts and Figures

In the last decade, energy consumption levels in Russia are on a modest rise, from 673 million tons in 2007 to 698 million tons in 2017, holding only 5% of market share worldwide in terms of energy consumption. Russia uses mainly oil and natural gas (74% market share), at lower rates coal, nuclear energy, hydroelectricity and almost no renewable energy as it is depicted in Figure 4.

Figure 4. Allocation of Russia's Energy Consumption by fuel



Source: BP Statistical Review of World Energy – June 2018

It is widely known that Russia adopts an energy policy that targets in increasing production levels and since the latter outpace Russia's consumption levels –by almost twice- there is enough room for export activity. Russia holds 11,5% of world energy production in terms of oil, natural gas and coal,

as it is depicted in Table 2. Moreover, in the last decade, energy production levels in Russia are on the rise, from 1158 million tons in 2007 to 1307 million tons in 2017, an increase of 12,8%, as it is depicted in Table 3. Oil and natural gas hold the lion share in Russia's production levels with 84%.

Table 2. Russia's Production in 2017 vs World Total Levels (in mil tonnes)

Type of fuel	Russia	World Total	Market Share (%)
Oil	554.4	4387.1	12.6%
Natural Gas	546.5	3164.6	17.2%
Coal	206.3	3768.6	5.4%
Total	1307.2	11320.3	11.5%

Source: BP Statistical Review of World Energy – June 2018

⁷ Pitatzis A. (2018), "The role of LNG in European Energy Security", Foreign Affairs Greek Edition, available at <https://www.foreignaffairs.gr/articles/71733/athanasios-pitatzis/the-role-of-lng-in-european-energy-security?page=show>

⁸ Pelagias G. (2012), "Major Gas Finds in Eastern Mediterranean-a source of new supply and conflicts in South East Europe", Network for Oil and Gas, Stockholm

Table 3. Russia's Energy Production Levels 2007 vs 2017 (in mil tonnes)

Type of fuel	2007	2017	% change
Oil	497.5	554.4	11.4%
Natural Gas	517.3	546.5	5.6%
Coal	143.5	206.3	43.7%
Total	1158.3	1307.2	12.8%

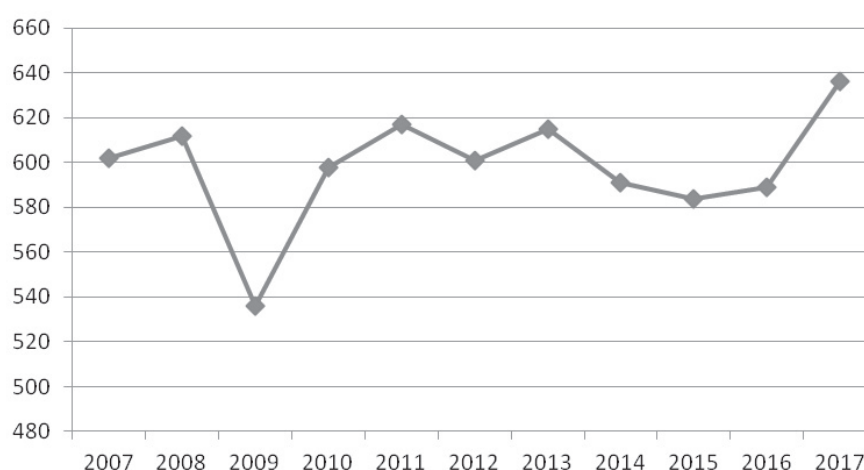
Source: BP Statistical Review of World Energy – June 2018

3.2 Russian Gas Production and Exports

Gas is an essential component of Russian energy policy, consisting 42% of primary energy production. Moreover gas production levels achieved a 5,6% increase in the last decade reaching 636 billion cbm, as it is depicted in Figure 5. Russia is also the second largest gas producer worldwide, following the US with 735 billion cbm in 2017.

As it refers to proved gas reserves, Russia holds the world's largest ones with a market share of 18% and 35 trillion cbm (1235 trillion cbf). Most of these are located in large natural gas fields in West Siberia (Yamal-Nenets region)⁹. The state-run Gazprom dominates Russia's natural gas sector with a 65% market share in terms of production¹⁰. Other important Russian energy companies are Novatek, Rosneft and Lukoil.

Figure 5. Russian Gas Production Levels 2007-2017 (in billion cubic meters)



Source: BP Statistical Review of World Energy – June 2018

It comes as no surprise that Russia targets on its global energy dominance. As it is already mentioned, since the mid-2000s, natural gas consumption in The Organization for Economic Cooperation and Development (OECD) Europe has generally been flat to declining, prompting Russia to look to Asia and LNG as means to diversify its natural gas exports. Furthermore, the US and European Union sanctions,

implemented in 2014, accelerated Russia's pivot to the east, with Russia to begin pipeline supplies –via “Power of Siberia Pipeline”- to China in late 2019 in order to achieve an important market share by 2025¹¹.

In 2017, Russia's natural gas trade exports that took place by pipelines stood at 215 bcm (93% market share) while LNG exports –via LNG vessels- stood at 16 bcm (7% market

⁹ Five of Gazprom's largest operating fields in the region are Yamburg, Urengoy, Medvezhye, Zapolyarnoye and Bovanenkovo

¹⁰ Gazprom until recently had a legal monopoly on pipeline gas exports

¹¹ “Power of Siberia: Russia's mega gas pipeline to China almost complete”, *Russia Today* (2018, September 6) available at <https://www.rt.com/business/437753-power-of-siberia-china/>

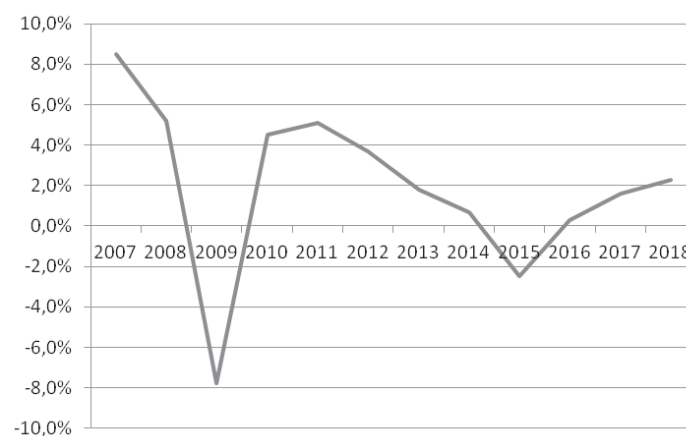
share). Russia's main natural gas importer – via pipelines – is Europe with 189 bcm mainly allocated between Germany and Turkey, while in terms of LNG exports, the Asia-Pacific region remains the sole destination of 15 bcm in 2017, with Japan holding the lion's share with 10 bcm. On the other hand, in 2017 Russia presented a limited importing activity via pipelines, with 12.1 bcm of natural gas from Kazakhstan and 6.7 bcm from of natural gas from Uzbekistan.

Russian Engagement in the Arctic

Russia's economic growth is driven by energy exports, given its high oil and natural

gas production mentioned above. Oil and natural gas revenues accounted for 36% federal budget revenues in 2016¹². In the last decade though, Russia's economy faced two recessions: a) between 2008 and 2009 due to the outburst of global economic crisis and b) between 2014 and 2015 due to the sanctions imposed by European Union and the US after the annexation of Crimea, translated into lower energy imported volumes. In the meantime, between 2011 and 2013, Russia recorded an economic slowdown, as it is depicted in Figure 6.

Figure 6. Russia's Gross Domestic Product Growth 2007-2018 (%)

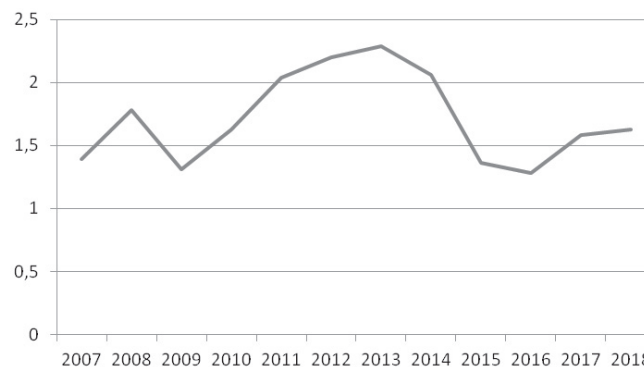


Source: IMF

Since 2016, Russian economy is recording consecutive growth, as depicted in Figures 6 and 7, mainly attributed to stable energy prices and the strategy of contracting efficient and long lasting energy agreements. Economic recovery through a rapprochement with European union has paved the way for Russia to strengthen its

strategy about the exploitation of its reserves in the Arctic coast alongside Siberia, as depicted in Map 1. According to 2016 data, 93% of Russia's natural gas production is taking place in the Siberian region (West/East Siberia and Far East), with Yamal-Nenets and Sakhalin regions holding the lion's share¹³.

