THE POTENTIAL IMPACT OF COVID-19 ON MEGA ENERGY PROJECTS AND LNG SHIPPING INFRASTRUCTURE; THE CASE OF EASTMED PIPELINE

Antonios STRATAKIS
PhD Candidate, University of Piraeus - Department of Maritime Studies
stratakismaritime@gmail.com

Theodore PELAGIDIS
Professor of Economics, University of Piraeus – Department of Maritime Studies, Deputy Governor – Bank of Greece, Tpelagidis@bankofgreece.gr
pelagidi@unipi.gr

Abstract

It is a matter of fact that COVID-19 pandemic has brought significant changes in political, economic and social level worldwide. The aim of this paper is to examine the potential impact of the pandemic on the launching of large scale energy projects in Southeast Mediterranean region, and in particular the construction of EastMed Pipeline. During 2020, many energy projects across the globe were postponed and that trend is mainly attributed to: a) the economic recession brought by COVID-19, b) a lack of investment appetite by major energy companies whose financial position was severely hit by the pandemic and the volatile energy prices and c) the switching to the use of alternative energy sources (mainly renewables and hydrogen) in an attempt to minimize the global share of fossil fuels and their emissions, the so-called "energy transition" process. This paper takes into account whether all the above exogenous factors create serious implications to the development of the most important mega energy project of Southeast Mediterranean in terms of energy geopolitics, the EastMed Pipeline. Finally, the paper examines the conflicted geopolitical interests of regional players such as Greece, Cyprus, Israel, Turkey and Egypt, as well as the role of European Union and the United States in the energy equation of Southeast Mediterranean.

Keywords: COVID-19, Economic recession, EastMed pipeline, Alternative energy sources, Southeast Mediterranean, Investments

JEL classification: F10, F51, R41, R42, R48

1. Introduction

The Southeast Mediterranean region and its gas reserves firstly came to the forefront in 2009. Within a decade period, the region had managed to draw the attention of global energy sector as more specifically, the most significant energy companies rushed to acquire the exploitation rights in offshore fields of Cyprus, Israel and Egypt in order to proceed with drilling operations. Despite the fact that the rate of success was quite modest, the region proved to enclose approximately 2 trillion cubic meters (cbm) of natural gas and other hydrocarbons. Based on that, Southeast Mediterranean region has the potential to become an important supportive pillar to the European Union (EU) energy sector as it refers to diversification of energy routes and sources. It is of massive importance though that, this potential energy hub should have to test its viability, price competitiveness and endurance towards other well-established regional producing areas, such as Middle East, US Gulf, Russian Arctic etc.

There has been a lot of discussion on whether the Southeast Mediterranean energy hub would materialize either by taking the form of a pipeline –EastMed- that could connect the proven and future gas reserves of the region with continental Europe, or via LNG exports from a certain regional mega liquefaction plant that could meet global and regional demand under the commercial employment of LNG vessels. Consequently, there has been a lot of controversy about which is the best exploitation strategy.

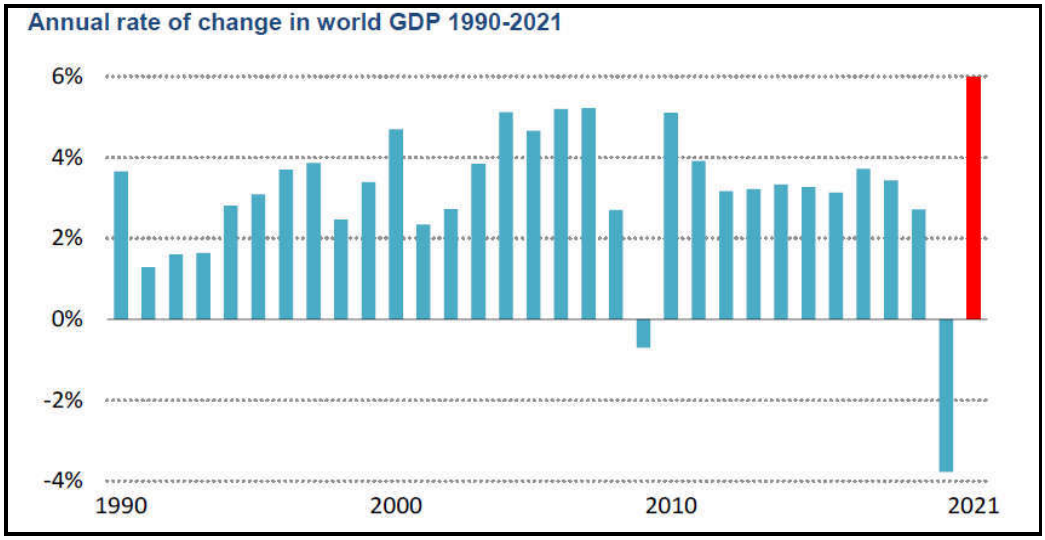
On the other hand and due to COVID-19 pandemic, global economy seems to enter in a new era of economic instability with numerous worst and best case scenarios, while uncertainty prevails in socioeconomic level. That uncertainty jeopardizes and even postpones

important investments regarding energy projects across the globe. In addition, global energy prices do not seem to be on a recovery mode, as after the initial collapse, they have returned to the stagnant levels of the last five years, prohibiting actually any inception of new investment. Based on the above, there is serious concern about EastMed Pipeline and whether its completion schedule will be adhered to by 2025.

2. The pandemic's impact on global economy and future prospects

It is a matter of fact that COVID-19 pandemic has brought an economic recession in 2020 and as it seems, the global health crisis is extending on the first half of 2021. In many aspects, the ongoing economic downturn is even more severe than the global financial crisis of 2008, as depicted in Figure 1, comparable maybe only to the Great Depression of 1929 (Spathi 2020).

Figure 1: Annual rate of change in world GDP 1990-2021*



Source: IEA analysis based on economic data from the IMF and Oxford Economics

According to the World Bank and IMF, global GDP contracted by 3.3% in 2020 as depicted in Table 1. Indicatively, the United States (US) economy declined by 3.5% while analysts estimate a cumulative loss of $7 trillion by 2030. In Asia-Pacific region, Japan's economy was also declined by 4.8% while on the contrary Chinese economy grew by 2.3% achieving an economic slowdown as China faces its lowest economic growth since 1976. Furthermore, Indian economy was severely hit by a 8% decline. Eurozone has recorded a historical GDP decline of a massive 6.6% with a huge impact on member countries' economies and a new forthcoming recession (Spain -11%, Germany -4.9%, France -8.2%, Italy -8.9%, Portugal -8.1%, Greece -7.9% and Cyprus -6%).

Table 1. World economic growth 2018 – 2020 (annual percentage change)

Region/Country	Avg 2001-2008	2018	2019	2020
EU (27)	+ 2.1%	+ 2.1%	+ 1.5%	- 6.6%
Japan	+ 1.2%	+ 0.3%	+ 0.6%	- 4.8%
United States	+ 2.6%	+ 2.9%	+ 2.3%	- 3.5%
China	+ 10.9%	+ 6.6%	+ 6.1%	+ 2.3%
India	+ 7.6%	+ 6.8%	+ 4.2%	- 8.0%
Brazil	+ 3.7%	+ 1.3%	+ 1.1%	- 4.1%
Russia	+ 6.8%	+ 2.3%	+ 1.3%	- 3.1%
World	**+ 3.6%**	**+ 3.1%**	**+ 2.5%**	**- 3.3%**

Source: UNCTAD Review of Maritime Transport 2020

The recession of 2020 affected geographical areas and sectors, such as tourism industry as a whole, transport and in particular air transport, which have suffered great losses. Moreover, COVID-19 pandemic and the suspension of any economic activity had a huge negative impact on businesses and households as well. It has to be pointed out though, that an unprecedented determination of governments and central banks (ECB, Federal Reserve, Bank of England and others) is being recorded, in order to take all the appropriate measures to deal

with the pandemic. Their primary strategy is to ensure liquidity and provide low borrowing costs.

2.1. The proposed economic measures and the threat of a new debt crisis

In October 2020 Germany and France, have announced support packages of €10 billion and €20 billion respectively, which aim at companies or enterprises whose economic operations were negatively affected by the pandemic and the consecutive lockdowns. Moreover, the European Central Bank (ECB) is planning to cover the capital needs of EU member countries, extending the €1.35 trillion Pandemic Emergency Purchase Program (PEPP) by €500 billion (Amaro 2021). Of course, there is a lot of concern about a potential "japanification" of the European bond market, since the ECB absorbs the largest proportion of the aforementioned member countries' debts (Kourtali 2021).

In addition, in the United States, the American Rescue Plan called the "Biden stimulus" of $1.9 trillion aims to raise the country's GDP above pre-COVID-19 projections. It is estimated that the Biden stimulus will add a total fiscal support of about 11%-12% of the country's GDP. As it refers to Eurozone, analysts estimate that the total aid to EU's economy will not exceed 6% of its GDP. As it is widely accepted, it took seven years for Eurozone to fully recover from the global financial crisis of 2008, while the United States economy had managed to fully recover in exactly the half time, actually in three and a half years. This time, it is projected that the Eurozone economy will take nine quarters to return to pre-pandemic levels, while the United States economy will take only six quarters, respectively. It needs to be pointed out that there are structural differences between United States and Eurozone's economies.

On the contrary, there are warnings that the widespread spending to support the economies may lead to a massive increase of global debt, which is already at inconceivable levels. Indeed, in 2020 global debt increased by $15 trillion, standing at $277 trillion, or 365% of global GDP (320% in 2019). Moreover, during 2020 global debt have been increased at a much higher rate than economists and international credit institutions were expecting. Indicatively, between 2016 and 2020 global debt had increased by almost $60 trillion, in addition to a $6 trillion increase between 2012 and 2016. The problem lies on the emerging markets and their total debt that stands at $76 trillion, or 250% of their cumulative GDP. As it refers to Eurozone, the ECB has predicted a debt increase; indicatively, Greece's debt will stand over 200% of its GDP, Italy's debt will stand on 160% of its GDP, while Portugal's debt will stand on 130% and France's as well as Spain's debt will both stand on 120% of their GDP. It should be also mentioned that new European non performing loans are estimated to reach €1.4 trillion. For that reason, the IMF which has not stopped supporting government spending to support its economies, has advised that it should be done prudently, in order to avoid a further debt increase.

