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## The New Geopolitics of the Eastern Mediterranean in the light of the European Green Deal



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## Δήλωση Πνευματικών Δικαιωμάτων

Δηλώνω ρητά ότι, σύμφωνα με το άρθρο 8 του Ν. 1599/1986 και τα άρθρα 2,4,6 παρ. 3 του Ν. 1256/1982, η παρούσα Διπλωματική Εργασία με τίτλο «*The New Geopolitics of the Eastern Mediterranean in the light of the European Green Deal*» καθώς και τα ηλεκτρονικά αρχεία και οι πηγαίοι κώδικες που αναπτύχθηκαν ή τροποποιήθηκαν στα πλαίσια αυτής της εργασίας και αναφέρονται ρητώς μέσα στο κείμενο που συνοδεύουν και η οποία έχει εκπονηθεί στο Τμήμα Ψηφιακών Συστημάτων του Πανεπιστημίου Πειραιώς αποτελεί αποκλειστικά προϊόν προσωπικής εργασίας και δεν προσβάλλει κάθε μορφής πνευματικά δικαιώματα τρίτων και δεν είναι προϊόν μερικής ή ολικής αντιγραφής, οι πηγές δε που χρησιμοποιήθηκαν περιορίζονται στις βιβλιογραφικές αναφορές και μόνον. Τα σημεία όπου έχω χρησιμοποιήσει ιδέες, κείμενο, αρχεία ή / και πηγές άλλων συγγραφέων, αναφέρονται ευδιάκριτα στο κείμενο με την κατάλληλη παραπομπή και η σχετική αναφορά περιλαμβάνεται στο τμήμα των βιβλιογραφικών αναφορών με πλήρη περιγραφή. Απαγορεύεται η αντιγραφή, αποθήκευση και διανομή της παρούσας εργασίας, εξ ολοκλήρου ή τμήματος αυτής, για εμπορικό σκοπό. Επιτρέπεται η ανατύπωση, αποθήκευση και διανομή για σκοπό μη κερδοσκοπικό, εκπαιδευτικής ή ερευνητικής φύσης, υπό την προϋπόθεση να αναφέρεται η πηγή προέλευσης και να διατηρείται το παρόν μήνυμα. Ερωτήματα που αφορούν τη χρήση της εργασίας για κερδοσκοπικό σκοπό πρέπει να απευθύνονται προς τον συγγραφέα. Οι απόψεις και τα συμπεράσματα που περιέχονται σε αυτό το έγγραφο εκφράζουν τον συγγραφέα και μόνο.

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## 1 Summary -Abstract

Regions are in the middle of a discussion of contestation among state and non-state actors in the security, economic and energy realms. The Eastern Mediterranean is a region with consecutive emerging rivalries and alliances among traditional and new actors, at the local, national and transnational scales.

For over a century, global energy geopolitics has been shaped by the need to access oil and gas resources. The EU, which is 75% dependent on natural gas and 85% dependent on oil from third countries (mainly Russia), has developed an international energy strategy, focusing on the promotion of pipelines and networks (known as Projects of Common Interests - PCIs), for import of energy products from different sources and different passages, in order to reduce dependence. Mr. Maniatis' personal participation in the implementation of the T.A.P. pipelines passing through Greece, I.G.B. and EastMed, has taught all of us that EU international energy initiatives play an important role in regional stability.

The pipelines are permanent structures, so they have a lasting impact and create greater incentives for cooperation. Take, as an example, TAP and the IGB, which transport diversified sources of gas. For instance, in 2013, in the framework of the Adriatic and Ionian Initiative Council, an MOU was signed by 8 European countries agreeing to cooperate on further Development of TAP and IAP pipelines. These included, Albania, Bosnia and Herzegovina, Croatia, Greece, Italy, Montenegro, Serbia and Slovenia. In the same year, Greece, Italy and Albania also concluded the IGA on TAP. The IGB also generated cooperation. The importance of this pipeline extends beyond Greece and Bulgaria. Connecting with other pipelines, including those between Bulgarian-Serbia (IBS), Bulgaria- Romania (IBR) and Romania- Hungary (IRH), the IGB forms a Vertical Corridor fostering cooperation. Also, the East Med pipeline, which was supported and funded by the EU as a Project of Common Interest. And also take a look at two other projects: the 2.000 MW 'Euro Asia Interconnector', an EU Project of Common Interest, connecting the national electricity grids of Israel, Cyprus and Greece, via subsea cable; as well as the 2.000MW 'Euro Africa Interconnector', that will connect Egypt, Cyprus and Greece.

However, the EastMed – as well as the 2 emerging “electricity highways” - have served as a catalyst for a series of bilateral and trilateral agreements, and cooperation meetings involving Greece, Israel, Cyprus, Egypt, the EU and the United States. The East Med has also provided the



impetus for the establishment of the Cairo-based East Med Gas Forum, which brought together investors, regulators, producers and consumers in order to contribute to the development of the regional market, and help provide access to financial and technological resources. The Forum was also a considerable political achievement; the first example to bring Israel, together with Arab countries, like Egypt, Jordan, Palestine, with the involvement of U.S., and European Member States.