Figure 7. Russia's Gross Domestic Product 2007-2018 (in trillion dollars)

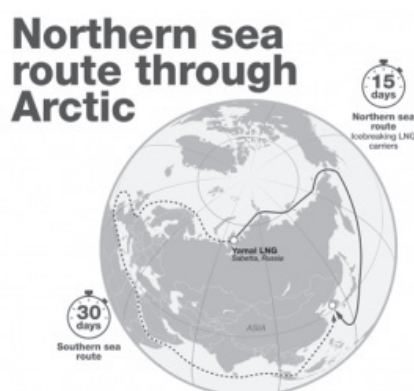


Source: IMF

¹² Ministry of Finance of the Russian Federation, Annual report on execution of the federal budget, (2017 April 28)

¹³ US Energy Information Administration (2017), Country Analysis: Russia

Map 1. Russian Arctic Coast



Source: Total

Since 2009, Russian Gazprom operates a large-scale LNG export facility, the Sakhalin Basin, with the majority of LNG contracted to Japanese and South-Korean buyers under long term agreements. The annual capacity of Sakhalin LNG Basin is 10 million tons of lng. In 2013, Russia modified its Law on Gas Exports to allow Novatek and Rosneft to export LNG, breaking Gazprom's monopoly on all natural gas exports. The second operative Russian LNG project is, Yamal Plant which began production in 2013. Owned by a Consortium of Novatek (50,1% stake), Total and China National Petroleum Company-CNPC (20% stake) and the Silk Road Fund (9,9% stake) it has an annual capacity of 16.5 million tons of LNG, a great part of which is about to supply China via the "Power of Siberia Pipeline"¹⁴.

To export LNG from its arctic location to Far East or Europe, Yamal Plant had commissioned the construction 16 ice-class tankers¹⁵. As it refers to Far East, the ice-class tankers transfer LNG cargoes during most of the year, transiting the Arctic Ocean and the Bering Strait. Europe on the other hand, imports Yamal cargoes via ship-to-ship transfers in Norwegian waters, a procedure that finds the opposition from the US¹⁶. By transferring LNG to more conventional tankers in Norway, the Arctic vessels cut in half

the distance they would cover to deliver gas to Europe, enabling more frequent shipments from the Novatek terminal and increasing Russia's gas exports.

Russia also plans to build a number of large-scale LNG projects across Arctic, Pacific and Baltic coasts, such as Arctic LNG-2, Baltic LNG, Far East LNG and others, while in 2019 the Kaliningrad FSRU begun operation. The exploitation of the above projects is taking place via consortia consisted of Russian energy companies Rosneft, Novatek, Gazprom, Western companies ExxonMobil, Eni, Statoil, Total, Shell, Asian companies and financial institutions. All things considered, Russia seems to win the race to develop Arctic Energy¹⁷.

Feasibility of a Mediterranean Energy Hub

As it was referred, the European Union strongly promotes the enhancement of its internal energy market in order to foster steady natural gas flows between its member states and since 2008 it studies the promotion of a –European based- Southeast gas corridor, based on potential resources of the Eastern Mediterranean region¹⁸. The implementation of a such an energy corridor is recognised as one of highest energy security priority for the European Union.

¹⁴ Geropoulos C., "Russia's western route to China jeopardise Gazprom's supplies to Europe", *New Europe* (2018, September 14), available at <https://www.neweurope.eu/article/russias-western-route-to-china-may-jeopardise-gazproms-supplies-to-europe/>

¹⁵ Total (2017), "Total inaugurates the Northern Sea Route with LNG Carrier Christophe de Margerie", available at <https://www.total.com/en/news/total-inaugurates-northern-sea-route-lng-carrier-christophe-de-margerie>

¹⁶ Fouche G., Holmes D. and Croft A., "US slams Russia's Yamal LNG transfers in Norwegian waters", *Hellenic Shipping News* (2018, December 1), available at <https://www.hellenicshippingnews.com/u-s-slams-russias-yamal-lng-transfers-in-norwegian-waters/>

¹⁷ Tsafos N., "Is Russia winning the race to develop Arctic energy?", *Center for Strategic and International Studies* (2019, March 22), available at <https://www.csis.org/analysis/russia-winning-race-develop-arctic-energy>

¹⁸ European Commission (2008) "Second Strategic Energy Review-an EU Energy Security and Solidarity Action Plan", Brussels available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0781:FIN:EN:PDF>

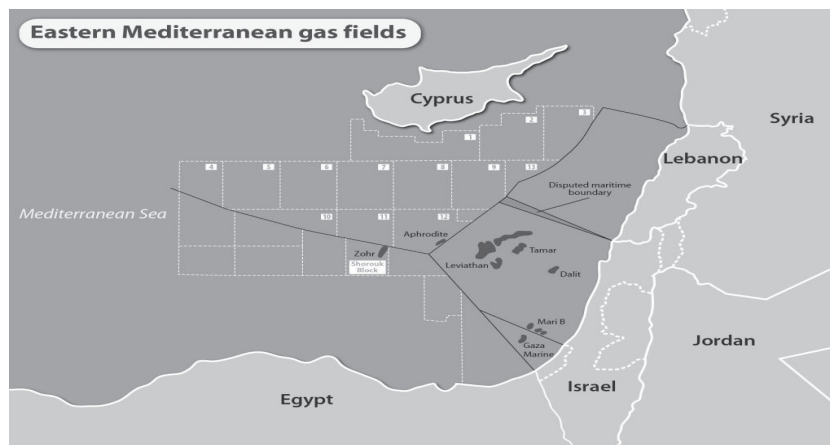
In 2009, Noble Energy Inc. discovered the first major gas deposit of 250 bcm capacity in Israel's Tamar Field. In 2010, a more important gas deposit of 476 bcm was also discovered in Israel's Leviathan Field. In 2011, Noble Energy discovered a gas deposit of 170 bcm in Cyprus' Aphrodite Field (Block 12). The first round of major gas discoveries in Eastern Mediterranean ended with 2015 ENI's discovery of the biggest –so far– gas deposit, Zohr Field with a capacity of 850 bcm. All the above reserves are depicted in Map 2.

As a result, in less than a decade the Southeastern Mediterranean came to the forefront of the global oil industry's concern by shaping new regional geopolitical balances. The above gas discoveries totaling 1.7 trillion cbm did not reveal a sufficient amount of reserves that would ensure a steady gas supply to Europe on a permanent basis. Instead, the pragmatic

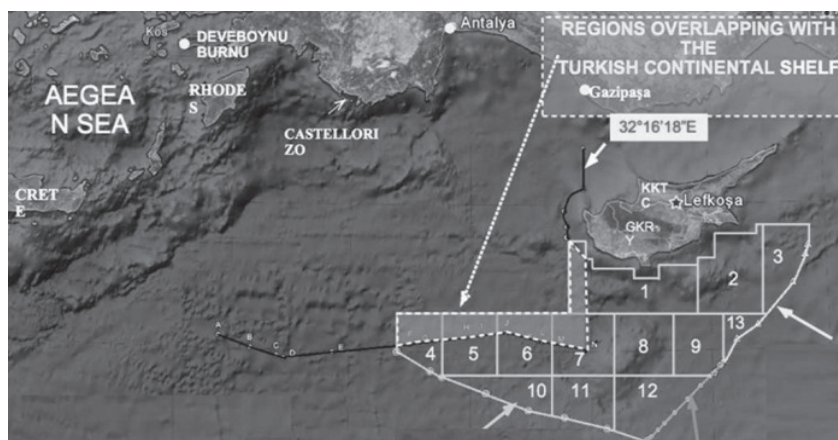
scenario ordered the coverage of involved countries domestic needs on a first phase and until new larger discoveries come into light.