Severe epidemics traditionally widen the inequality between rich and poor and, as a matter of fact, COVID-19 has contributed the most to the above widening. The massive impact is focused on social matters and the labor sector, as job losses and wage reductions are the main trends. In fact, during 2020, fifteen million people lost their job in Spain, over ten million people in the United States, United Kingdom and France and, over four million people in Germany and Japan, according to OECD data. A Columbia University research depicts that in 2020 poverty levels in the United States were raised by 16.7%, while another research from University of Chicago notes that during the same period more than six million Americans have gone into poverty. On the contrary, according to a Credit Suisse research, it is estimated that the wealth of the world's billionaires, was raised by $3.0 trillion in 2020.

2.2. Forecasts for economic recovery in 2021 and the long-term effects of the pandemic

Despite the aforementioned gloom environment and prospects of global economic recovery, there are some bright examples that provide optimism. For example, China has curtailed the virus early on and was one of the few economies to expand in 2020, by 2.3%. China's economic growth is expected to continue through 2021 by 8.4%, mainly driven by exports and domestic demand. The great Asian power is emerging economically and

geopolitically strengthened against its competitors one year after the pandemic started from its territory (Qin 2021). Moreover, World Bank forecasts that by 2028, China will have overcome United States as the world's largest economy. Furthermore, South Korea and Japan managed to avoid repeated waves of the pandemic through testing and tracing and, likewise they are benefiting from the reviving world trade. Moreover, India is likely to be a key variable for the global economic outlook. In 2020, India's GDP dropped by 8% but the outlook was significantly improved at the end of the year, driven by recovering industrial production. Estimates place India's annual GDP growth in 12.5% in 2021.

Estimates vary however, as the future remains more uncertain than ever. For example, HIS Markit expects modest recovery of 4.6% of economic growth in 2021. IMF from its point of view, estimates a stronger than anticipated growth of 6% GDP in 2021 and a moderate growth of 4.4% in 2022. As it refers to Eurozone's recovery, it is expected to be eventually lower and slower than the initially anticipated and that it will take at least two years for the Eurozone to return to pre-pandemic levels. Finally, a particularly optimistic forecast by Morgan Stanley predicts that global economy will grow by 6.4% in 2021, with emerging markets ahead of European Union and the United States. It seems that accelerating vaccine rollouts and major stimulus packages in many economies have provided a beacon of hope, as depicted on Table 2.

Table 2. Overview of the world economic outlook 2021-2022

Region/Country	2021 GDP projections	2022 GDP projections
United States	+ 6.4%	+ 3.5%
EU-27	+ 4.4%	+ 3.8%
Germany	+ 3.6%	+ 3.4%
France	+ 5.8%	+4.2%
Italy	+ 4.2%	+ 3.6%
Spain	+ 6.4%	+ 4.7%
United Kingdom	+ 5.3%	+ 5.1%
Japan	+ 3.3%	+ 2.5%
China	+ 8.4%	+ 5.6%
India	+ 12.5%	+ 6.9%
Russia	+ 3.8%	+ 3.8%
Brazil	+ 3.7%	+ 2.6%
Saudi Arabia	+ 2.9%	+ 4.0 %
World Output	**+ 6.0%**	**+ 4.4%**

Source: IMF

However, many analysts support that everything will depend on the waves of the pandemic and the virus' mutations. The pessimistic approach focuses on the negative long term impacts of the pandemic in most of the economies. Some indications depict that COVID-19 will be present at least until 2025, affecting global economic activity. Based on the above, the long-term recovery of global economy is still under discussion. According to this approach, until 2025 world economy will suffer great losses based on 2019 levels. Nevertheless, the world must be well prepared for the next unpredictable great pandemic (Fauci 2021).

All things considered, there is an ongoing controversy about whether the day after the pandemic will bring a time of prosperity, consumptionism and technical innovation for the rest of the decade, as exactly happened in the aftermath of the Spanish flu in 1920. This possibility is real, as 2020 proved that the economy and society can thrive, even under adverse conditions. The year of 2021 may be reminiscent of 1921, as analysts estimate that technological innovations, adopted in the midst of a pandemic, such as teleworking technologies and e-commerce, will continue to be sources of profitability and growth once the restrictive measures are lifted. According to analyst firm Cowen Research, more than half of the companies report that they are in the first stage of transition to a purely digital environment.

3. The pandemic's impact on global energy sector and future prospects

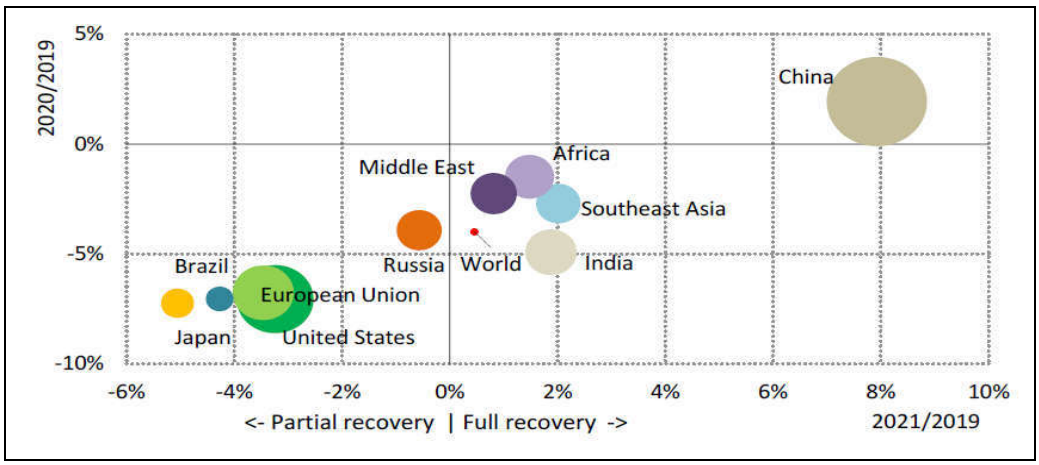
In 2020, global energy demand fell by 4%, the largest annual decline since World War II, as COVID-19 had a huge negative impact on global energy sector. The world's largest producers have been impacted by the pandemic up to different degrees. For example, Saudi Arabian economy, the world's largest oil producer, declined by 4.1%, while Russian economy

was also declined by 3.1% in 2020. As it refers to advanced economies, energy demand fell by over 6% accompanied by a contraction in their economic output. On the contrary, most emerging markets and developing economies have also experienced a decline in energy demand during 2020, albeit less than in advanced economies. China was a notable exception as the only major economy to experience both an increase in economic output and in energy demand in 2020, as energy demand on China grew by 6% on average from pre-pandemic levels. As it refers to India, the country's steep economic slide in 2020 pushed energy demand down by 5%.

COVID-19 pandemic continues to impact global energy demand in the first quarter of 2021. Projections indicate that as pandemic restrictions are gradually lifted and economies recover, energy demand is expected to rebound by 4.6% in 2021. Moreover, if transport demand returns to pre-pandemic levels across 2021, global energy demand will rise even higher, an increase broadly in line with the rebound in global economic activity. Indicatively, as it refers to EU, energy rebound will not begin until the second half of 2021 while, in the United States and due the recent stimulus package, energy demand is projected to increase by 4% in 2021, though remaining 3% below 2019 levels. As economic activity in China is set to further accelerate in 2021, energy demand is expected to grow by 6%, almost 8% higher than in 2019. As it refers to India, the country's economy is expected to bounce back strongly in 2021 and as a result, energy demand is set to rebound by 7%.

All things considered, in 2021 advanced economies are expected to see rapid recoveries in economic output and –consequently- in energy demand across most sectors. Emerging markets are driving energy demand back above 2019 levels as, almost 70% of the projected increase in global energy demand is in emerging markets and developing economies, where demand is set to rise to 3.4% above 2019 levels. On the contrary, energy use in advanced economies is on course to be 3% below pre-pandemic levels. All the above are clearly depicted on Figure 2.

Figure 2: Rate of change of energy demand in 2020 and 2021 energy demand relative to 2019 levels, by region

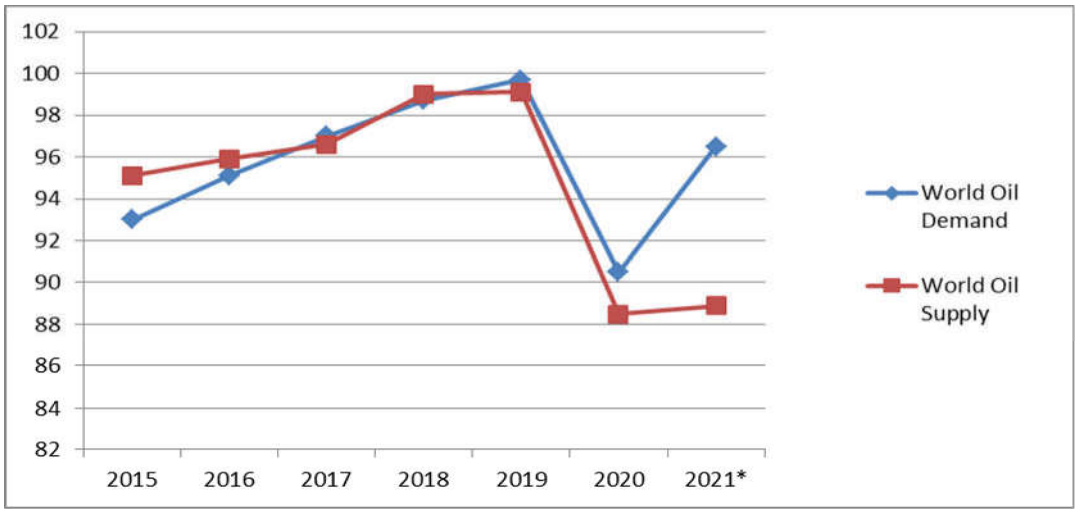


Source: IEA

3.1. The impact on oil sector and future prospects

It needs to be highlighted that the drop in energy demand during 2020 did not affect all fuels evenly. Oil of example, has suffered by far the hardest hit. As depicted on Figure 3, oil demand was down by almost 9% across the year. Indeed, world oil demand in 2020 was significantly decreased by 9.2 million b/d to average 90.5 million b/d (99.7 million b/d in 2019), recorded the largest ever decline in both absolute and relative terms. The transport sector, responsible for around 60% of total oil demand, was severely impacted by mobility restrictions. On the other hand, world oil production plummeted to 88.7 million b/d (99.1 million b/d in 2019), as OPEC and non-OPEC members proceeded on extended production adjustments as a mean to rebalance market prices in the short term (Platts 2020).