It is worth mentioning once more that an EU energy diplomacy has indeed emerged, as a by-product of its external energy strategy. And, with patience and determination, this diplomacy has achieved a level of regional cooperation - which may not have existed without the EU's initiatives. However, the EU's energy diplomacy needs to shift, to take into account the Green Deal and the global energy transition. For over half a century, the geopolitics of energy has been shaped by access to oil and gas. But with the global energy transition underway, there will be new challenges to deal with. The EU needs a 2-based diplomatic policy to:

- Become a leader of global energy transition policy, and to
- Meet new security risks.

First, to make the Green Deal effective, the EU has to “export” it; Europe produces only 8 per cent, and a decreasing share of global greenhouse-gas emissions. So, the EU's diplomacy must aim at promoting low-carbon technologies, energy efficiency, increased interconnections of renewables and cooperation on hydrogen. Of course, there will be challenges: 1) there could be negative effects to the international competitiveness of European firms, which will bear a level of regulation-related costs, unlike competitors in third countries, 2) the EU's efforts could be undermined if companies transfer production to countries with less strict environmental regulations, creating carbon leakage. In such a scenario, emissions will not be reduced. So, to prevent this, a W.T.O-compatible EU carbon border adjustment mechanism is necessary, to put a carbon price on certain imports and ensure the environmental integrity of EU policies.

Second, the energy transition will affect the EU's traditional producer partners. (EU imports more than €300billion worth of energy products of which, more than 60%, from Russia.) The EU should support the diversification of the traditional producer partner's economies, like Algeria, Morocco, etc., with a focus on renewables and hydrogen that could be imported to Europe. In this context, it

should also support international initiatives to support a just transition and mobilize international climate finance. An un-managed energy transition can worsen in-equalities between developed nations and emerging market countries. With the provision of grants, loans, and guarantees for sustainable energy projects in partner countries, opportunities will be created for EU industry in new markets.

Third, the EU has to manage potential new security risks that will be caused by the need to import raw materials and metals needed for renewable infrastructure, lithium-ion batteries, electrical vehicles and fuel cells. The Commission has already noted that the EU's imports for raw materials may double by 2050. So, the EU has to plan for diversified supplies and avoid overdependence – for example China, from which the dependence is estimated to 60%.

Last but not least, Europe has to rearrange its energy policy after the Russian invasion of Ukraine. This invasion completely changes the scene, even for Germany, which is currently the largest consumer of Russian gas in Europe. German Chancellor, Olaf Solz, announced immediately after the invasion that he was breaking the certification process for the Nord Stream 2 project; a clear message. Russia's reaction was immediate, with the former Prime Minister Medvedev to state that if Nord Stream 2 does not move forward, the European consumers will pay a lot for energy. But Medvedev's threats could not change the course of events. A new transatlantic energy cooperation, through the construction of a floating bridge Liquefied Natural Gas (LNG) vessels from America, tries to give more differentiation/diversification and flexibility in EU's coverage energy needs in European countries. Already in recent months the flow of Russian gas pipelines covered only 17% of European needs, while the rest came from liquefied, mainly American (shale) gas.

The European Union of 27 covers about 40% of its gas needs with imports from Russia. This is a deep-rooted energy dependence, here and there about half a century. And it is an addiction that generates tremendous revenue in Russia. According to the Russian Ministry of Economy, profits from oil and gas increased by 51% in 2021, totaling 120 billion £. Europe buys gas at 600% over a year ago, indirectly financing this Russian president in this war. But in the long term, the plan is to reduce this demand by replacing it by renewable energy sources.

So far, European states have been reluctant to transfer foreign policy to the EU's institutions, limiting the role that EU's diplomacy can play. The dispute among Member States regarding Russia's Nord Stream is an example. But now, Europe has an opportunity to become the leader in

the global energy transition and digital transformation. Energy foreign policy objectives must be clearly defined. They should not be considered as a by-product of energy policies. To achieve this and really make an impact, Europe needs a political strategy with a vision, based on a common understanding among Member States of the EU's global role.

The war reveals the consequences of energy dependence on imported fossil fuels. New European sanctions leave Russian banks out of SWIFT, effectively removing them from the main global payment system, making it very difficult for any transaction to take place in the immediate future, including that of gas, with Russia. After all, periods of crisis act as accelerators of change.

This dissertation focuses on how new geopolitics of energy has become a crucial part of regional politics. Despite the fact that the arguments of the liberal theory expect cooperation among states, there are opinions that exemplify how energy issues have become part of regional geopolitics and intertwine with domestic power struggles.