In July 2017 Total and ENI began drilling operations in Block 11 of the Cyprus EEZ, as it was expected to hide immense quantities of gas, similar to the neighbouring Egyptian mega-gas field, Zohr. In February 2018, Total and ENI officially announced that a lean gas discovery in Block 6 (Calypso) offshore Cyprus –a region under dispute with Turkey– has been made of about 170-227 billion cbm (6-8 trillion cbf)¹⁹. In early 2019 Total and ENI committed to continue drilling operations in other blocks of Cyprus' EEZ such as Block 7 and 8. For the time being, this is a disputable maritime area between Turkey (via Turkish Republic of Northern Cyprus) and the Republic of Cyprus²⁰. The dispute extends to Greece as it refers to Kastelorizo and the continental shelf matters with Turkey (Map 3).

Map 2. Eastern Mediterranean Gas Reserves (2009-2015)



Map 3. Turkey's Claims on Cyprus' EEZ



¹⁹ ENI, (2018) "Eni announces a gas discovery Offshore Cyprus", available at https://www.eni.com/en_IT/media/2018/02/eni-announces-a-gas-discovery-offshore-cyprus

²⁰ Ellinas C., "Turkey False claims on Cyprus exclusive economic zone", *Maritime Cyprus* (2017, July 25), <https://maritimecyprus.com/2017/07/25/turkey-false-claims-on-cyprus-exclusive-economic-zone-eez/>

In early 2018, ENI's drilling operations on Block 3 of Cyprus EEZ were postponed after intense military presence by Turkish Navy in the region. In late 2018, Exxon Mobil and Qatar Petroleum proceeded with drilling operations on Block 10 of Cyprus –another disputed area with Turkey. Within a three months period the "Glaucus-1" gas deposit revealed a capacity between 142-227 billion cbm (5-8 trillion cbf) and an estimated value of USD40 billion²¹. According to the US Ambassador to Greece, the ExxonMobil's discovery affects the energy markets positively and boosts European Union energy security by reducing dependence on Russian natural gas²².

The promotion of Mediterranean Energy Hub and the exploitation of the above reserves can be so far implemented by two alternative options; a) the EastMed Pipeline Project that would connect Israel, Cyprus and Greece's potential deposits, despite the fact that it would face a great competition from the existing European pipeline network²³ and b) the adoption of a Mediterranean LNG Terminals Network, capable of storing and regasification of liquified natural gas, in order to take advantage of the regional maritime cluster and the geopolitical importance of regional infrastructures (port terminals, refineries and shipyards) that would probably

boost mediterannean gas trade on a worldwide level.

In any case, the importance of promoting a Mediterranean Energy Hub is twofold: a) it enhances Europe's gas security of supply via diversification of routes and sources; b) it develops the European Union's indigenous resources such as the offshore gas reserves around Cyprus and Greece.

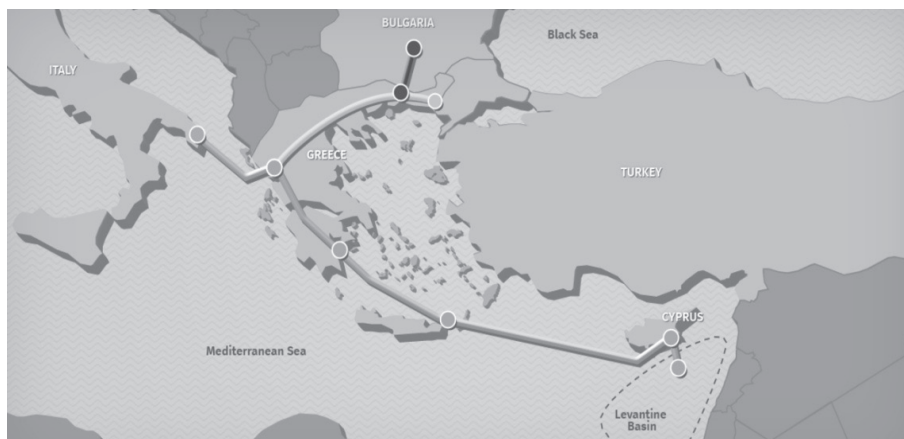
1. The EastMed Pipeline Project

The EastMed Pipeline Project refers to the construction of a combined offshore-onshore natural gas pipeline that would connect directly East Mediterranean gas resources of Cyprus and Israel to Europe via Greece.

Fulfilment of the project demands the additional construction of a complementary pipeline that will connect Epirus region (Greece) with the Italian region of Otranto. The project is being currently designed to transport initially 10 bcm annually²⁴, through 1.300 km of offshore pipeline and 600 km of onshore pipeline²⁵, as it is depicted in Map 4.

The EastMed pipeline is preliminarily designed to have exit points in Cyprus, Crete, mainland Greece as well as the connection point with Italy. Furthermore, the pipeline would allow to feed Cyprus internal consumption with additional 1 bcm annually.

Map 4. The "EastMed Pipeline" and its Interconnectors



Source: <http://www.igi-poseidon.com/en/eastmed>

²¹ Koukakis N., "ExxonMobil makes biggest natural gas discovery in two years off the coast of Cyprus", CNBC (2019, February 28), available at <https://www.cnbc.com/2019/02/28/exxonmobil-makes-big-natural-gas-discovery-off-the-coast-of-cyprus.html>

²² Geropoulos K., "Cyprus' new Glaucus-1 gas field can boost EU energy security", *New Europe* (2019, March 1) available at <https://www.neweurope.eu/article/cyprus-new-glaucus-1-gas-field-can-boost-eu-energy-security/>

²³ De Micco P. (2014) "The Prospect of Eastern Mediterranean Gas Production: An Alternative Energy Supplier for the EU?" Policy Department, European Parliament

²⁴ With an option of a future annual capacity of 16 bcm, depending on the demand and the potential gas reserves

²⁵ <http://www.igi-poseidon.com/en/eastmed>

The EastMed Pipeline Project was initially proposed in August 2010 and then aggressively promoted by Benjamin Netanyahu in 2011, especially after the deterioration of Turkish-Israeli relations that followed the Mavi Marmara incident. The Project was also strongly supported by Greece's Prime Minister of that time Antonis Samaras, as it was stated that EastMed pipeline was the only export project worthy of serious Greek diplomatic support.

In May 2015, under the support of the Cypriot, Greek and Italian governments, the European Commission declared the EastMed Pipeline as a Project of Common Interest (CPI) included in the second PCI list among other southern gas corridor projects²⁶. The EastMed Project has also been included in the last Ten Years Development Plan (TYNDP), in line with the objective of the European Network Transportation System Operators of Gas (ENTSO-G) in order to create a single European market for gas and a reliable and safe transmission network capable of meeting Europe's current and future needs. In 2015, the project was also awarded with European grants of EUR2 million through the Connecting Europe Facility Programme (CEF), necessary for the co-finance of the Pre-FEED studies on technical and commercial issues of EastMed Pipeline²⁷.

In April 2017, Israel, Greece, Cyprus and Italy signed a preliminary agreement²⁸ to promote preparations for the construction of the pipeline. During 2018 the above nations proceeded in further advanced talks for the materialisation of the project²⁹. Finally, in March 2019 and after recent gas discoveries by Exxon Mobil in Block 10 of Cyprus, the final intergovernmental agreement for the construction of EastMed Pipeline was decided to be signed at the second

half of 2019, after the European Parliament elections³⁰, under US consensus³¹. The project is expected to be completed and operative by 2025.

Furthermore, since 2019 Eastern Mediterranean countries have agreed to launch East Med Gas Forum (EMGF) in an effort to promote the region into a major energy hub, to ensure supply and demand and to offer competitive prices³². The countries that join EMGF are Egypt, Cyprus, Greece, Italy, Israel, Jordan and the Palestinian territories.