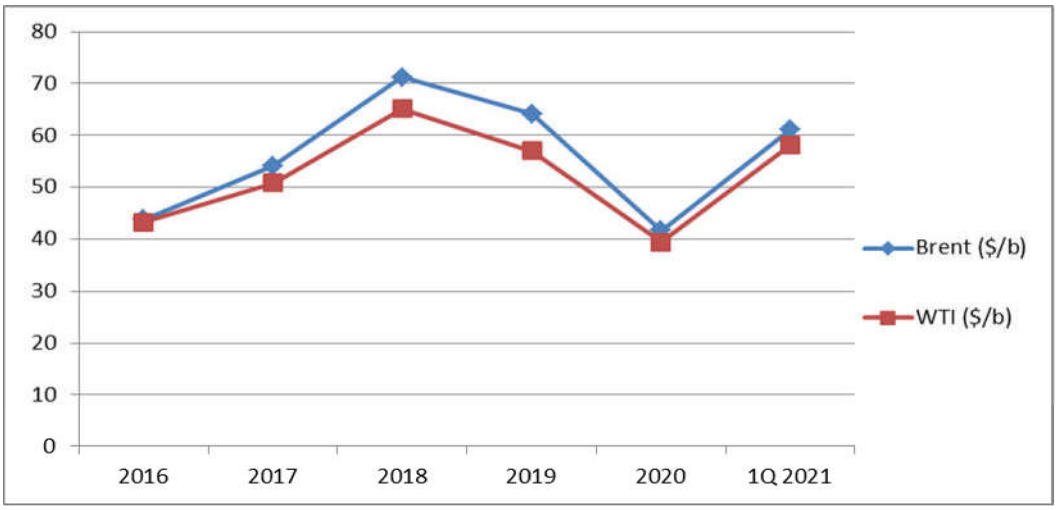
Figure 3: World oil demand and supply 2015-2021* (in million bpd)



Source: OPEC

As it refers to global oil prices (Figure 4), WTI and Brent recorded historical low values, attributable to the pandemic, as the aforementioned plummet in oil demand has led to accumulative unsold cargoes.

Figure 4: Brent and WTI oil prices 2015-2021* (in $/b)



Source: OPEC

In 2021, the improving economic outlook will support a rebound in global oil demand by 6%. Indeed, world oil demand is expected to reach 96.5 million b/d while world oil production will stand at 88.9 million b/d (OPEC 2021). The 7.6 million b/d supply glut, boosts oil prices firmly above 60$/b. So far and despite the strong rebound, oil demand remains 3.1 million b/d below 2019 levels (-3%) as COVID-related restrictions on mobility continue to suppress oil demand for transport in the first half of the year.

It has to be pointed out that only in Asia and, most notably in China oil demand will achieve pre-pandemic levels. Indicatively, China is the only major economy where oil demand in 2020 was above 2019 levels and moreover, demand in 2021 is expected to grow further to almost 9% above 2019 levels. Without the increase in China's demand, global demand in 2021 would be an additional 1 million b/d (+1%) below 2019 levels. Oil demand in the United States is expected to remain around 0.8 million b/d below 2019 levels, mainly as a result of the continued impact of the pandemic-related restrictions during early 2021. Demand in the European Union remains 0.4 million b/d below 2019 levels, with continued lockdowns expected to weigh heavily on 2021 annual totals. In India, after further lockdowns in the first half of the year, rapid demand growth in the second half of the year is likely to push 2021 oil demand back on par with 2019 levels.

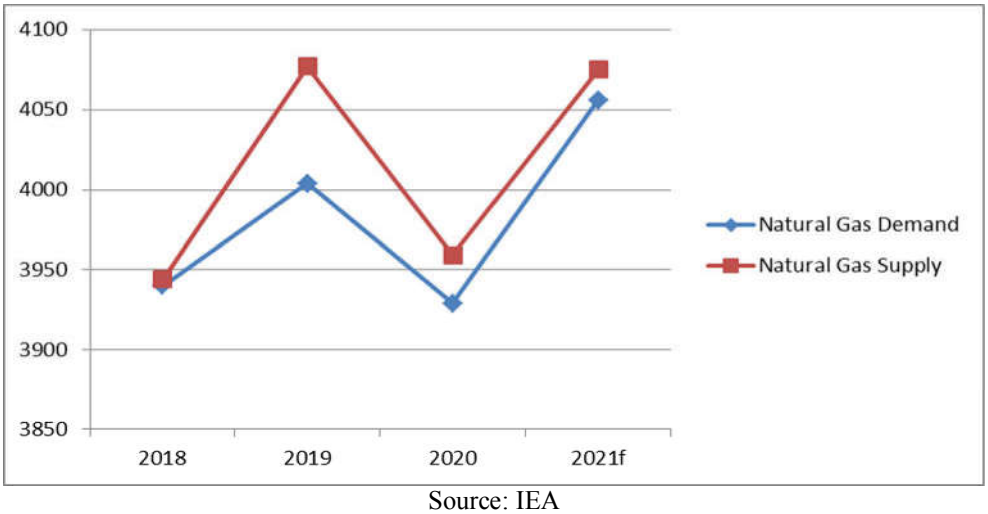
Contrary to the above, some analysts estimate that 2021 will be even worse, with low prices being maintained. That could consequently impose socio-economic challenges in many

energy producing countries and especially to those whose oil sector accounts for 90% of their public revenues. Finally, Joe Biden's commitment to the American transition to clean energy poses medium-term challenges for the oil sector.

3.2. The impact on gas sector and future prospects

During 2020 natural gas proved to be the most resilient fossil fuel than any other, as its consumption declined by 75 billion cbm (-2%) in 2020, as depicted in Figure 5, representing though the largest recorded drop of gas demand in absolute terms. The decline was mainly concentrated in the first half of the year driven by exceptionally mild weather and COVID-19 outbreaks. This relative resilience can be partly explained by upsized natural gas demand for electricity generation in United States, Europe and Asia (China, India and Korea).

Figure 5: World natural gas demand and supply 2018-2021* (in billion cbm)



Source: IEA

On the supply side (Table 3), almost all regions were affected by production cuts. In 2020, natural gas production levels declined by 118 billion cbm (-3%). Natural gas demand in North America fell by 25 billion cbm (-2.2%) in 2020, accounting for about a third of the net decline in global gas demand. Indicatively, natural gas consumption in the United States fell by 18 billion cbm (-2%), while gas production was proportionally less affected with a decline of 1.6% or 15 billion cbm, despite the plunge in drilling activity that caused a 50% drop in the gas rig count.

Table 3. World natural gas demand and production by region and key country 2018-2021* (in billion cbm)

	Demand				Production			
	2018	**2019**	**2020**	**2021f**	**2018**	**2019**	**2020**	**2021f**
Africa	157	161	160	164	244	248	240	252
Asia Pacific	824	853	857	902	627	654	648	656
China	283	307	326	351	160	174	189	200
Central and South America	153	152	138	145	167	167	152	164
Eurasia	667	657	629	657	932	941	884	943
Russia	493	482	458	482	726	738	692	742
Europe	536	537	522	538	246	227	211	202
Middle East	544	547	551	569	667	677	680	707
North America	1061	1097	1072	1081	1062	1163	1144	1152
USA	854	888	870	873	868	968	953	952
World	**3940**	**4004**	**3929**	**4056**	**3944**	**4077**	**3959**	**4075**

Source: IEA

Contrary to other regions, Asia Pacific saw growing demand by 4 billion cbm in 2020 (+0.5%), while production decreased by 6 billion cbm (-1%). Japan's gas consumption declined by 4.5% in 2020 due to shrinking industrial and commercial activity. India's gas

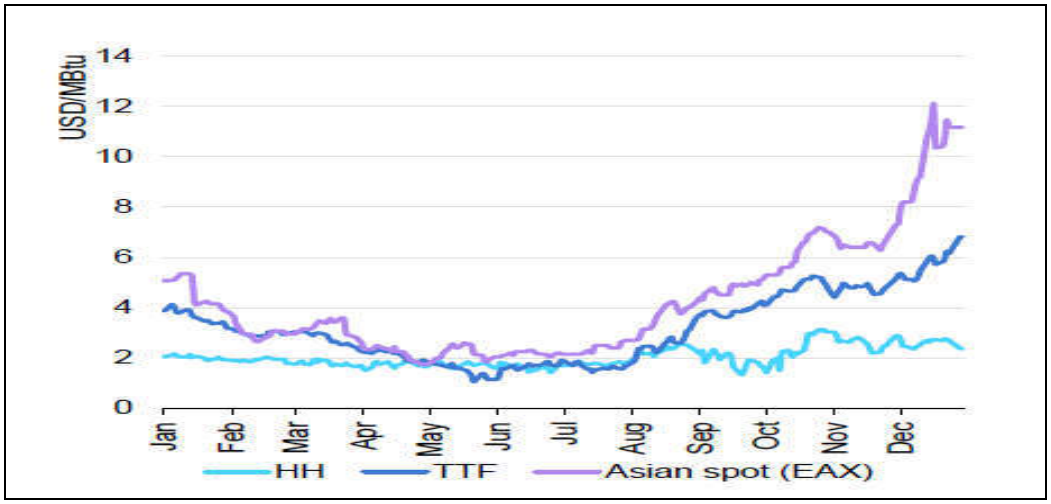
demand shrank also by 1.4% in 2020 while domestic production also fell by 11%. On the contrary, China's natural gas consumption increased by 19 billion cbm (+6%) in 2020 while production also grew by 15 billion cbm (+9%) and reached 189 billion cbm.

On the other hand, Eurasia accounted for over 40% of the drop in global gas production in 2020. Natural gas production in Eurasia declined by 28 billion cbm (-6%), as the region's gas industry faced the double impact of lower domestic demand and exports. As it refers to Russia, natural gas production fell by 6.5% y-o-y. Furthermore, Russia's extra-regional export flows declined by over 10% y-o-y in 2020 due to lower net pipeline exports to Europe (-15%). On the other hand, pipeline deliveries to China via the Power of Siberia pipeline totaled 4.1 billion cbm in 2020, below the initially scheduled 5 billion cbm. LNG exports rose by 3%, due to Sakhalin-II and Yamal LNG ramping up export activities. Finally, domestic demand fell by 5%. European gas consumption proved to be rather resilient falling by 2.8% in 2020. European gas imports fell by 10% as, both LNG and pipeline imports were affected, falling by 3% and 12% respectively.