Each chapter focuses on traditional actors while describing the situation in Eastern Mediterranean under the prism of European Green Deal and Fitfor55 Package. *“The recent discoveries of natural gas in the region have locked Turkey and Greece into a new geopolitical rivalry with concomitant geopolitical narratives and frames which in turn are linked with domestic political concerns as well as perceptions of shifting global and regional context”* (Altunisik,2021)<sup>0</sup>*“The involvement of regional actors with transnational financial regimes during the so-called green transitions in Egypt and to some extent in the Sudan, on the other hand, allows us to analyze the making of the Eastern Mediterranean region at a global scale”* (Hoffmann,2021).<sup>0</sup>

**The main concerns are up to the questionnaires how and what extent the existential geopolitical scheme will be changed and which actor(s) will emerge? Also, will the European green approach alter the balances on the region? What will be the next day for the world after the Russian invasion of Ukraine and the solidification of the western world against the largest producer and supplier and in what direction will the new energy policy move?**

## 2 Geopolitics

Five years have already passed since the Paris Agreement on Climate Change and the global effort to change the use of fossil fuels to cleaner energy is accelerating, -even during the pandemic. Europe is leading the way, in order to become the first climate-neutral (zero greenhouse gas) continent by 2050. *The European Union (EU) is at the forefront of implementing a vision to limit global temperature rise to 1.5°C based on the accords of the 2015 Paris Agreement on Climate Change and the IPCC 1.5 special report.* (IPCC, 2018) <sup>(1)</sup>Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels, (Masson-Delmotte, et.al). *In pursuit of this goal, the EU has set out a net-zero greenhouse gas emissions target by 2050.* (European Commission) <sup>(3)</sup>

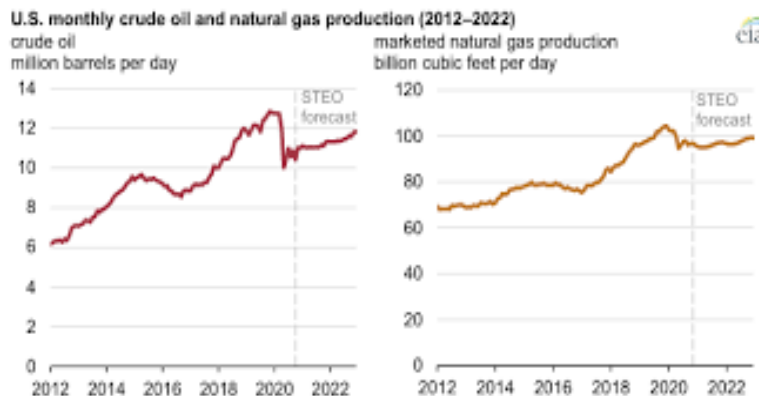
The forthcoming transformation/change of the energy industry will change the geopolitical scene. Oil-producing countries, such as those in the Persian Gulf, will be in danger of collapsing, Russia's weaponization of energy will lose power and new countries will dominate. Are these predictions confirmed by the facts so far? In fact, the geopolitical implications of the transition are more complex!

Even though the demand for oil is declining, the United Arab Emirates, Kuwait and Saudi Arabia continue their supply. This is because mining is carried out at shallow depths, with very high economic efficiency, low methane leakage and very low ignition rates. So even in this phase of declining demand, their share of production in OPEC (Organization of Petroleum Exporting Countries) is increasing, as a result of their competitiveness relative to other countries. These countries, actually, try to use this opportunity in order to move quickly in the diversification of their economies. Their goal is to become, in the post-oil era, these actors that will export cheap and clean energy, either in the form of electricity or mainly in the form of fuels, such as hydrogen and ammonia, that can be used in factories, buildings and transport.

Saudi Arabia, for example, has plenty of solar potential, that's why has launched numerous projects of billions of dollars in green hydrogen production. In addition, it proceeds to the production of "blue ammonia", which is a chemical compound that consists of nitrogen and hydrogen and is formed with one molecule of the former and three of the latter. Actually, it has already shipped the world's first "blue ammonia" product to Japan. The latter (Japan) aims to become a leading force in the use of hydrogen, which is considered as clean energy. This reversal

would mean that countries like Saudi Arabia, Qatar, etc., could set the standard for hydrogen, which would not be in line with the values of Western-style democracies.

The United States set annual natural gas production records in 2018 and 2019, largely because of increased drilling in shale and tight oil formations. The increase in production led to higher volumes of natural gas in storage and a decrease in natural gas prices. In 2020, marketed natural gas production fell by 2% from 2019 levels amid responses to COVID-19. EIA estimates that annual U.S. marketed natural gas production will decline another 2% to average 95.9 billion cubic feet per day (Bcf/d) in 2021. The fall in production will reverse in 2022, when EIA estimates that natural gas production will rise by 2% to 97.6 Bcf/d.