Contribution of EastMed Pipeline

The construction of the EastMed Pipeline could enhance European security of gas supply, in terms of developing European indigenous resources³³. Greece and Cyprus are devoted to the principles of the European Union, consisting important pillars that provide sustainability in a very fragile region -political unrest in Turkey and Libya, Syria Civil War etc. It is common sense that the majority of international oil companies' stakeholders and certain political leaderships through Europe, under no occasion want to see Turkey's conversion into a major energy hub and Europe's energy needs to be determined by Prime Minister's Erdogan wills³⁴. Moreover, alternative plans about promoting exports from Levantine basin through Egyptian LNG terminals (Idku and Damietta) instead of, for example, EastMed Pipeline seem to be quite a risky business, as the Egyptian government owes approximately USD 3,6 billion in international oil companies³⁵. Greece and Cyprus remain two reliable and peaceful countries, willing to promote the interests of the European Union.

The EastMed Pipeline could be a project with huge political and economic cumulative

²⁶ Official Journal of the European Union (2016), available at http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2016_019_R_0001&from=EN

²⁷ European Commission (2015), *Innovation and Networks Executive Agency*, available at <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/projects-by-country/multi-country/7.3.1-0025-elcy-s-m-15>

²⁸ Euractiv (2017), "Italy, Greece, Cyprus and Israel eye longest offshore gas pipeline", available at <http://www.euractiv.com/section/energy/news/italy-greece-cyprus-and-israel-eye-longest-offshore-gas-pipeline/>

²⁹ Geropoulos K., "Greece, Cyprus, Israel to discuss gas exports to Europe", *New Europe* (2018, December 14), available at <https://www.neweurope.eu/article/greece-cyprus-israel-to-discuss-gas-exports-to-europe/>

³⁰ Especially due to certain political difficulties in approaching the new Italian government

³¹ Geropoulos K., "Greece-Cyprus-Israel EastMed gas pipeline reaches Washington", *New Europe* (2019, March 14) available at <https://www.neweurope.eu/article/greece-cyprus-israel-eastmed-gas-pipeline-reaches-washington/>

³² Geropoulos k., "East Med countries agree to create regional gas market", *New Europe* (2019, January 16), available at <https://www.neweurope.eu/article/east-med-countries-agree-to-create-regional-gas-market/>

³³ Tzogopoulos N., "The EastMed Pipeline could be a giant step towards enhancing regional security", *BESA Perspectives* (2017, June 22), available at <https://besacenter.org/perspectives-papers/eastmed-pipeline-security/>

³⁴ Ellis A., "Erdogan threatens gas companies", *Kathimerini printed edition* (2017, March 19), available at <http://www.kathimerini.gr/901241/article/epikairothta/politikh/o-erntogan-fovizei-tis-etairies-aerioy>

³⁵ Baconi, T. (2017), "Pipelines and Pipedreams; How the EU can Support a Regional Gas Hub in the Eastern Mediterranean", European Council on Foreign Relations, available at https://www.ecfr.eu/publications/summary/pipelines_and_pipedreams_how_the_eu_can_support_a_regional_gas_hub_in_7276

impact on a regional and –probably- global level as well. The succesful operation of EastMed Pipeline would mean a lot especially for Greece and Cyprus, two countries that have been under strict European financial supervision in recent years and are in a high need to attract massive investment programs. According to IMF data, Cyprus' GDP reduced by USD7,8 bn between 2011 and 2015 due to banking sector issues and since then, it is achieving an extraordinary economic performance translated into an average annual growth of 3,8% between 2015 and 2018. On the other hand, Greece's GDP reduced by almost USD160 billion between 2008 and 2015. Since 2017, Greece has returned in positive annual growth rates of almost 2%.

According to the Internatinal Energy Agency (IEA) estimates of the amount of proven reserves in Eastern Mediterranean (Israel, Cyprus and Egypt) could reach 2 trillion cbm, "a second Norway" as IEA's head Mr. Fatih Birol stated³⁶. The above would have an indsiputable impact on strengthening of the local economies in terms of supporting entrepreneurship, reducing high unemployment rates and skilled workforce on the medium term. The development of the domestic gas market in Cyprus and Greece could generate thousands of jobs especially during the construction phase of the import infrastructure and the national and regional distribution network of pipelines³⁷. The combined profits for Cyprus and Greece from direct sales of gas to regional markets could generate several billion of euros on a long term basis -ten years- as most of the profits would be generated from savings and investment on gas infrastructures³⁸.

EastMed Pipeline: Viability and Barriers

In 2018, the results of the Pre-FEED studies confirmed that in the best case scenario the EastMed Pipeline is: a) technically feasible –since there is an important number of industry players to confirm their availability of infrustructure and equipment to secure the Project's realisation, b) economically viable –since according to current

estimates the total project's cost and projected capital expenditures are going to be lower than other import projects in the European Union of similar capacity, securing gas prices from fluctuation, and c) supportive to other multiple export schemes -such as a Mediterranean LNG Terminals Network, since there is still a wide region under explore and so as, future discoveries. The EastMed Pipeline Project development activities are currently focusing on performing marine surveys along the route, in order to improve accuracy and to finalise preparation of the tender packages for initiating the proper development phase, that would allow the project to reach investment decision status.

The adoption of a modest scenario reveals important –but not- inaccessible barriers. The cost of constructing EastMed Pipeline is the main obstacle that needs to be overcome. The project demands a high capital investment of about USD6-USD7 billion due to certain technical challenges such as the unprecedented depth of three kilometres in Southern Crete that the pipeline must reach. High infrastructure costs would jeopardise the final gas prices that will have to rival the cheaper Russian or Qatari gas, creating a very challenging condition³⁹. A positive notion to the above claim is that many of the energy companies that have expressed interests in exploring Levantine gas fields are supermajors of the global oil and gas industry, fully expertised in similar project around the globe and all the appropriate equipment (platforms, drilling vessels, ultra-deep pipe laying vessels etc) and as a result could handle their operational expenses efficiently. It should be also mentioned that as global energy market remains fragile and global energy prices growth remain modest, energy companies' appetite in investments is clearly negatively affected.

In developing such projects, the energy companies involved are seeking third-party financing⁴⁰. The project that will actually be developed is the one that can secure financing

³⁶ Ellis A., "Eastern Mediterranean reserves equal to that of Norway", *Interview of IEA's Executive Director Fatih Birol at Kathimerini printed edition* (2017, July 31), <http://www.kathimerini.gr/920695/article/proswpa/syentey3eis/ta-koitasmata-ths-anat-mesogeioy-einai-san-ayta-ths-norvhgias>

³⁷ Giamouridis, A. (2013), "Natural Gas in Cyprus; Choozing the Right Option", *Mediterranean Paper Series, The German Marshall Fund of the United States*

³⁸ Tsakiris, T. (2016), "The Gifts of Aphrodite: The Need for Competitive Pragmatism in Cypriot Gas Strategy?", *Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?*, (Tel Aviv University Press: 2016), pp.22-37

³⁹ Tsakiris, T., (2014), "Greece and the Energy Geopolitics of the Eastern Mediterranean" *LSE IDEAS: Strategic Update 14.1*

⁴⁰ Giamouridis A., Tsafos N. (2015), "Financing Gas Projects in the Eastern Mediterranean", *Foreign and Security Policy Paper Series, The German Marshall Fund of the United States*

and as a result questions raise about the engagement of European financial institutions or even the involvement of financial institutions from the US or China. Project finance is increasingly popular especially for LNG projects that require large initial capital outlays and are able to secure long-term commitments from buyers, guaranteeing 10-20 years of cash flow. The European Investment Bank (EIB) is the most important source of financing in the European Union by promoting strategic infrastructures. In 2014, the EIB disbursed almost USD77 billion of which USD12,8 billion went towards energy projects, representing 16,6% of EIB's portfolio. The above means that there are huge potential for EIB to raise the share of financing energy projects.

EastMed Project faces competition from many similar existing or planned energy projects, that are going to be analysed in chapters to come. In order to proceed as fast as possible, elimination of bureaucracy must take place. As it mainly refers to Greece, bureaucracy must be addressed by creating a friendly and safe investment environment⁴¹, with the minimum requisite state control and efficient offshore licensing rounds. For example, a licensing round in Greece may last between two and half to three years while in Cyprus it is completed in nine months. The Cypriot method tends to be profitable, as Cyprus in May 2017 received EUR103,5 million from signature bonuses with major energy companies.