As it refers to regional natural gas benchmarking prices, 2020 was a roller coaster ride (Figure 6). Prices collapsed in all major gas consuming regions in the face of sharp drops in demand. Large price swings had wide seasonal spreads and high volatility reflecting unprecedented market uncertainty that prevailed through the year. Is should be highlighted though that natural gas benchmarks recorded strong gains through the third quarter of 2020, by the start of the heating season.

In 2021, natural gas demand is expected to recover by 127 billion cbm (+3.2%), the strongest anticipated recovery amongst fossil fuels. As a result, global natural gas demand in 2021 is projected to rise 1.3% above 2019 levels (Figure 7), erasing the losses of 2020 at the same time. The above is mainly driven by a combination of permanent low prices and rapid growth in economies across Asia -primarily, Middle East and Russia. It needs to be pointed out though that, the prospect of a prolonged impact of the pandemic on the global economy adds further uncertainty to the pace of short-term gas demand growth.

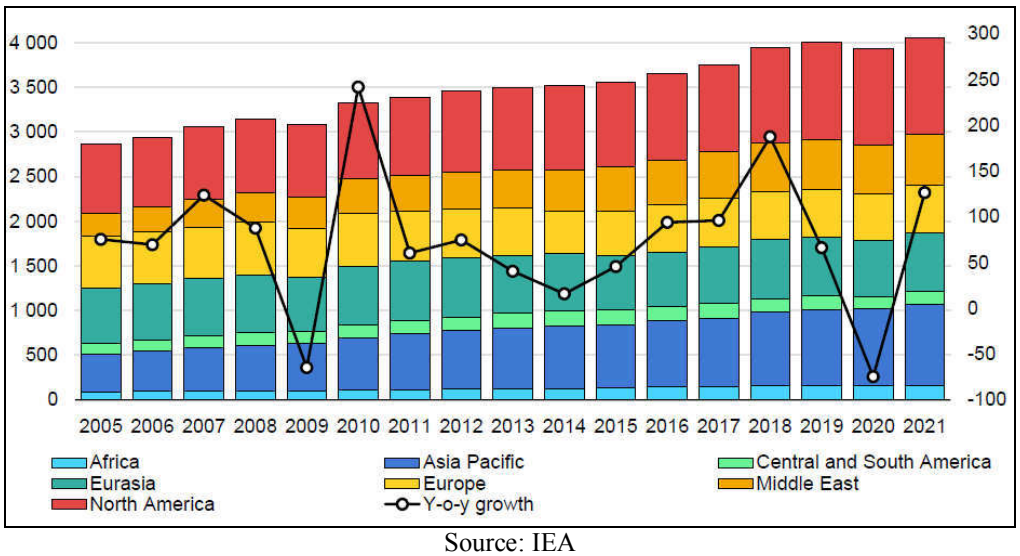
Figure 6: Natural gas spot prices 2020 (in $/MBtu)



Source: IEA

Indicatively, in 2021 natural demand in the European Union is expected to rebound by 16 billion cbm (+3%), reaching 2019 levels. Moreover, Eurasian gas production is expected to continue to recover, growing by 28 billion cbm (+6%), close to 2019 levels also. This would be largely supported by the ramp-up of exports via new and traditional export corridors. Pipeline exports from Russia to Europe and from Central Asia to China are expected to increase by over 10%. Exports via the Power of Siberia pipeline are set to reach 10 billion cbm in 2021. Azeri pipeline deliveries are set to increase by over 15%, with 8 billion cbm destined for Turkey and over 5 billion cbm for other European markets. Russian LNG exports are set to increase by about 1 billion cbm. At this point, a question raises; does the EastMed pipeline have a competitive advantage against the above energy networks?

Figure 7: Evolution of global gas demand 2005 – 2021 (in billion cbm)



Source: IEA

North American gas demand would be almost stable in 2021, with an annual increase of 9 billion cbm (+1%). In the world's largest natural gas market, the United States, annual increase in demand is estimated to grow by 3 billion cbm, squeezed by the continued growth of renewables and rising natural gas prices.

The picture is very different across developing Asia, where demand in 2021 is expected to increase by 45 billion cbm (+5%) and 8.5% above 2019 levels, thanks to a strong rebound in economic activity and expanding gas infrastructure across the region. Asia's demand recovery is mainly driven by China, with others likely to catch up in 2021. Indicatively, China accounts for 56% of the net demand growth in Asia, followed by India with a 14% share. A group of emerging Asian economies together make up 28% of the net demand increase. In 2021 total gas demand in China is projected to increase by 25 billion cbm (+8%) or 14% higher than 2019 levels, fuelled by strong GDP growth. As it refers to India, 2021 demand is set to rebound sharply and increase by 10% on the back of a strong economic recovery, new gas connections improving infrastructure, growing domestic supply and a supportive policy environment. Finally and as it refers to Japan, despite the strong start to the year, gas demand in 2021 as a whole is projected to decrease by 3% as nuclear production restarts.

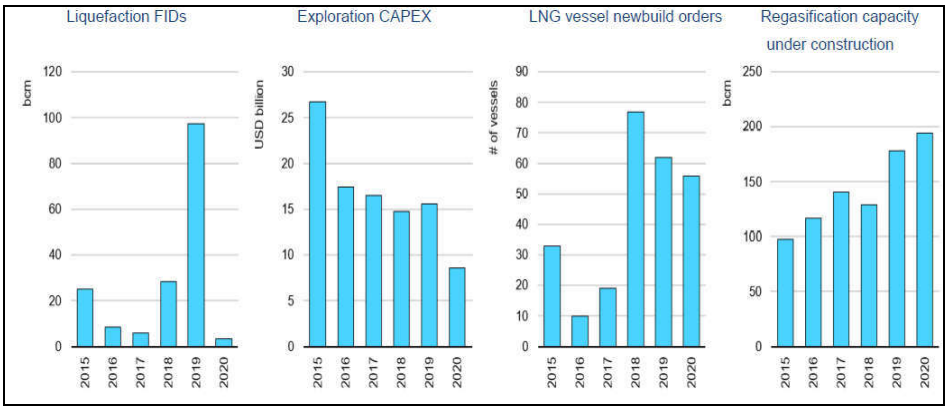
3.3. The impact on LNG sector and future prospects

Against all odds, global LNG trade grew by 1.4% in 2020, showing resilience despite the impacts of COVID-19. Global LNG trade managed to maintain a positive annual growth by 1.4%, far from the double-digit annual growth rates observed since 2016 though. Asia accounted for all the increase in LNG trade, keeping a leading 71% share of global imports. This was mainly driven by China (+12%) and India (+15%). LNG trade to regions other than Asia was declined by 4%. For example, Europe's imports were down 3% y-o-y. As it refers to United States, LNG export activity surged by 34% y-o-y, as the state was the largest source of growth on the supply side, accounting for 70% of total increase. Qatar, Australia, Russia and the United States remain the leading exporters of LNG, accounting for 66% of global supply.

The demand uncertainty related to COVID-19 and a historic oil market downturn slowed down any new investment in liquefaction capacity and gas exploration during 2020. As depicted in Figure 8, investment in new liquefaction projects stalled in 2020. After a record year for new final investment decisions (FIDs) in 2019, when nearly 100 billion cbm of new liquefaction capacity was approved, FIDs in 2020 were quite limited to only 3.4 billion cbm. The above lack of investment was due to a combination of: a) excess supply and low global gas price benchmarks, b) widespread CAPEX cuts by the major national and international oil companies, c) uncertainty about future LNG demand related to the economic impacts of the pandemic, and d) a lack of buyer appetite for long-term LNG contracts.

Furthermore, spending on gas exploration was also declined in 2020, as a structural trend, which has been fuelled by abundant unconventional resources and concerns about stranded asset risk. Exploration CAPEX in 2020 hit the lowest level in at least two decades.

Figure 8: Investment Activity Indicators, 2015-2020



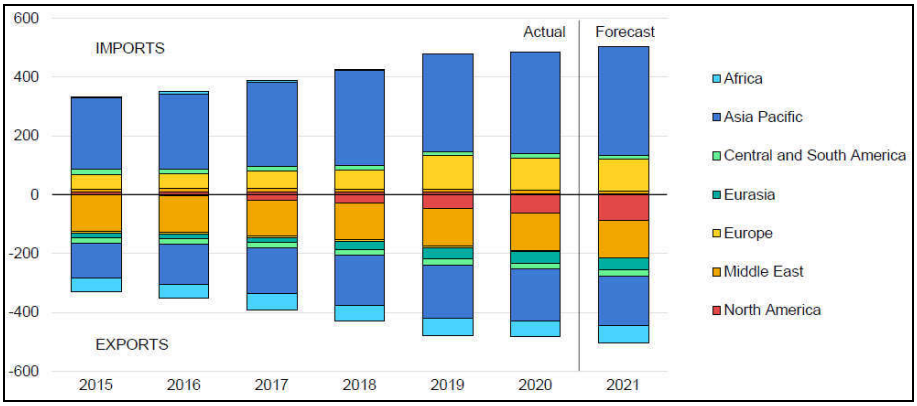
Source: IEA

On the contrary, LNG vessel orders and investment in LNG regasification projects continued at a healthy clip. Orders for LNG carrier vessels held up relatively well, as shipowners and operators ordered more than 50 new LNG carriers in 2020, about 40% more than the global five-year average, but well below the levels seen in the bumper years of 2018 (77 orders) and 2019 (69 orders). Furthermore, investment in new LNG import capacity remained relatively strong in 2020. At the end of 2020, about 194 billion cbm of regasification capacity was under construction, a 9% increase from the end of 2019. Nearly 66% of new regasification capacity under development is located in emerging markets of Asia, where new infrastructure is required to accommodate the increasing gas demand.