**Source:hellenicshippingnews.gr**

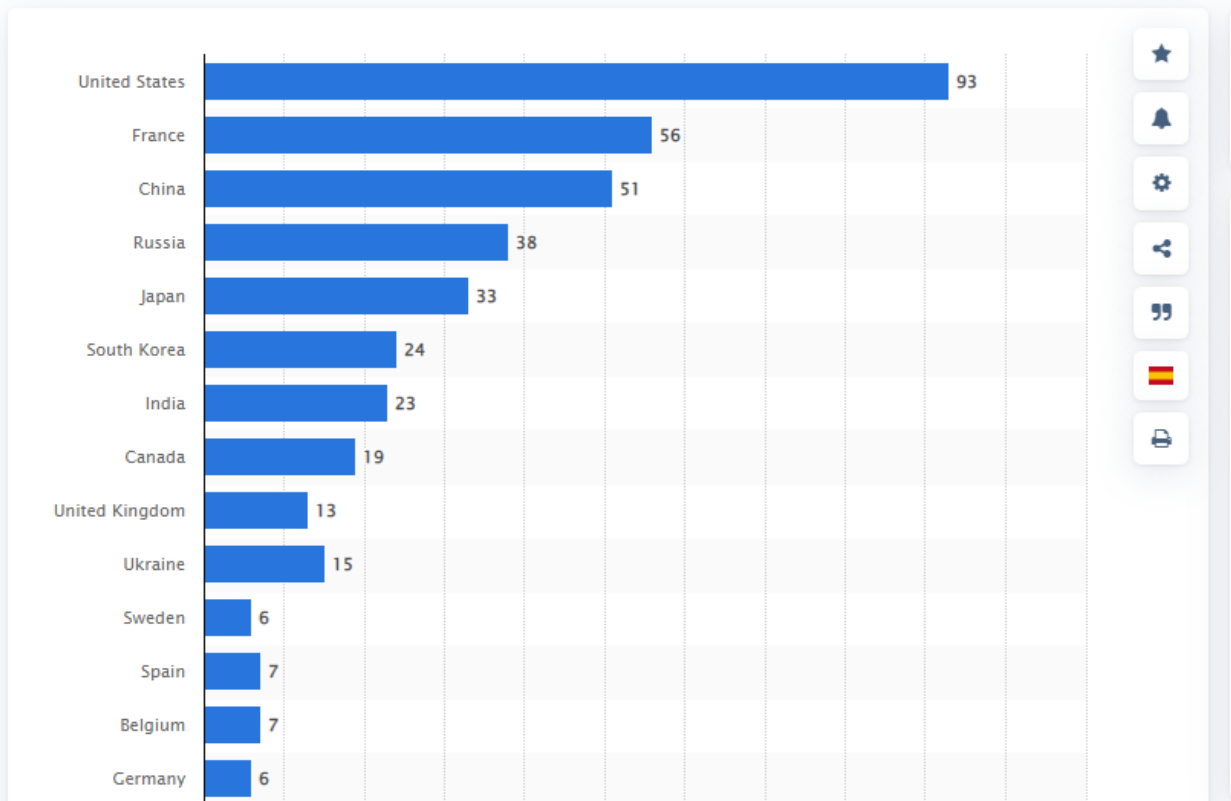
On the contrary, Russia is the largest supplier of natural gas in Europe and worldwide. It still maintains its influence, as natural gas is considered an important fuel for the transition to a zero-emission economy. Regarding the scenarios of the International Energy Agency (IEA), its demand in the Asia-Pacific region will increase for the next two decades, before it begins to decline. The United States, Germany, and other former leaders in nuclear technology have largely ceded the sector to Russia and China. Russia is taking advantage with its state-owned company Rosatom which does not only build, but also finances and operates nuclear power plants in the electricity markets of the penetrating countries. Concerning to nuclear power, today there are about 440 nuclear power reactors operating in 32 countries plus Taiwan, with a combined capacity of about

390 GWe. In 2020 these provided 2553 TWh, about 10% of the world's electricity. By far the largest nuclear electricity producers are the United States with 789,919 GWh of nuclear electricity in 2020, followed by China with 344,748 GWh. As of December 2020, 448 reactors with a net capacity of 397,777 MWe are operational, and 51 reactors with net capacity of 53,905 MWe are under construction. Concerning the nuclear reactors under construction, the largest plant under construction as of 2021 are situated in Finland and UK with a gross electricity generation capacity of 1,720 megawatts. Meanwhile, the country with highest total electric capacity of nuclear reactors under construction worldwide is China, where almost 14 gigawatts of nuclear reactors were being built.

Regarding nuclear power, lately, Russian President Vladimir Putin has raised the alert level on his country's nuclear forces, citing "aggressive words" by NATO leaders on Ukraine. While some observers warn that Putin would be ready to go to any length to achieve his objectives, others argue that the scary threat does not necessarily imply that he intends to use nuclear weapons. Is Putin's nuclear escalation hot air or a genuine threat?

Russia, which has the world's biggest arsenal of nuclear warheads, is not afraid to use them, according to the Kremlin's message as it grapples with rising international criticism of its war in Ukraine and unexpectedly stiff resistance on the ground. A large number of Russia's missiles are intended to carry both conventional and nuclear warheads, making it difficult for other nuclear countries to determine which sort of weapon is being deployed, heightening the possibility of a preventive attack.

## Number of operable nuclear reactors worldwide as of October



Source:statista

The dominant fossil fuel exporting countries are seeking opportunities to transform themselves into power-producing countries with the potential to export clean energy.

But how is this possible, anyway?