On the political level, Israel is now convinced that the EastMed Pipeline is a project of common economic and geopolitical interest for the

countries involved⁴², eliminating the alternative option of implementing an underwater pipeline from Levantine to Cayhan that will transfer gas to Turkey⁴³. That would create an imbalanced trade relationship and promote Turkey's dominance in the region, as the main gas hub⁴⁴. Moreover, an important aspect that should be addressed by the European Union has to do with Turkey's ambitions in the region Southwest of Cyprus⁴⁵, as it has been stated to the United Nations many times already.

Promotion of an LNG Terminals Network in Eastern Mediterranean; an Alternative Option

In 2010 Noble Energy and Israel's energy company Delek proposed the construction of underwater pipelines linking Leviathan gas deposits and those in the Aphrodite's field with Vasilikos LNG Plant, a terminal with a projected annual capacity of 6.8 bcm annually⁴⁶. The project though was delayed due to the insufficiency of existing gas reserves as it is already mentioned. Since late 2018 and as Glaukos-1 reserves came into light, the Cypriot government promotes the construction of Vasilikos FSRU Terminal with a storage capacity of 125.000 cbm, capable to accommodate LNG carriers ranging in size from 120.000 cbm to 217.000 cbm⁴⁷.

In 2018, DESFA's Revythoussa LNG Terminal was expanded by adding a third tank, raising storage capacity to 225.000 cbm from 130.000 cbm and annual capacity at 7 billion cbm⁴⁸. The expanded Revithoussa LNG terminal in conjunction with the Trans Adriatic Pipeline (TAP) and the Interconnector Greece Bulgaria (IGB) as well as a planned pipeline between

⁴¹ Mathios R. (2015), "Energy, Economics and Security in Eastern Mediterranean", *Hellenic National Defence College & Dartmouth Centre for Sea Power and Strategy, Piraeus*

⁴² Papahelas A., "Important gas reserves in Israel, Cyprus, Crete", *Interview of Israel's PM Benjamin Netanyahu at Kathimerini printed edition* (2017 June 18), available at <http://www.kathimerini.gr/914471/article/proswpa/syntey3eis/netaniay-megala-apo8emata-aerioy-se-israhl-kypro-krhth> and "Huge potential of cooperating with Greece", *Interview of Israel's President Reuven Rivlin kathimerini printed edition* (2018 January 28), available at <http://www.kathimerini.gr/945578/article/proswpa/syntey3eis/royven-rivlin-h-synergasia-me-thn-ellada-exei-megalh-prooptikh>

⁴³ Nasi S. "Turkish-Israeli Pipeline Deal on the Way?", *Hurriyet Daily News* (2017 April 29) available at <http://www.hurriyetdailynews.com/turkish-israeli-pipeline-deal-on-the-way.aspx?pageID=449&nID=112537&NewsCatID=570>

⁴⁴ Tsakiris T. (2014), "Shifting Sands or Burning Bridges?", *ELIAMEP Policy Papers*

⁴⁵ Richert, J. (2016), "Turkey's Energy Leadership Ambitions and Their Implications for Energy Governance in the Eastern Mediterranean", *Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?*, (Tel Aviv University Press: 2016), pp.47-63

⁴⁶ Cypriot Ministry of Energy, Industry, Commerce and Tourism (2015), "Master Plan of the Vasilikos Area (Update) Executive Summary", available at [http://www.mcit.gov.cy/mcit/mcit.nsf/0/11ffcd876c06b58cc2257c7700255d18/\\$FILE/The%20Vasilikos%20Master%20Plan%20Update%20May%202015%20-%20Executive%20Summary.pdf](http://www.mcit.gov.cy/mcit/mcit.nsf/0/11ffcd876c06b58cc2257c7700255d18/$FILE/The%20Vasilikos%20Master%20Plan%20Update%20May%202015%20-%20Executive%20Summary.pdf)

⁴⁷ "Cyprus extends tender deadline for LNG import facility", *LNG World News* (2019 January 25), available at <https://www.lngworldnews.com/cyprus-extends-tender-deadline-for-lng-import-facility/>

⁴⁸ Geropoulos K., "Greece launches expanded LNG terminal to deliver gas to the Balkans", *New Europe* (2018 November 23), available at <https://www.neweurope.eu/article/greece-launches-expanded-lng-terminal-to-deliver-gas-to-the-balkans/>

Bulgaria and Romania will open new routes for natural gas supply in Europe, diversifying energy supplies in the Balkan region, which heavily relies on Russia for gas supplies. Indeed, in late 2018 and early 2019 Revythousa LNG Terminal imported from the US two LNG cargoes of 150.000 cbm and 170.000 cbm respectively⁴⁹.

Moreover, a Floating LNG Terminal or Floating Storage and Regasification Unit (FLNG or FSRU) is promoted by Gastrade and Cheniere in Alexandroupolis⁵⁰. The annual capacity of the project will be 6.1 bcm in a close proximity to the national pipeline network⁵¹. The project is also supported by the US on the political level⁵².

The LNG Terminals Network is a solution promoted by the Greek-Cypriot maritime cluster. In such a case, there is strong fundamental as Greece operates the second largest fleet of LNG vessels in terms of capacity with a value of USD11 billion. According to Petrofin Bank Research⁵³, the Greek LNG fleet is consisted of 105 vessels -17% of global fleet- with an average transferring capacity of 170.000 cbm per vessel, while the global fleet accounts for over 600 units. On the other hand, Cyprus plays a prominent role as a leading shipping and shipmanagement centre and continues to strengthen its position in the world shipping by providing a sound maritime infrastructure, favourable tax regime, competitive ship registration and annual tonnage tax rates⁵⁴. Regional gas exports on a steady basis -via LNG vessels- could provide the Greek-Cypriot maritime cluster with robust cash flows and the national economies with financial stability⁵⁵.

The imposed IMO policies in order to reduce sulphur emissions and a proposed dimension towards Green Shipping are widely discussed matters so far⁵⁶. In such a case, there is a high potential for an LNG Terminals Network in East Mediterranean region, to provide LNG bunkering to vessels and servicing commercial shipping that takes place in the world's most intense maritime route, that of Asia-Europe. As many analysts agree, LNG is the marine fuel of the future⁵⁷.

Finally, Poseidon Med II is a project co-funded by the European Union and involves three countries, Greece, Italy and Cyprus, six Mediterranean ports (Piraeus, Patras, Limassol, Venice, Heraklion, Igoumenitsa) as well as the Revithoussa LNG terminal, promoting LNG as a fuel in order to establish a well-functioning and sustainable market⁵⁸.

It is more than obvious that there is a huge potential for establishing an LNG Terminals Network that could exploitate East Mediterranean gas reserves at the most profitable way. The uncertainty though remains upon whether all the above projects could operate collaboratively, under the same scope and incentives.

Pipeline Competition: Russian Existing and Future Networks

The existing Russian gas pipeline network to Europe consists of: a) Gazprom's "Nord Stream Pipeline" with an annual capacity of 55 bcm and a total length of 1225 km connecting Russia and Germany across the Baltic Sea, b) Gazprom's

⁴⁹ DESFA (2018), "Revithoussa welcomes the first US LNG cargo at the newly build 3rd tank", available at <http://www.desfa.gr/en/press-center/press-releases/h-reby8oysa-ypodexetai-to-prwto-amerikaniko-fortio-yfa-sthn-3h-dejamenh>, *Press release*

⁵⁰ Potter M., "Cheniere Energy Eyes Stake in Greek LNG Project", Reuters (2015 December 16), available at <http://www.reuters.com/article/cheniere-energy-greece-idUSL8N1452RH20151216>

⁵¹ Dokos, T. (2016). "Energy Geopolitics in the Eastern Mediterranean; The role of Greece", *Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?*, (Tel Aviv University Press: 2016), pp.37-46

⁵² Ellis A., "Gas supply to Europe through Greece", *Interview of United States Ambassador to Greece Mr Geoffrey Pyatt at Kathimerini printed edition* (2017 September 17), available at <http://www.kathimerini.gr/927037/article/epikairothta/politikh/tzefrei-paiat-aerio-sthn-eyrwph-mesw-ellados>

⁵³ Petrofin Bank Research Report on Greek Fleet Statistics (2019), available at <https://www.petrofin.gr/wp-content/uploads/2019/03/2ndPart-2018-Petrofin-Research-GreekFleetStatistics.pdf>