All things considered, in 2021 global LNG trade is projected to expand by 4%, at a slower pace relative to the 2015-2019 average annual rate of 10%, as depicted in Figure 9. LNG import growth is set to be driven solely by the Asia Pacific region, which is expected to see a 7% increase, while all other regions are poised to see declining imports. Despite the steep drop in the first quarter of 2021, European LNG imports are expected to remain relatively strong in 2021, albeit below the 2019 and 2020 levels. Furthermore, North America will remain the primary engine of LNG export growth in 2021. LNG output in the United States is set to increase by 33%, driven by the addition of new liquefaction capacity as well as by higher utilization of existing plants.

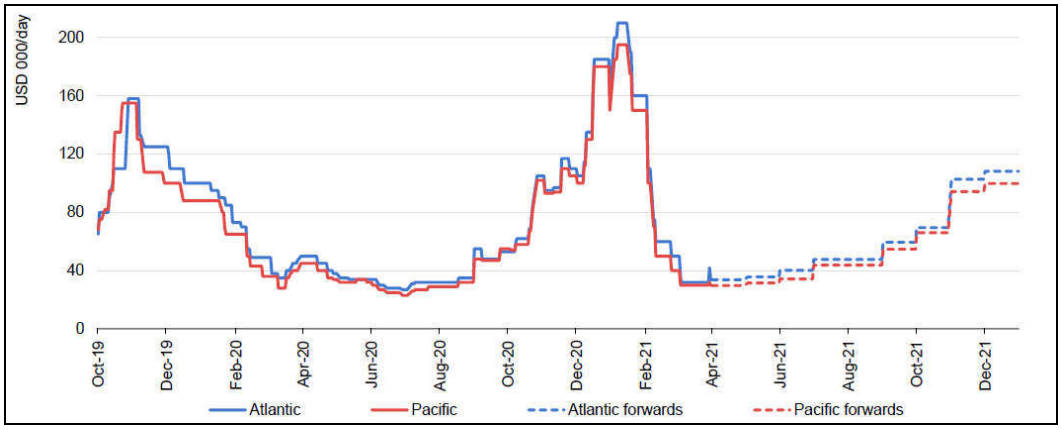
Last but not least, it should be highlighted that LNG spot charter rates have displayed strong volatility during the 2020/21 heating season as after soaring to record highs in January 2021 –between 230.000 $/d and 350.000 $/d - on high ton-mile demand, charter rates plummeted below last year's levels at the beginning of March on improving availability of shipping capacity, as depicted on Figure 10. Global LNG shipping capacity is expected to increase by 10% in 2021 while LNG exports from the United States will support ton-mile demand. LNG exports deem to provide a strong competition to pipeline networks.

Figure 9: LNG imports and exports by region 2015-2021*



Source: IEA

Figure 10: Atlantic and Pacific spot and forward charter rates (October 2019-December 2021)



Source: IEA

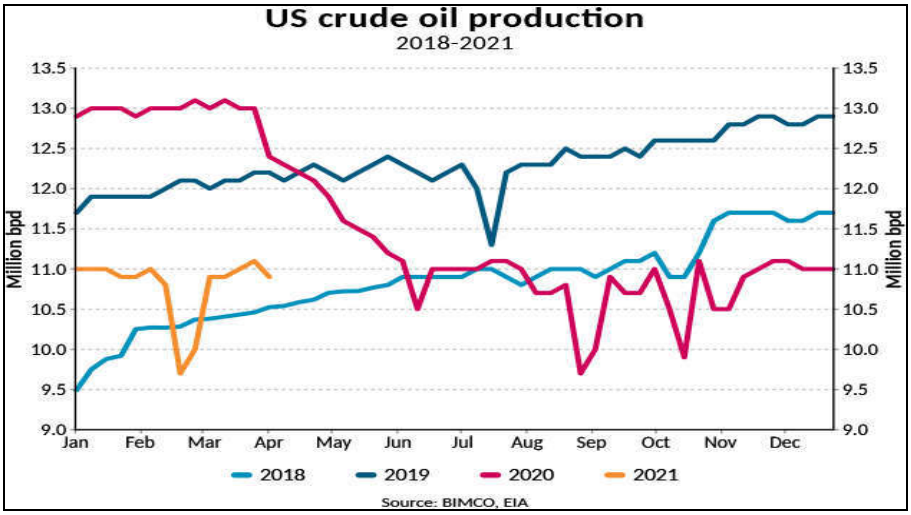
3.4. The impact on major oil companies and their investment plans

Major oil companies' financial performance was devastating during 2020, due to prolonged low energy prices and an extremely weak demand. Most oil majors face high debt ratios, even those who entered the pandemic crisis with strong balance sheets. Indicatively, the United States shale hydrocarbon industry was severely affected by the collapse of oil prices between February and April 2020. During the year, the sub-index of oil companies, a part of S&P 500 index, has recorded losses of about 50%, impacting even massive companies such as Exxon Mobil and Chevron. Consequently, companies such as Exxon Mobil, Royal Dutch Shell, Total and BP were forced to minimize their cost expenditures for 2021. For example, Chevron is planning to spend only $14 billion in new investments during 2021, despite the recent acquisition of Noble Energy. These levels of investment are quite close to the minimum level of $10 billion that the company has established in order to maintain its production capacity.

Moreover, most of the aforementioned oil majors are planning to proceed in the suspension of dividend payment, for the first time in the last 40 years. As a result, the main concern for the oil majors is not whether they will survive the pandemic, but whether they will be still able to attract investors. BP and Shell have lost their market impact on European stock exchanges, while Exxon, one of the most important pillars of S&P 500, is no longer included in the top 50 American companies (Stevens 2020). As a result, in 2020 major oil companies have limited their geopolitical expansion in energy projects across the globe and focused on how to stop their financial bleeding, by eliminating any unprofitable production, future investments plans and laying off thousands of employees. Exxon is a typical example of the above; in the last 12 months the company has diminished its cost expenditures by approximately 50%, as it also plans to reduce its labor force by 15%, or 14.000 employees, by 2022.

During 2020, the US shale oil and gas production declined remarkably (Figure 11), after a decade period of important growth. Oil major executives estimate that United States shale production will never achieve the pre-pandemic levels, almost 13 million b/d. Moreover, the newly elected president of the United States, Joe Biden, has clearly stated his intentions to move the United States economy away from the oil industry by turning it to the green economy. The proposed $2 trillion plan aims to the drastic reduction of emissions and the transport sector's energy transition to electromobility.

Figure 11: United States Shale Oil Production 2018-2021



Source: BIMCO

3.5. The role of renewable energy sources in the new era of energy transition

Renewables remain the success story of COVID-19 era. Demand for renewables grew by 3% in 2020, while demand for all other fuels declined. Renewables have proven largely immune to the pandemic as new capacity has come online. Overall, renewables usage grew in 2020 largely due to an increase in electricity generation from solar PV and wind. Accordingly, the share of renewables in global electricity generation jumped to 29% in 2020, up from 27% in 2019.

Renewables are on track to set new records in 2021 as demand is set to increase across key sectors such as power, heating, industry and transport. China alone is likely to account for almost half of the global increase in renewable electricity generation, followed by the United States, European Union and India. Together, they represent almost 75% of global photovoltaic and wind output. During 2021, China and the United States would represent together more than half of global wind output. While China will remain the largest PV market, expansion will continue in the United States with ongoing policy support at the federal and state level. Having experienced a significant decline in new solar PV capacity additions in 2020 as a result of COVID-related delays, India's PV market is also expected to recover rapidly in 2021.

4. EastMed Pipeline; Potentials, implications and the threat of obsolescence

There has been a lot of controversy about the potential impact of COVID-19 on energy shifts in Southeast Mediterranean (Stratakis & Pelagidis 2020) and the connection of the region's gas reserves to the European market. In order to classify the available projects and in particular EastMed pipeline, it would be very useful to estimate their implementation potentials based on the market's needs. For that reason, we should follow some basic assumptions (Filis 2021).

First of all, natural gas and LNG prices in the European market have been stabilized around $5.5-6.5/MBtu. The energy prices will be hardly modified in the years to come due to production oversupply. Secondly, the European Union's shift towards climate neutrality, aiming at eliminating carbon emissions by 2050, means that European grants and loans for energy projects, such as natural gas pipelines, will be drastically reduced. In other words, it seems that there is not enough time to implement mega energy projects, so any decisions regarding the exploitation of Southeast Mediterranean gas reserves must be addressed soon.

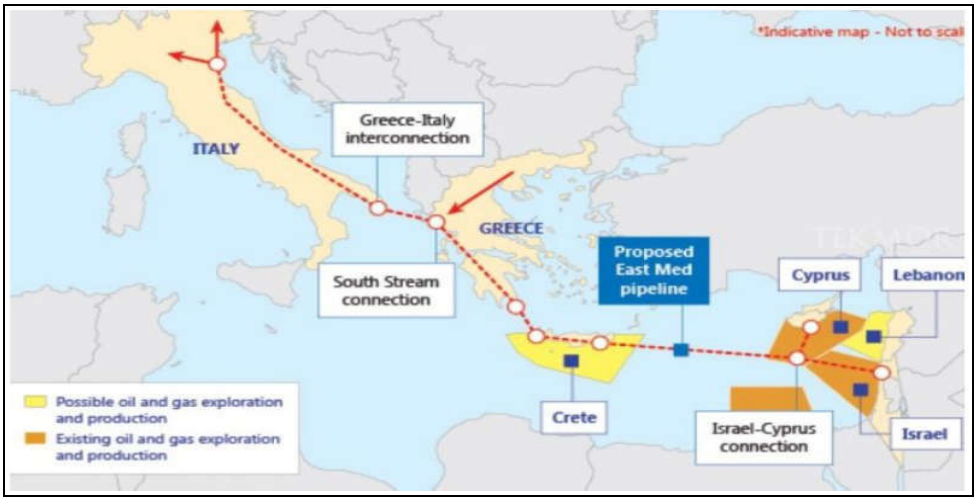
Moreover, natural gas production in Southeast Mediterranean is quite expensive compared to other regions. For example Egypt, the largest natural gas producer in the region has a breakeven selling price of $5/MBtu otherwise, the sector will face losses. In addition, Israel's selling price to the national electricity authority is at $4/MBtu. Given the conditions, "expensive" gas reserves may not be exploited. An expensive gas reserve is considered the one whose exploitation is unviable due to geopolitical and economic reasons.