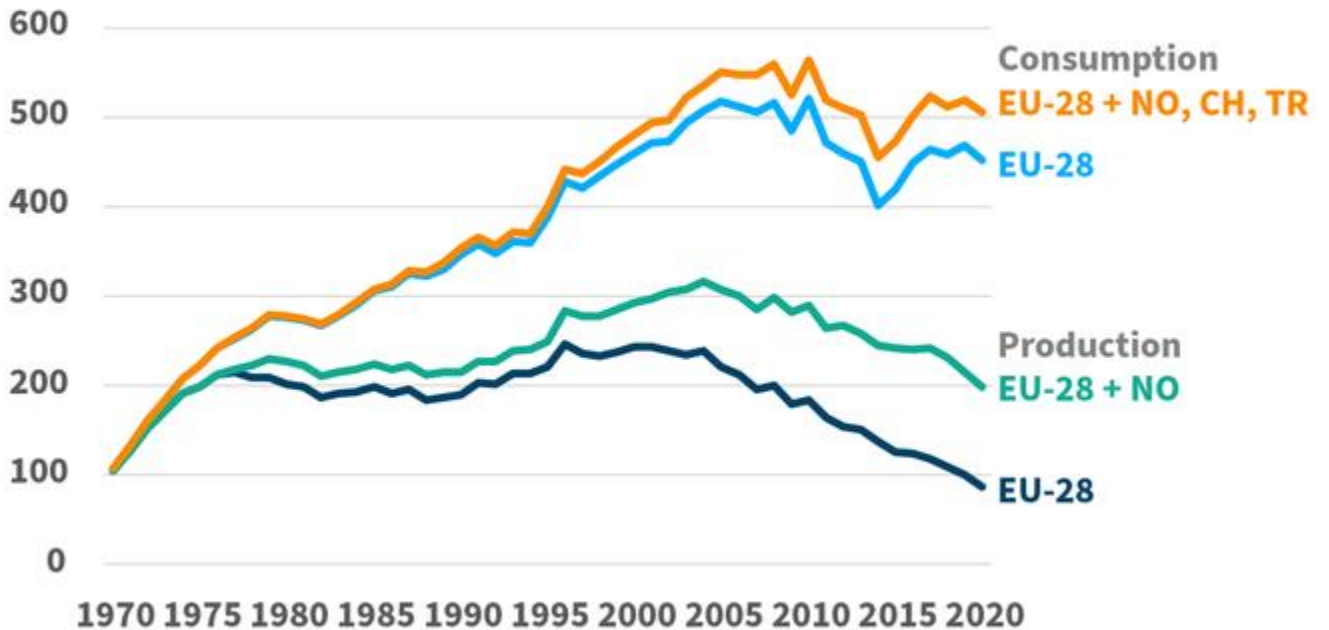
There may be surprises from other countries at the near future. But they are not expected to come from "ordinary suspects" such as the United States or China, as the key to the new geopolitical power will not be the export of shale gas or cheap solar panels or electric car batteries. The key will be the access to cheap renewable energy. For example, the ability to install electrolytes in existing photovoltaics and wind farms, as currently happens in Spain, Morocco and Chile, to produce clean fuels, could make these countries the "superpowers" of a new hydrogen-based economy.

## 2.1 Can Europe live without Russian gas?

Let's figure it out (in an extent). Europe imports around 400 bcm each year, with Russia supply counting around 175 to 200 bcm. If Europe stops importing Russian gas, where will it find another 175-200 bcm in alternative gas supplies and/or reduced gas use?

### Europe's Gas Supply and Demand Balance

billion cubic meters (bcm)



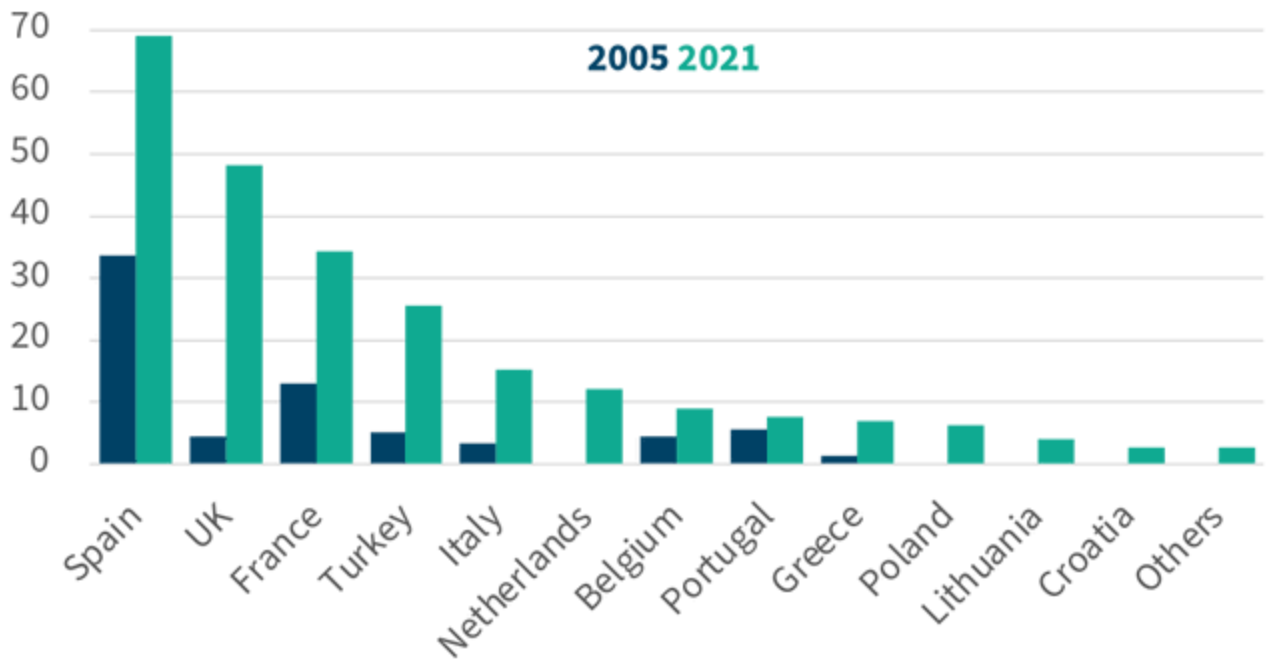
Source: BP Statistical Review of World Energy, July 2021.