⁵⁴ Price Waterhouse Coopers (2013), "Cyprus Shipping; a Sea of Opportunities", available at <https://www.pwc.com/cy/en/publications/assets/cyprus-shipping-publication-february-2015.pdf>

⁵⁵ Coats C., "Can LNG Save Greece From A Russian Gas Collapse?", *Forbes* (2014 August 26) available at <https://www.forbes.com/sites/christophercoats/2014/08/26/can-lng-save-greece-from-a-russian-gas-collapse/#50999b9f6531>

⁵⁶ Chiotopoulos A., (2016). "LNG as a Fuel, the Past, the Present and the Future Developments", *3rd International Seminar on "Energy and Shipping"*, IENE, Athens

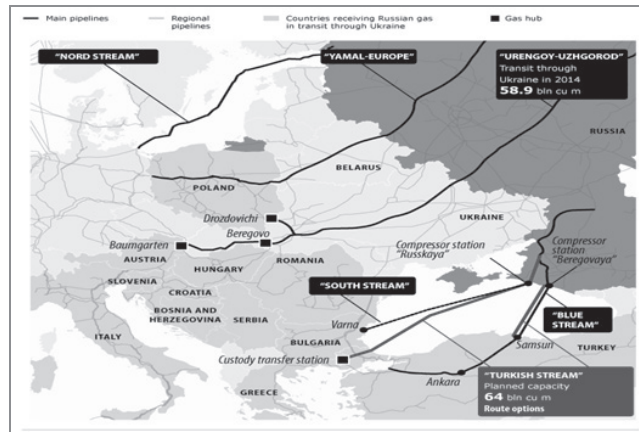
⁵⁷ Smith C., "LNG: The fuel choice of today", *Hellenic Shipping News* (2018 November 30), available at <https://www.hellenicshippingnews.com/lng-the-fuel-choice-of-today/>

⁵⁸ <https://www.poseidonmedii.eu/>

“Yamal-Europe Pipeline” with an annual capacity of 33 bcm and a total length of 2000 km connecting Russia and Germany through Belarus and Poland, c) Gazprom’s “Blue Stream Pipeline” with an annual capacity of 16 bcm and a total length of 1213 km connecting Russia and Turkey, servicing Turkey’s ambitions to be

converted into the main energy hub in South-East Europe and an alternative import gate of Russian gas into Europe, d) the “Urengoy-Uzhgorod Pipeline” with an annual capacity of 100 bcm and a total length of 4,500 km connecting Russian Siberia through Ukraine. All the above are clearly depicted in Map 5.

Map 5. Russian Pipeline Networks in Eastern Europe



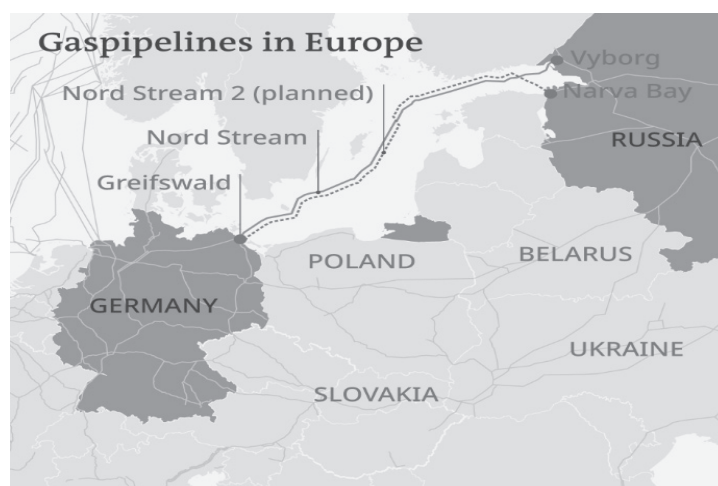
Source: Gazprom

Nord Stream 2 Project

Since 2015, Russia intends to gradually abandon gas supplies to Europe through Ukraine and the “Urengoy-Uzhgorod Project” that held the lion’s share of gas supply to Europe, in order to be replaced by other forthcoming projects. In early 2017, five European energy companies -Shell, Engie, OMV, Uniper and Wintershall- have signed financing agreements with Gazprom

about the “Nord Stream 2 Pipeline”⁵⁹, a 1200 km pipeline that would annually transfer 55 bcm of Russian Gas through Baltic Sea to Germany – parallel to existing Nord Stream Pipeline, as it is depicted in Map 6. The total cost of the Project is estimated at USD10,3 billion, with Gazprom being the main shareholder of the Project (50% stake). The new pipeline is scheduled to be completed by the end of 2019.

Map 6. Nord Stream and Nord Stream 2 Pipelines



Source: Gazprom

⁵⁹ Nord Stream 2 (2017), “Nord Stream 2 AG and European Energy Companies Sign Financing Agreements”, available at <https://www.nord-stream2.com/media-info/news-events/nord-stream-2-ag-and-european-energy-companies-sign-financing-agreements-47/>

The Nord Stream 2 Pipeline had initially drawn criticism from a number of Eastern European and Baltic nations, such as Bulgaria, Czech Republic, Estonia, Greece, Latvia, Lithuania, Poland, Romania, Slovakia, Finland, Sweden and Denmark⁶⁰. They had sent a letter of complaint to European Commission, supporting that the project would increase Europe's dependence on Russian gas. On the other hand, they would no longer be entitled to lucrative gas transit fees as the pipeline will bypass them completely. At this point a question arises about the extent of the European Union's will to change in its energy policy direction towards new potential gas reserves, instead of Russian gas supplies⁶¹. Moreover European Commission had to take steps in order to clarify a new legislation framework about importing gas via pipelines from countries outside the European Union's internal market, replacing the existing Third Energy Package.

The US have entered the equation by tightening existing sanctions against Russian companies and individuals, as US energy policy promotes the correction of the transatlantic energy imbalance with Europe, by selling more liquified natural gas⁶². For the US, Russian gas to Europe via Nord Stream 2 Pipeline is a major competitor⁶³. In early 2018, Germany approved the construction of the Nord Stream 2 Pipeline, seeking to tighten its economic relations with Russia. The bilateral trade between the two countries in 2017 stood at EUR58 billion, while exports to Russia represented only 2% of total German exports. The conflict of interests between US and Germany has led to sanction in German companies working on Nord Stream 2 Pipeline in early 2019⁶⁴.

The European Union energy security cannot be guaranteed without Nord Stream 2 and

Russian presence, due to a number of factors, the most important of which is lackage of European internal sources, as it was mentioned already⁶⁵. Consequently, in 2019, European Union members and leaders agreed on compromise for Nord Stream 2 Pipeline, under the scope of European energy security and strategy. Moreover, the European Parliament and the Council with the participation of European Energy and Climate Change Commission agreed to promote new pipeline rules via a new gas directive that covers both internal EU gas pipelines, as well as gas pipelines from non-EU countries into the European Union⁶⁶.

All things considered, it seems that common sense prevailed and Europe took the necessary steps to ensure a steady gas supply from Russia, amid a global fragile energy environment.

TurkStream Pipeline

In 2014 the promoted "South Stream Pipeline" was cancelled in the wake of the Ukrainian matter. Russia accused the European Union and the latter supported that the project was not in compliance with EU legislations. Since 2017 Russia promotes the construction of Gazprom's "TurkStream Pipeline" with an annual capacity of 31.5 bcm and a total length of 910 km. The pipeline will transfer gas from Russia to Turkey's Eastern Thrace across the Black Sea at it is depicted in Map 7. The project aims to the equal supply of Turkey and southeastern Europe (17.5 bcm each), planned to be operative in late 2019⁶⁷.