Finally, Egypt especially after the discovery of the largest gas deposit in the Southeast Mediterranean, the Zohr gas field with a capacity of 800 billion cbm, seeks to be promoted as the only production and export energy hub in the region. In addition, Egypt's two existing gas liquefaction plants (LNG terminals) have a great advantage, offering to neighboring producers, such as Israel or Cyprus, the opportunity to make use of those facilities in order to avoid the construction cost of building new ones in their territory.

4.1. EastMed pipeline and potentials

EastMed pipeline is a very crucial project for EU's diversification of energy sources, as its completion will ensure the competitiveness of natural gas in Southeast Mediterranean region. On this basis, the European Commission has identified EastMed as a project of common interest (PCI) and funded with € 34 million the detailed studies that will allow the final investment decision (FID) to be taken by the end of 2022. After three years of construction, or 7 according to pessimistic approaches, the pipeline is expected to be operational in 2025 the earliest. EastMed will be able to initially transport between 10-20 billion cbm of natural gas annualy. According to latest information, the project will be also built with specifications for transporting hydrogen (Figure 12).

Figure 12: EastMed pipeline



Source: IGI Poseidon

EastMed pipeline has the governmental support of Greece, Cyprus, and Israel, while there is also political commitment from Italy to sign it. Italy has yet to sign the agreement quoting environmental concerns but, recently and under new government by Draghi, there is a strong belief that Italy will sign the transnational agreement for the pipeline, since it is the destination country of Southeast Mediterranean region gas reserves. This potential development is strengthened by the completion of TAP pipeline.

It is a matter of fact that there is a lack of energy infrastructure in Southeast Europe and that situation could be exacerbated by the fact that the aforementioned energy transition process is taking less into account the support of strategic mega energy projects. It should be highlighted though, that a two-speed Europe seems to be emerging. Specifically, in North and Central Europe and in less than ten years, several crucial energy projects and gas pipelines have been completed, such as Nord Stream I and II pipelines; while on the contrary, in Southern Europe there is only TANAP-TAP pipeline with 10 billion cbm annual capacity, up to the moment.

The potential of EastMed pipeline has been under question recently, as it refers to its technical feasibility and economic viability (Stratakis & Pelagidis 2018). According to IGI Poseidon, the implementation body, EastMed pipeline is a completely realistic project, as the technical feasibility study that emerged in 2017 did not identified any obstacles in certain issues such as the depth and the length of the pipeline. It should be noted that the project is quite similar to Turk Stream pipeline in Black Sea, in terms of length and depth, which was successfully put into operation in 2019. Therefore, the technology exists and it is proven.

On the contrary and as it refers to the extraction of natural gas from the fields of Southeast Mediterranean, there have been many scenarios that lean towards the LNG exports. In that occasion, there are certain concerns on the necessity of EastMed pipeline. According to IGI Poseidon, the comparison between the two options is consistently in EastMed's favor as, referring to exports to Europe, the LNG cost chain (liquefaction, gas compression, shipping, and regasification) is more onerous than just EastMed's transport cost. On the contrary, it is true that LNG has the competitive advantage of reaching in more distant and emerging markets, such as Asia.

Another benefit of EastMed pipeline is that it could contribute to the energy transition process, as natural gas has been characterized as "the transition fuel". From an economic point of view, IGI Poseidon is developing a business model based on long-term contracts between gas producers and first-tier European buyers, which will allow the project to be financed and ensure all stakeholders' satisfaction (producers, buyers and governments).

All things considered, the final implementation of EastMed pipeline must meet three basic conditions: a) sufficient gas reserves (proven but difficult to exploit), b) economically viable solutions for the project's operation (under question) and c) available markets for exports (mainly Europe and under a supportive role).

4.2. EastMed pipeline and implications

Natural gas pipelines are long-term capital intensive projects, which even if their financing had been secured, their large invested capital would require decades to be depreciated. There has been a lot of controversy about what might hinder the completion of EastMed pipeline. The answer to the above question can be summarized in certain reasons.

The first reason has to do with the European policies about climate change that are under development, as they dictate a 55% reduction in emissions until 2030 and a zero carbon footprint by 2050. Consequently, projects of common interests such as pipelines are considered as ineligible costs, meaning that they will face limited financial support and funding. Furthermore, EastMed pipeline does not appear to have secured the necessary quantities of 10 billion cbm for annual gas export activity and as a result, it is quite difficult to gain funding by banks, energy consortia and construction companies.

Since its initial conception in 2010, the EastMed pipeline seems to have a lot in common with another mega energy project that caught the attention of international energy diplomacy for 11 years and finally was aborted as unrealistic, the Nabucco pipeline (Myrianthis 2021). Proposed in 2002, it was a project of enormous dimensions and importance, analogous to the current EastMed or Nord Stream I & II pipelines. Its implementation though, would decisively upgrade Turkey's energy and geopolitical role. Nabucco pipeline was aiming at the reduction of European Union's energy dependence from Russian gas. It would have an annual capacity of approximately 10-20 billion cbm and was politically supported by the European Union, the United States and international credit institutions such as EIB, EBRD, IFC etc. Moreover, Nabucco pipeline's construction cost was quite high, in the range of €8-10 billion and consequently, it had to address the problem of securing minimum quantities of proven natural gas deposits available for transportation.

As it refers to EastMed pipeline, the minimum quantities of proven natural gas deposits required for exports, range between 280-300 billion cbm. These quantities, with the exception of the Egyptian Zohr, are not currently available, despite the occasional optimistic statements. Moreover, the most important obstacle in EastMed's implementation could be the price of natural gas to be supplied. Supposing the production cost of natural gas in the Mediterranean is set at $4-5/MBtu as expected, the additional overall transport costs of approximately $2.8/Mbtu - $3.5/Mbtu would place EastMed in the lowest range among European gas supply options. On the contrary, Russian gas supply is more profitable even with price levels as low as $4/Mbtu, plus the transport cost of about $0.9/Mbtu in the case of NordStream I & II pipelines. The question here lies on whether there is any country that would jeopardize or undermine its economy in order to be energy independent from Russia.

EastMed pipeline faces direct competition from Nord Stream II pipeline. Once operative in 2021, it will increase European dependence on Russian natural gas. Nord Stream II pipeline is a German-Russian interests' project and costs $11 billion. Furthermore, EastMed pipeline has a limited capacity and it is unable to cover a large proportion of EU's gas needs. For example,

in 2020 EU's gas demand was 522 billion cbm and as a result the potential of 10 billion cbm, which is the pipeline's capacity, only covers 2% of demand. On the contrary, NordStream I and II pipelines will have a combined annual capacity of 110 billion cbm. The other alternative option is transfering gas to Egypt's liquefaction plants; that adds a cost of at least $3.5-4.5/MBtu.

Finally, the duration of the pipeline's construction process is estimated at 7 years. That means that beginning in 2022 after the FID announcement, the project will be completed in 2029. It seems that EastMed pipeline has the disadvantage of being a quite long-term energy project while at the same time it is being downgraded by low energy prices that prevail worldwide, the great depths it approaches and the limitations imposed to its diameter that restrict its capacity.

4.3. East Med pipeline; the threat of obsolescence by green policies

As it is already mentioned, oil demand and energy prices declined, creating losses in large energy companies. According to many analysts, any recovery in energy sector will probably be felt after 2023. Until then, there is a certain unwillingness to invest in gas and oil pipelines. Moreover, energy companies tend to diversify from hydrocarbons, for the benefit of renewable energy sources and, in the long-run, for hydrogen economy. The world energy market is turning towards cleaner and greener solutions.

As it refers to European Union, it is expected to reduce its use of natural gas by 29% for the next decade and by 90% until 2050 in order to achieve current and future climate and energy targets. As EU gas demand plummets, Southeast Mediterranean natural gas deposits will only decrease further in value. A more radical approach to the energy issues of the Southeast Mediterranean region claims that investments in oil and natural gas are obsolete as the great technological developments of 2018 have brought the energy sector in the era of renewable energy sources (Rabinovich 2021). On the contrary, oil and natural gas dynamics in the Southeast Mediterranean region emerged in the period between 2012 and 2017. As it refers to Greece and Turkey frictions over the continental shelf and the ambition to find oil and gas, this is believed to be an outdated discussion that will be definitely obsolete in a few years.

On a global level, 2021 will mark cooperation between nations in tackling climate change, as green policies are gaining ground (Bremmer & Kupchan 2021). A new, hard-to-reverse situation will emerge in the market, encouraging clean technologies, such as green hydrogen, for which, a massive investment wave on a global level is expected. Humanity puts its hopes in green hydrogen for the independence from fossil fuels and their effects on the environment and climate change. It is expected to be the fuel of the future as it has the advantage of not producing exhaust gases, contrary to conventional hydrogen produced by natural gas, emitting significant amounts of carbon dioxide during the production process. Green hydrogen is produced by electrolysis and it is much cheaper than blue or gray which are produced by the combustion of shale hydrocarbons.

Green hydrogen has a crucial role in new US president Joe Biden's climate agenda, as at the same time it is now at the forefront of governments' energy policies, absorbing funds from industries that are constantly planning new investment initiatives for its utilization and at the same time attracts investors. As it refers to Europe and under an ambitious plan to transit into an economy free of fossil fuels and emissions in the future, EU plans to invest €470 billion in hydrogen projects by 2050, which are going to have an effect on a range of highly polluting industries. European Union's green hydrogen strategy set out in July 2020 is aiming to the production of 1 million ton of green hydrogen by 2024 and 10 million tons by 2030. China, Japan, South Korea, Australia and New Zealand have already launched green hydrogen strategies ensuring their commitment to zero emissions by the middle of this century.

All things considered, the goal of decarbonization by 2050 has been set along with the strong development of renewable energy sources and new technologies such as hydrogen. Hydrogen and renewables though, are on their early stages in terms of developments and facilities, as it is assumed that by 2050 they will cover only 20%-30% of European energy needs.

5. Conflicted geopolitical interests in the region; impact on EastMed pipeline

Despite the fact that natural gas reserves in Southeast Mediterranean region are estimated to worth billions (Stratakis & Pelagidis 2020), they have been for long a sticking point for geopolitical shifts between the involved countries. The EastMed pipeline, has acted as a catalyst for multilateral agreements between Greece, Israel, Cyprus, Egypt, the European Union and the United States (Mazis & Sotiropoulos 2016). EastMed pipeline gave impetus to the creation of the EastMed Gas Forum, which is a significant political achievement of cooperation between Israel, Egypt, Jordan, the Palestinian Authority, the United States and the European Union. On the contrary, EastMed's route through a disputed area that Turkey claims and the aforementioned reluctance of Italy to support the project, significantly reduce its dynamics.