European LNG import capacity is around 240 bcm. Actually, there are places, that LNG capacity is enough to offset the Russian gas; but there are others, that this capacity is not enough.



## European LNG Import (Regasification) Capacity

billion cubic meters (annual capacity)

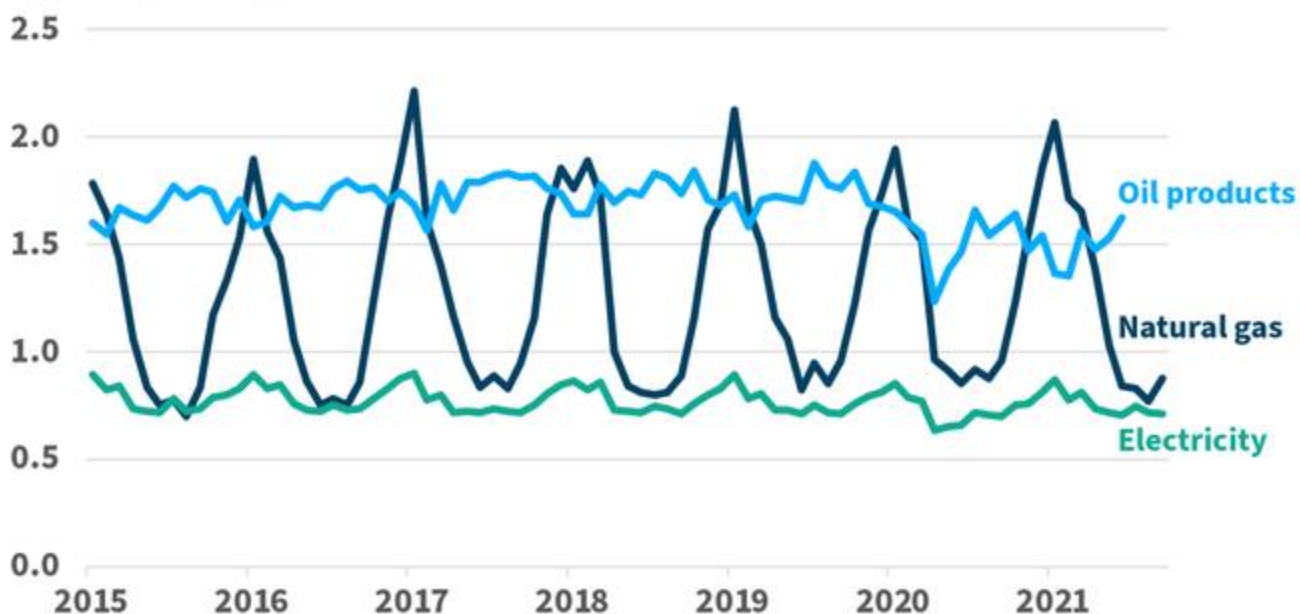


Source: Gas Infrastructure Europe, LNG Investment Database (October 2019) and GIIGNL Annual Report 2021.

Europe can actually live without Russian gas in April or June, as it doesn't need it. January which is winter, is the month you need gas; it is the month that deliverability matters.