Russia - which is already Turkey's largest gas provider - seeks diversifised energy routes that would seal its dominance over European gas markets⁶⁸. Turkey on the other hand,

⁶⁰ Kohlmann T., "Eastern EU countries complain about pipeline deal", *Deutsche Welle* (2015 November 27), available at <https://www.dw.com/en/eastern-eu-countries-complain-about-pipeline-deal/a-18879865>

⁶¹ Tagliapietra, S. (2016). "Will the European Market need East Mediterranean Gas?", *Energy Cooperation and Security in the Eastern Mediterranean: A Seismic Shift towards Peace or Conflict?*, (Tel Aviv University Press: 2016), pp.97-108

⁶² Harper J., "Nordstream II gas pipeline in deep water", *Deutsche Welle* (2017 November 14), available at <https://www.dw.com/en/nordstream-ii-gas-pipeline-in-deep-water/a-41372833>

⁶³ Harper J., "US, Poland oppose undersea pipeline from Russia to Germany", *Deutsche Welle* (2018 January 27), available at <https://www.dw.com/en/us-poland-oppose-undersea-pipeline-from-russia-to-germany/a-42334940>

⁶⁴ Geropoulos K., "US and Germany spar over Nord Stream-2", *New Europe* (2019 January 24), available at <https://www.neweurope.eu/article/us-and-germany-spar-over-nord-stream-2/>

⁶⁵ Graupner H., "Could EU energy security be guaranteed without Nord Stream 2?", *Deutsche Welle* (2019 February 8), available at <https://www.dw.com/en/could-eu-energy-security-be-guaranteed-without-nord-stream-2/a-47430427>

⁶⁶ Geropoulos K., "With an eye on Nord Stream-2, EU Parliament, Council agree on new pipeline rules", *New Europe* (2019 February 18), available at www.neweurope.eu/article/with-an-eye-on-nord-stream-2-eu-parliament-council-agree-on-new-pipeline-rules/

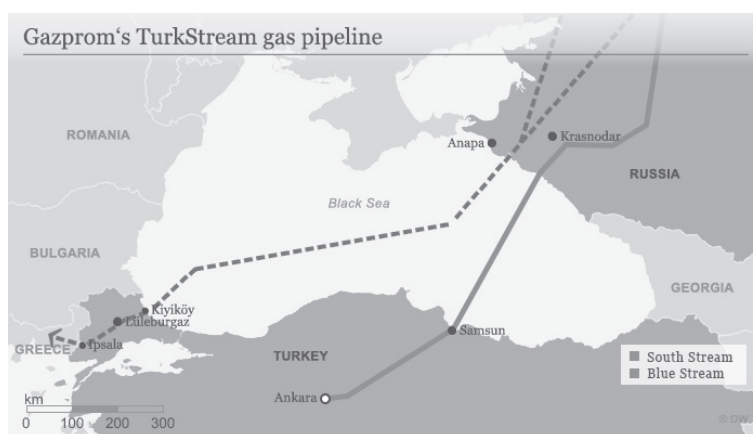
⁶⁷ The new energy cooperation comes despite Moscow severing ties with Ankara in 2015 after a Turkish fighter jet shot down a Russian warplane on the Syrian border

⁶⁸ Winter C., "Russia's Gazprom starts building TurkStream gas pipeline under Black Sea", *Deutsche Welle* (2017 May 7), available at <https://www.dw.com/en/russias-gazprom-starts-building-turkstream-gas-pipeline-under-black-sea/a-38746809>

aims to become a regional oil and gas hub for energy from the Caucasus, Central Asia, Middle East and Eastern Mediterranean, in order to ensure domestic energy security, cement its geostrategic importance and earns billion of euros by supplying gas to the rest of Southeastern Europe⁶⁹. Furthermore, Turkey's domestic gas production meets just 2% of its needs, while its annual gas consumption reached a historic record high of 53.5 bcm in 2017.

In the medium term, Russia plans to extend Turkstream to Europe via a second line, either through Balkans (Bulgaria, Serbia, Hungary and the Baumgarten hub in Austria)⁷⁰ or through Greece and Italy⁷¹. So far, Bulgaria seems to wins ground since the country hosts 80% of the Balkan compressor stations⁷². Russia though is waiting for a clear signal from Brussels in order to proceed with line 2 of TurkStream Pipeline through the Balkans, adopting a modest approach with European Union.

Map 7. TurkStream and Blue Stream Pipelines



Source: Gazprom

Forthcoming Energy Networks that Pose a Threat to Russian Interests

TANAP & TAP Pipeline Projects

It is commonly accepted that Russia found in Turkey an important pillar in order to promote its energy interests in the European Union. Nevertheless, as it is already mentioned, Turkey's energy policy targets at the emerge of the country as a sole energy hub in Southeast Mediterranean. At the same time, Turkey remains the only energy gateway to Europe for emerging gas producers such as Azerbaijan. As a result, a competitive to Russian interests pipeline network could be the "Trans-Anatolian Natural Gas Pipeline (TANAP) that would transit gas

from Azerbaijan's eastern edge of the Caspian Sea (Shah-Deniz field) to Italy's Southeastern shore, connected with Greece's "Trans Adriatic Pipeline (TAP)"⁷³, as it is depicted in Map 8. The TANAP Pipeline, is a part of a USD40 billion project called "Southern Gas Corridor" - which is consisted also of South Caucasus Pipeline-that aims at turning Turkey into a an energy hub and diversifying European Union natural gas supplies away from Russia.

The 1850 km pipeline will transfer 16 bcm of Azeri gas on an annual basis, of which 6 bcm will cover Turkish domestic needs and the rest 10 bcm, will be delivered to European countries via TAP Pipeline. At futures stages, TANAP is planned to increase deliveries up to 31 bcm

⁶⁹ Martin N., "TurkStream: Who profits, who loses out?", *Deutsche Welle* (2018 November 19), available at <https://www.dw.com/en/turkstream-who-profits-who-loses-out/a-46364057>

⁷⁰ Geropoulos K., "Bulgaria eyes Turkish Stream Pipeline branch to Europe", *New Europe* (2018 November 28), available at <https://www.neweurope.eu/article/bulgaria-eyes-turkish-stream-pipeline-branch-to-europe/>

⁷¹ Geropoulos K., "Tsipras wants Putin to route Turkish Stream branch via Greece", *New Europe* (2018 December 7) available at <https://www.neweurope.eu/article/tsipras-wants-putin-to-route-turkish-stream-branch-via-greece/>

⁷² Cholakov P., "Russia's proposed TurkStream 2 Pipeline sparks Bulgaria, EU energy worries", *Deutsche Welle* (2019 February 28), available at <https://www.dw.com/en/russias-proposed-turkstream-2-pipeline-sparks-bulgaria-eu-energy-worries/a-47726458>

⁷³ Barden J., "Natural gas pipelines under construction will move gas from Azerbaijan to southern Europe", *US Energy Information Administration* (2015 October 14) available at <https://www.eia.gov/todayinenergy/detail.php?id=23332>

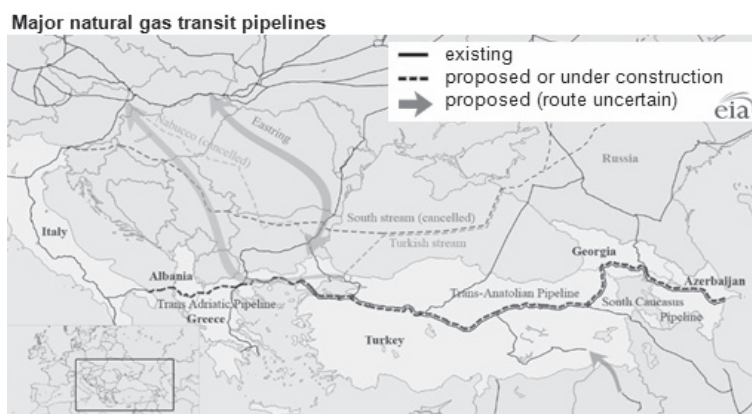
annually. TANAP Pipeline had a construction cost of USD8,5 billion and it is operational since June 2018⁷⁴.

As it refers to Trans Adriatic Pipeline - TAP, the project was selected by the Shah Deniz Consortium in order to also carry gas to Balkans via interconnectors such as the IGB -instead of cancelled Nabucco West Pipeline. The pipeline is designed with an initial transport capacity of 10 bcm annually with an option of transporting 20 bcm annually in the future, having a combined length of 878 km. It is estimated that the construction cost of the pipeline will reach

USD4,5 billion and expected to attract direct foreign investments of EUR2 billion to Greece⁷⁵. TAP Pipeline is projected to be operative by early 2020.

On a political level TANAP and TAP Pipelines receive the support of the European Union, as the European Commission Vice President in charge for Energy Union praised the inauguration of TANAP as a key milestone improving European energy security in the most vulnerable parts such as Southeast Europe and Southern Italy, providing diversification and in energy suppliers and routes at the same time.