Turkey, on the other hand, is keenly interested in the region's hydrocarbons in order to reduce its dependence on both Russia and Iran, as well as their export prices. Moreover, it also seeks to upgrade its geopolitical impact by dominating in all the so far proposed projects in Southeast Mediterranean. The extreme aggressive policy of Turkey jeopardizes the economic viability of EastMed pipeline. It is a matter of fact that the last summer's Southeast Mediterranean crisis, promoted by Turkey, has raised great concerns among the involved countries (Greece, Cyprus and Israel) about EastMed pipeline's safety. The plan that so far gathers the greatest chances of implementation is exporting Southeast Mediterranean natural gas reserves as LNG from Egypt. Both Israel –in 2021- and Cyprus –since 2018- are seeking to reach an agreement with Egyptian authorities in order to transfer part of their production to the two Egyptian liquefaction plants of Idku and Damietta.

5.1. The new proposed pipeline between Egypt and Israel

In the early 2021 significant displacements in the Southeast Mediterranean region are being observed. In February, Egypt and Israel agreed to proceed with studies for the implementation of a new gas pipeline that would transport Israeli natural gas through offshore pipelines to the Egyptian LNG terminals at Idcu or Damietta which have been active for eight years, from where liquefied petroleum gas (LNG) exports to Europe will take place (Figure 13). According to other sources, Egypt is proposing a partial change or a redirecting of EastMed's route bypassing Cyprus (Athanasopoulos 2021).

Figure 13: Southeast Mediterranean gas reserves' connectivity to Egypt's LNG plants

Source: EGAS

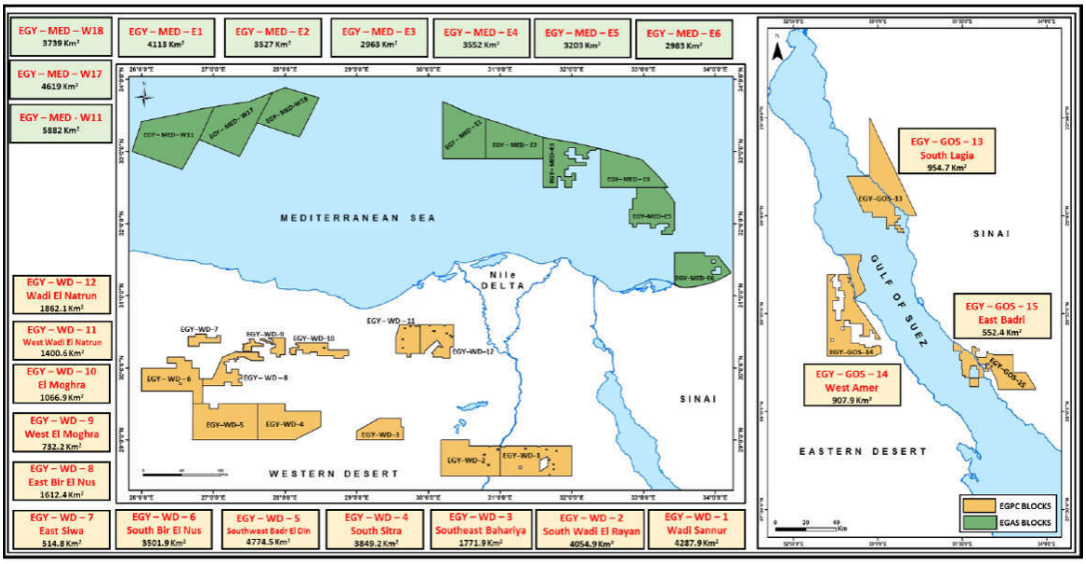
This agreement has two geopolitical dimensions, as it concerns the two countries with the largest proven and most exploitable gas fields in Eastern Mediterranean. The first dimension concerns Turkey, as Egypt and Israel decided to cooperate immediately, ignoring Turkey's demand to be the gas channel to Europe. In other words, they invalidate the basic Turkish claim about its "ideal" geographical location for exporting the natural wealth of the Eastern Mediterranean. The second dimension concerns the fate of the EastMed pipeline. Although, in theory, East Med remains on the table, the agreement between Israel and Egypt suggest that

the Cyprus political stalemate favors the activation of other gas exploitation and transmission channels.

Indeed, the main reason behind all the above actions is focused on the fact that Southeast Mediterranean's natural gas expoitation is diplomatically halted due to the unsolved Cyprus issue. The main aim of all the aforementioned backstage processes is to find a way of exploiting the region's resources and neutralizing the reaction of Turkey by bypassing Cyprus at the same time (Nedos 2021). The above development clearly jeopardizes Eastmed's financial viability, as significant quantities of natural gas are being removed. Israel's stance is maybe attributed to the will of commercial operating the proven gas reserves in the Levantine basin as Israel, may has estimated that by waiting for EastMed's completion in the future, they may be delaying their development opportunities.

On the contrary, due to the aforementioned Egyptian actions, the geopolitical situation in Southeast Mediterranean is becoming even more complicated and unstable. Besides any thoughts and plans about altering the direction of EastMed pipeline, the recent proclamation from the Egyptian natural gas company (EGAS) of three offshore regions lies in area adjacent to the boundary line of exclusive economic zone of Greece –that signed on August 2020, caused the latter's dissatisfaction (Figure 14). The area of researches is also adjacent to "Erdjiyes line", the upper limit of the Turkish continental shelf and exclusive economic zone in Eastern Mediterranean (Figure 15).

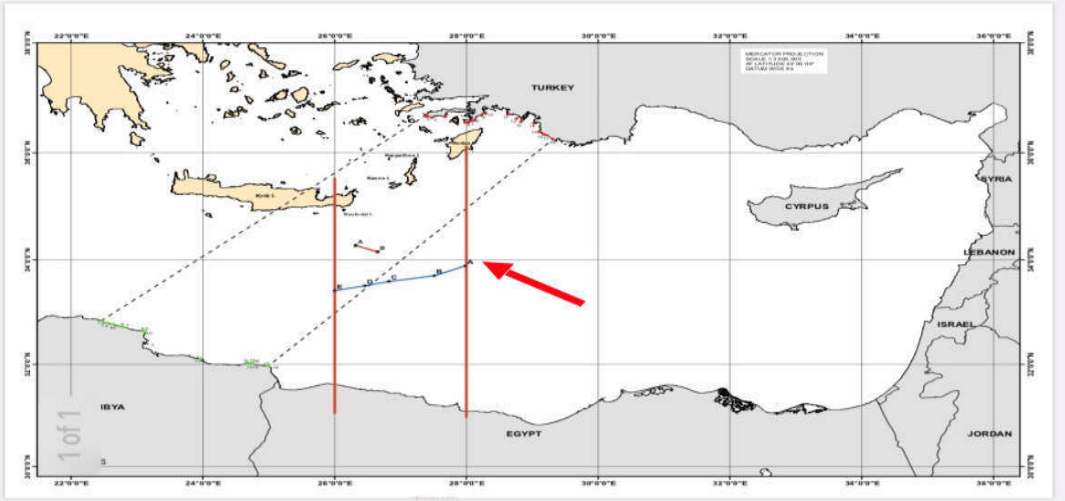
Figure 14: Egypt's proclamations on new offshore regions in 2021



Source: EGAS

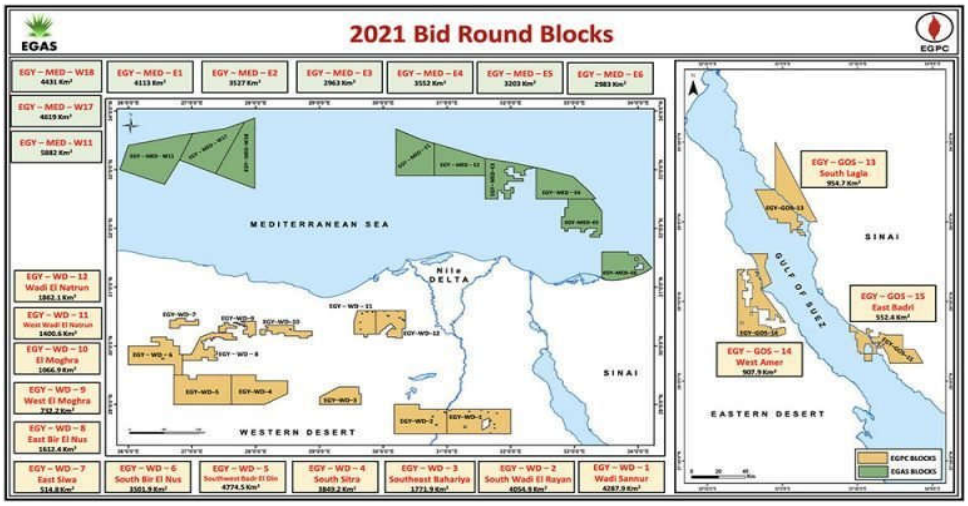
The disputed area, called EGY-MED-W18, extends eastwards, beyond the 28th meridian, a key point for Turkish claims, following Erdjiyes line which ignores completely the rights of Kastelorizo complex and actually, divides the area between Turkey and Egypt (Mazis & Sgouros 2010). It seems that Egypt had a double agenda of promoting an indirect approach with Turkey, as the latter has made her willingness clear to proceed with Egypt in a delimitation of their maritime zones. It seems though unlikely for Egypt to jeopardize the already existing network of regional partnership, especially when the country has the leading role in energy policy and gas production of the region. For that reason, in late March 2021 and after tough political and diplomatic negotiations, Egypt readjusted the disputed block EGY-MED-18 so that it does not extend beyond the 28th meridian (Figure 16).

Figure 15: The boundary line of exclusive economic zones of Greece and Egypt



Source: EGAS

Figure 16: Egypt's proclamations on new offshore regions (new EGY-MED-18)



Source: EGAS

5.2. European Union's stance towards exploitation of Southeast Mediterranean gas reserves

It is a matter of fact the aforementioned proposed plan on redirecting or completely substituting EastMed pipeline mobilized discussions across European Commission, as it seems that there is common belief that the construction of the pipeline -in its current form- will not be a viable economic option (Michalopoulos 2021). Moreover, according to European Commission, the alternative option of transporting LNG must be also examined, under the wider scope of examining the cost and the benefits between them (Stratakis & Pelagidis 2019). Many analysts support that EastMed is mainly a "political project" (Drousiotis 2021) while according to others; it is considered a "pipedream" instead of a pipeline.