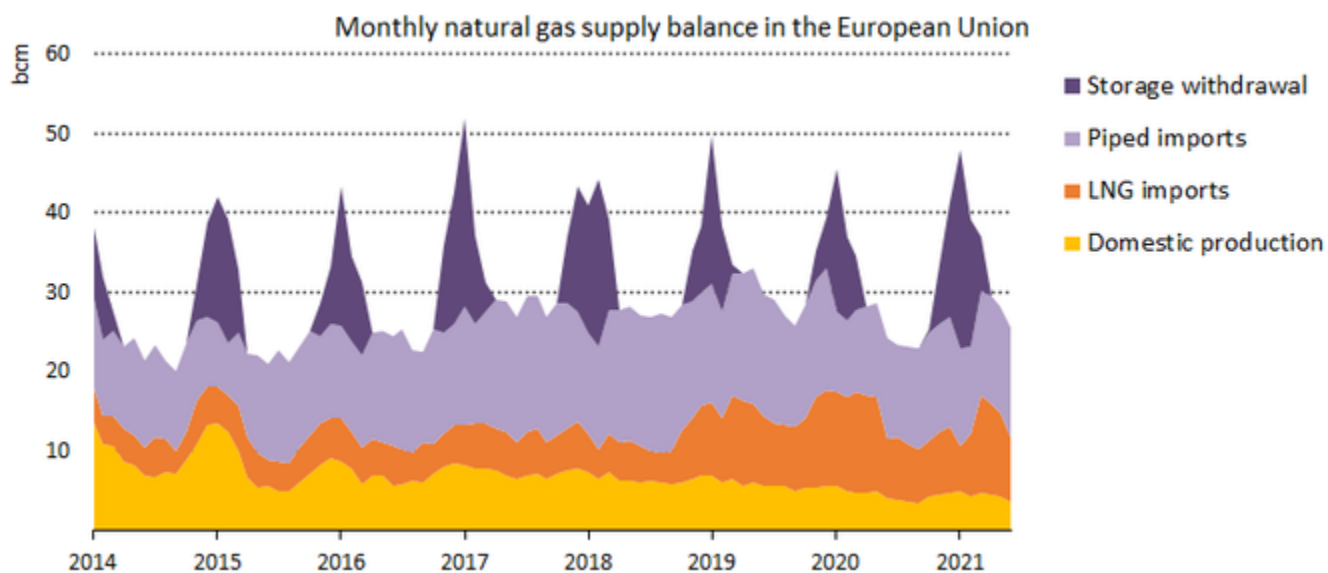
## European Union **energy** consumption for select products

exajoules (monthly)



Source: Eurostat, Supply and transformation of oil and petroleum products; Net electricity generation by type of fuel; Supply, transformation and consumption of gas. Data for EU-27, updated January 2022.

Winter demand is what counts the most. So, Europe will need a lot of storage to meet demand over the winter. It is also needed to be full, so as not to repeat what happened in 2021. Annual averages are almost meaningless when it comes to European gas security.

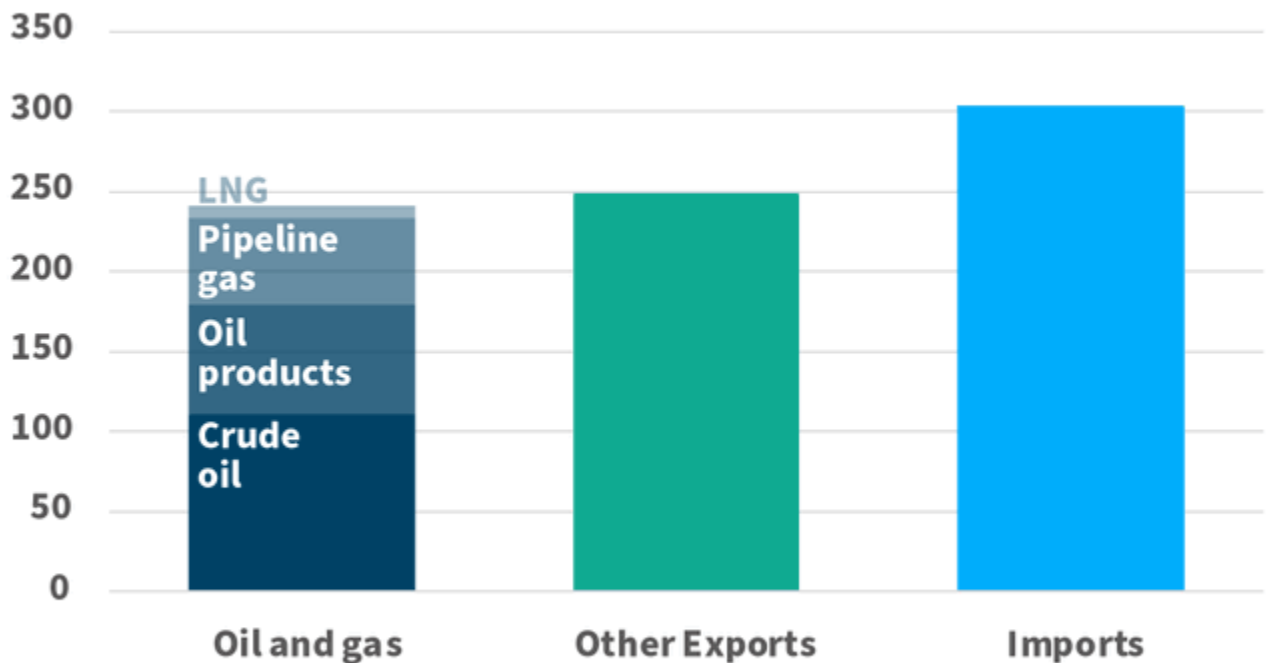


Source: Graph from PZeniewski(twitter)

Keep in mind that revenues from gas account for just a minor portion of Russia's foreign balance. Even if Europe strikes energy exports, Russia has enough non-energy exports to fulfill the majority of their import needs-before dipping into reserves. That means, Europe is not causing that much suffering, after all.