Map 8. TANAP and TAP Projects



Source: IEA

The Upgraded Role of Greece as an important hub of gas supply to European Union

Greece is becoming an energy hub as: a) by 2025 gas from Cypriot and Israeli reserves will be transferred to Europe via the EastMed Pipeline, b) by 2020 gas will be transitted from Azerbaijan to Europe via the TAP Pipeline, c) Revythousa LNG terminal had already its capacity expanded, d) by 2020 LNG from US will be imported at the FLNG Terminal of Alexandroupolis, further connected to the national pipeline network, e) by 2021 Bulgaria and Balkans will be supplied with gas via the construction of the 182 km IGB Interconnector that could carry 3-5 bcm annually, a project supported by the European Union in

order to boost security of supply in the region⁷⁶ and, f) new sufficient reserves from Western and Southern Greece are expected to come into light⁷⁷.

All the potential infrastructure mentioned above, are totally supported by the US in a way that, they could easily meet an important portion of current and future demand in Southeast and Central Europe (Greece, Bulgaria, Serbia, Hungary or even Ukraine). Besides the obvious reason of diversification of routes and resources, the US LNG is seeking to gain access in these new markets by eliminating the Russian factor and dependence at the same time. In collateral, Greece could strengthen its energy security and

⁷⁴ Uçok A., "Turkey opens TANAP Pipeline that will bring Azeri gas to Europe", *Deutsche Welle* (2018 June 12), available at <https://www.dw.com/en/turkey-opens-tanap-pipeline-that-will-bring-azeri-gas-to-europe/a-44192422>

⁷⁵ Liaggou C., "TAP Pipeline and regional changes", *Kathimerini* printed edition (2016 April 10), available at <http://www.kathimerini.gr/856113/article/oikonomia/epixeirhseis/o-agwgos-tap-kai-ti-anamenetai-na-shmatodothseisthn-perioxh>

⁷⁶ Geropoulos K., "EU approves state support plans for Greece-Bulgaria gas interconnector", *New Europe* (2018 November 9), available at <https://www.neweurope.eu/article/eu-approves-state-support-plans-for-greece-bulgaria-gas-interconnector/> and Geropoulos K., "EU energy policy to boost security of supply in the Balkans", (2019 January 11) available at <https://www.neweurope.eu/article/eu-energy-policy-to-boost-security-of-supply-in-the-balkans/>

⁷⁷ In the next months drilling operations are expected to start by consortiums of ELPE with Total, Exxon Mobil and Repsol

achieve a sufficient gas supply by detouring the Ukrainian option that nowadays cover 60% of its needs.

The US have been pressing Europe to cut its reliance on cheap Russian gas and buy much more expensive US LNG instead. Despite many European countries, including industrial heavyweight Germany, have so far resisted, the US approach seems to be effective as LNG imports from the US to the European Union have increased by 181% between July 2018 and February 2019⁷⁸. Russia has repeatedly warned that Europe will soon face a gas shortage and price spikes if it tries to rely on US gas imports to cover rising demand instead of increasing purchases from Russia⁷⁹.

Under any occasion, Greece should be further geopolitically supported and promoted as an important energy hub in the region that could operate as a regional regulator and the last frontier against Turkey's expansive ambitions to become the only energy hub in East Mediterranean.

Conclusion

Natural gas is among the fastest growing forms of primary energy worldwide; a very important element, especially if we take into account the efforts taken to reduce global emissions. The emergence of a Mediterranean Energy Hub may not be the EU's top priority right now, but sustained engagement at this early stage could yield fruitful results in the future. Such a project changes geopolitical stability and strengthens the status quo among the involved countries as the European market represents the best option for East Mediterranean gas at the moment.

Our research has shown that the energy interdependence –in terms of oil and natural gas supply, between Europe and Russia will continue until 2025 at least. By that

time, the European Union will continue to process different exploitation strategies, as the appropriate infrastructure of the alternative Mediterranean networks - terminals, pipelines and interconnectors - will be taking shape, in order to provide steady production levels. Besides, it should be clarified that, in terms of so far proven gas discoveries, a Mediterranean Energy Hub is about to have a supplementary role in meeting the European Union energy needs and under no occasion it could replace Russian –or any other supplier's- gas volumes. That is the main reason why the European Union is primarily concerned at securing a steady flow of Russian gas and blinks the eye to the american factor as well.

Russia aims to promote its energy plans through Turkey, seeking alliances in the East Mediterranean region, that might prove to be fragile due to Turkey's unstable political and economic environment. Moreover, Russia has to deal with the consecutive US geopolitical expansion in East Mediterranean, especially after the Syrian issue. On the contrary, as Russia and the European Union have common energy interests in the long term, a rapprochement with the countries that consist that future Mediterranean Energy Hub should not be eliminated.

Finally, the existing obstacles that have to do with territorial or maritime disputes between nations, must be addressed decisively on a diplomatic level, as the current need of mutual concessions is more critical than ever. All things considered, the South-East Mediterranean region is at the doorstep of a new unprecedented era, being given the opportunity to exploit and commerce important volumes of gas deposits. Any reckless action would jeopardise all the attempts that have already been made and will end the chapter of energy in the Mediterranean at least for the decade to come.

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⁷⁸ Geropoulos K., "LNG imports from the US to EU continue to rise, up by 181%", *New Europe* (2019 March 8), available at <https://www.neweurope.eu/article/lng-imports-from-the-us-to-eu-continue-to-rise-up-by-181/>

⁷⁹ Zhdannikov D., "Gazprom warns Europe of gas shortage without increased Russian imports", *Reuters* (2018 February 9), available at <https://www.reuters.com/article/us-gazprom-europe-interview/gazprom-warns-europe-of-gas-shortage-without-increased-russian-imports-idUSKBN1FT1BU>

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ЖИЗНЕСПОСОБНОСТЬ СРЕДИЗЕМНОМОРСКОГО ЭНЕРГЕТИЧЕСКОГО ХАБА И ИНТЕРЕСЫ ЕВРОПЕЙСКОГО СОЮЗА И РОССИИ; СОГЛАСИЕ ИЛИ КОНФЛИКТ?

Прошло десять лет с тех пор, как юго-восточный средиземноморский регион вышел на передний план после открытия значительных газовых месторождений на морских месторождениях, расположенных в исключительных экономических зонах (ИЭЗ) Египта, Кипра и Израиля. Постепенно регион привлек внимание крупных нефтяных компаний (Total, Statoil, ENI, Exxon Mobil, BP, Роснефть, Катаргаз), которые приступили к реализации ряда проектов по бурению, чтобы совместно разрабатывать потенциальные региональные газовые месторождения с заинтересованными странами в будущем. Цель этой статьи, во-первых, - исследовать жизнеспособность

и конкурентоспособность будущего энергетического хаба в Юго-Восточном Средиземноморье, его роль и неизбежно жесткую конкуренцию со стороны других уже состоявшихся или появляющихся газодобывающих районов. В этой задаче есть ряд прямых и косвенных параметров, которые необходимо принимать во внимание. Например, доминирующие варианты реализации средиземноморского энергетического хаба, воплощаемые в строительстве трубопровода EastMed или в развитии сети терминалов СПГ соответственно. Во-вторых, в статье рассматриваются и оцениваются интересы Европейского Союза и России с точки зрения спроса и предложения

энергии. Несомненно, Европейский Союз пересматривает свою энергетическую политику, стремясь улучшить свои стабильные поставки газа путем реализации стратегии диверсификации в отношении партнеров, маршрутов и источников. С другой стороны, энергетическая политика России направлена на повышение доли рынка и глобального влияния. Есть ли точки соприкосновения?

Ключевые слова:

Кипр, Греция, энергетические коридоры, трубопроводы, терминалы СПГ, Европейский Союз, Россия

Антониос М. Стратакис,
PhD (доктор философии),
факультет морских исследований,
Пирейский университет (Греция)

Теодор Пелагидис,
профессор экономики Пирейского
университета (Греция), старший научный
сотрудник Института Брукинга (США).

Keywords:

Cyprus, Greece, Energy Corridors, Pipelines,
LNG Terminals, European Union, Russia