On a political level, the construction of EastMed pipeline would be beneficial for Greece, Israel and Cyprus, as it would send a powerful political message to Turkey. On the other hand, the solution of LNG transportation would be of high favor to Italy and ENI, in particular. According to diplomatic sources, the Italian oil major ENI exerts massive pressure to the Italian government, as it seems to prefer the exploitation of Southeast Mediterranean's gas reserves to occur via LNG exports and not by EastMed pipeline. ENI already acquires a strong fleet of LNG vessels in Leviathan gas field and such an opportunity could support the

company to fully prevail in the transportation of LNG across Mediterranean Sea. Of course, it should be pointed out that a development like this would have an impact on the interests of Greece in the region, which of course has a more powerful LNG fleet with global employment.

On the contrary though, the political aspect of EastMed pipeline does not leave Italy indifferent, as up to the moment, there are already two pipelines from Algeria and Tunisia that end up in Sicily and Sardinia, as well as the TAP pipeline. With EastMed pipeline, Italy could become an energy hub in the Mediterranean Sea, so as to counterbalance the energy leading role of Germany in Central Europe. It is a matter of fact that Germany ignored the rest EU member states and bilaterally negotiated Nord Stream II pipeline with Russia and as a result, managed to double Russian natural gas imports and became the sole energy hub in Central Europe.

Moreover, in view of the European Green Deal, new challenges are emerging and European Union has to address certain matters in order to become the world leader in the global energy and digital transition (Maniatis 2021).

5.3. United States' stance towards exploitation of Southeast Mediterranean gas reserves

The Biden administration promotes climate change issues on top of its priorities, including energy matter. The United States energy policy in the Southeast Mediterranean region is going to promote the development of a regional energy market (Fannon 2021). However, United States keep equal distances from the geopolitically delecate issue of the appropriate route that proven deposits of the Southeastern Mediterranean should follow on their exit to major consumption centers and the promotion of Greek interest East Med pipeline. According to United States Department of Energy officials, the promotion of a Mediterranean gas market could include the potential East Med pipeline along with other alternatives. The aim is to promote a free, fair and open market where the participating energy companies will be in their best position to deliver their product to buyers. The recent Chevron's decision to acquire Israel's Noble in 2020, is a sign of confidence in the geological prospects and political stability of the region.

United States government supports positive energy developments in the Eastern Mediterranean, as American companies have played an important role in the discovery of gas fields and have managed to increase their investment in the region, despite the pandemic that shrank the oil and gas sectors by 30%. According to the United States approach, energy could serve as a tool for other foreign policy issues and encourage the development of regional energy markets, especially in the Southeast Mediterranean. Energy cooperation can affect other sectors such as enhancing political stability and maintaining a degree of continuity in their policy.

As it refers to the impending completion of Nord Stream 2 pipeline, the United States has pledged to impose sanctions on companies involved in its implementation and furthermore, many actions have been taken to postpone its operation. It has to be pointed out, that both political parties are opposed to the final implementation of the pipeline.

6. Conclusions

It is a matter of fact that the rising geopolitical tensions in Southeast Mediterranean region as well as the recent implementing policies towards the energy transition era shape the possibility of abandoning the EastMed pipeline as realistic. In such a case, countries such as Greece and Cyprus, that do not benefit from the aforementioned development must act accordingly and seek for alternative options. The best case scenario lies in a partnership with Egypt and Israel both on a transnational and a corporate level. On the contrary belief, EastMed pipeline's route cannot be changed despite the indirect and vague challenges that the project had faced. The possibility of an additional and not alternative line to Egypt confirms the growing interest for EastMed pipeline, as on the contrary the idea of the pipeline's heading to Egypt has no basis. In the geopolitical level, there are increasing indications that no common ground can be with Turkey. As a result, the countries of East Mediterranean Gas Forum must capitalize on strengthening the relations between them and the United States in

order to find the best exploitation option. That, combined with a series of geopolitical and technological developments creates the appropriate conditions for Southeast Mediterranean countries' geostrategic and geoeconomic upgrade.

7. References

Amaro, Silvia. 2021. "ECB plans to ramp up bond buying to tackle surging yields", https://www.cnbc.com/2021/03/11/ecb-decision-meeting-march-2021-rates-.html (accessed April 21, 2021)

Athanasopoulos, Angelos. 2021. "What is behind of the plan about changing EastMed's direction", https://www.tovima.gr/printed_post/ti-kryvei-i-skepsi-allagis-odeysis-tou-east-med/ (accessed April 26, 2021)

Bremmer, Ian, and Kupchan, Kliff. 2021 "Eurasia Group: Top Risks in 2021", https://www.eurasiagroup.net/issues/top-risks-2021 (accessed April 22, 2021)

Drousiotis, Makarios. 2021. "EastMed pipeline and trilateral collaborations", https://www.tovima.gr/printed_post/o-eastmed-kai-to-fiasko-ton-trimeron-synergasion/ (αψψεσσεδ Απριλ 26, 2021)

Fannon, Frank. 2021. "Athens Energy Dialogues Conference", https://www.kathimerini.gr/opinion/interviews/561271387/o-east-med-einai-mia-epilogi-yparchoyn-kai-alles/, (accessed April 25, 2021)

Fauci, Anthony. 2021. "The next great pandemic". https://www.kathimerini.gr/opinion/interviews/561286879/dr-antoni-faoytsi-stin-k-rantevoy-to-fthinoporo-me-tin-kanonikotita/ (accessed April 22, 2021)

Filis, Konstantinos. 2021. "Southeast Mediterranean and proposed plans", https://www.tovima.gr/2021/03/16/opinions/anatoliki-mesogeios-sxedia-epi-xartou/, (accessed April 26, 2021)

International Energy Agency. 2021. "Global Energy Review in 2021; Assessing the effects of economic recoveries on global energy demand and CO2 emissions in 2021"

Kourtali, Eleftheria. 2021. "Is the European bond market in danger of japanification?", https://www.kathimerini.gr/economy/561220927/kindyneyei-me-iaponopoiisi-i-eyropaiki-agora-omologon/ (accessed April 22, 2021)

Maniatis, Giannis. 2021. "Mediterranean and Green Deal Geopolitics", https://www.kathimerini.gr/economy/561300976/mesogeios-kai-geopolitiki-toy-green-deal/ (accessed April 27, 2021)

Mazis, Ioannis and Sgouros, Alexandros. 2020. "Geopolitics of Energy in the Kastelorizo-Cyprus-Middle East Complex", Regional Science Inquiry Journal Volume II Number 2, pp. 133-150

Mazis, Ioannis, and Sotiropoulos, Ioannis. 2016. "The Role of Energy as a Geopolitical Factor for the Consolidation of Greek-Israeli Relations", Regional Science Inquiry Journal Volume VIII Number 2, pp. 27-44

Michalopoulos, Sarantis. 2021. "EastMed pipeline and Brussels", https://www.tovima.gr/printed_post/ti-syziteitai-lfstis-vrykselles-lfgia-ton-east-med/ (accessed April 26, 2021)

Myrianthis, Michail. 2021. "Is EastMed Pipeline the new Nabucco?", https://www.kathimerini.gr/politics/561294484/aeriagogos-eastmed-enas-neos-nabucco/ (accessed April 25, 2021)

Nedos, Vasilis. 2021. "An open door form Cairo to Ankara?", https://www.kathimerini.gr/politics/561275788/anoichti-porta-apo-kairo-se-agkyra/ (accessed April 25, 2021)

OPEC. 2021. "Monthly Oil Market Report April 2021", https://www.opec.org/opec_web/en/publications/338.htm (accessed April 23, 2021)

Platts. 2020. "OPEC-led production cuts will likely pack a punch on lifting oil prices", https://www.hellenicshippingnews.com/opec-led-production-cuts-will-likely-pack-a-punch-in-lifting-oil-prices-survey/ (accessed April 23, 2021)

Qin, Amy. 2021. "China's Plan to Win in a Post-Pandemic World", https://www.nytimes.com/2021/03/05/world/asia/china-national-peoples-congress.html (accessed April 24, 2021)

Rabinovich, Dan. 2020. "The power of deserts; climate change, the Middle East and the promise of a post-oil era", Stanford University Press

Spathi, Roubina. 2020. "The greatest depression of the last 90 years", https://www.kathimerini.gr/1081716/gallery/oikonomia/die8nhs-oikonomia/h-megalyterh-yfesh-twn-teleytaiwn-90-etwn (accessed April 21, 2021)

Stevens, Pippa. 2020. "Exxon Mobil replaced by a software stock after 92 years in the Dow is a sign of the times", https://www.cnbc.com/2020/08/25/exxon-mobil-replaced-by-a-software-stock-after-92-years-in-the-dow-is-a-sign-of-the-times.html (accessed April 22, 2021)

Stratakis, Antonios, and Pelagidis Theodore. 2018. "The South-East Energy Corridor connecting Greece and Cyprus; How feasible, how viable", Eastern Mediterranean Geopolitical Review Volume 3, pp. 16-33, Cyprus Center for European and International Affairs, University of Nicosia

Stratakis, Antonios, and Pelagidis, Theodore. 2019. "The Viability of a Mediterranean Energy Hub and the Interests of European Union and Russia: Common or Conflicted?", Journal of Law and Administration No 4 (53), pp. 69-91, Moscow State Institute of International Relations – MGIMO University

Stratakis, Antonios, and Pelagidis, Theodore. 2020 "The importance of Southeast Mediterranean natural gas reserves to EU's energy security; a geopolitical and economic approach", Regional Science Inquiry Journal Volume XII Number 2, pp. 11-29

Stratakis, Antonios, and Pelagidis, Theodore. 2020. "COVID-19 and Energy Shifts in South East Mediterranean; a Possible Correlation?", Special Issue in Depth/Innovation "COVID-19 and Political Change; Towards a paradigm shift?" Volume 17-Issue 4, pp. 8-10, Cyprus Center for European and International Affairs, University of Nicosia