## Russia Goods Exports versus Imports

billion U.S. dollars



Source: Bank of Russia, Balance of Payments of the Russian Federation (Analytical Presentation). Data for 2021 are estimates.

However, no matter the words, numbers show something completely different. Specifically, on March 3, 2022, the EU imported almost € 700 million worth of natural gas (700 million euros in one day). Gazprom likely receives less than the current value of the gas - as long-term contract prices are tight to the previous month's lower market price level (in an undisclosed way).



For the COVID-19 pandemic, the Green Deal is being viewed as a "lifejacket." As a result, the European Green Deal will be funded with one-third of the 1.8 trillion-euro investments coming from the NextGenerationEU Recovery Plan and the EU's seven-year budget.

Generally, the European Green Deal is a well-made plan to decarbonize the EU economy by 2050, revolutionize the European's existing energy system, and change the economy while all these together will combine the efforts to compete climate change. Although, this plan will have geopolitical repercussions, as geopolitics will be affected in an extent on which its impact will be reached on the European and global energy markets; on energy security and transition; on oil and gas-producing countries.

These geopolitical repercussions will unlikely have some adverse impacts on the European Union's partners/countries due to the significant changes on the neighborhood such as Russia, the United States, China, etc. The EU approach should be engaged with oil- and gas- exporting countries to strengthen their economic diversification. What is more, the EU ought to ameliorate the supply security of critical raw materials like rare earths and limit its dependence on other countries, as well as concerning the dependence on Russia's weaponization of energy. The EU ought to encourage global partnerships for climate change mitigation, by sharing lessons learned and best practices.

## 2.3 FitFor55 Package

### 2.3.1 What is the "Fit for 55" package?

The Fit for 55 package is a set of proposals for reviewing and updating EU legislation and implementing new initiatives to ensure that EU policies are in line with climate change's objectives, that agreed by the Council and the European Parliament. The package aims to establish a coherent and balanced framework for achieving the EU's climate goals, which is characterized by equity and social justice, while it should maintain and enhance innovation and the competitiveness of EU industry, ensuring a level playing field to third-country economic operators, and to support the EU's position as a leading force in the fight against climate change worldwide. The Commission presented the package on 14 July 2021.

### 2.3.2 What does the package contain?

The New legislative proposals: -Carbon Border Adjustment Mechanism (CBAM), -ReFuelEU Aviation, -FuelEU Maritime, -Social Climate Fund, and -EU forest strategy. Also, there were

**updates of existing legislation :** -Revision of the EU emission trading scheme (EU ETS), - Amendment to the renewable energy directive (RED), -Amendment to the energy efficiency directive (EED), -Revision of the effort sharing regulation (ESR), -Revision of the alternative fuels infrastructure directive (AFID), -Revision of the regulation on land use, land-use change, and forest (LULUCF), -Amendment of the regulation setting CO2 emissions standards for cars and vans, and -Revision of the energy taxation directive (ETD).

The Council as co-legislator! EU Member States, represented by their Ministers in the Council of the EU, are responsible for the adoption of EU legislation, based on legislative proposals submitted by the European Commission. In most cases, legislation is adopted jointly with the European Parliament in accordance with the ordinary legislative procedure.

On 14 July 2021, the European Commission voted and adopted the Fitfor55 package, lining up with the EU policy about the European Green Deal and EU Climate Law (13 cross-cutting legislative proposals- 8 revisions of existing legislation - 5 new proposals)

### 2.3.3 Emissions Trading System (ETS) and Social Climate Fund

The key mechanism of EU Emissions Trading System (EU ETS) is revised under Fitfor55. The ETS sets a limit on emissions for specific emission-intensive sectors and then allocates credits summing this amount. These credits can be dealt within the industry to reward low-emitters and rise the costs for polluters. From the other side the ‘polluter pays’ philosophy produces an economic burden on vulnerable consumers- this happens for years and years. The ‘Social Climate Fund’ -under the Fitfor55 package- is being made in order to cut off these unfair social externalities. The ETS till today covered only the 40% of total emissions in the EU. Now, the emission reduction obligation for ETS sectors has expanded to 61% -previously was 40%- by 2030 based on 2005 levels.

### 2.3.4 Effort Sharing Regulation (ESR)

Previously, the Effort Sharing Regulation was in charge of the 60% of EU emissions that were not covered by the ETS (ESR). In addition to the ETS, which uses a market-based strategy to decrease emissions, the ESR establishes differentiated, binding national-level emission reduction objectives based on GDP per capita. Under the Fitfor55 package, both standards are increasingly integrated, and certain industries are now covered by both (ej. buildings and transport).

### 2.3.5 Renewable Energy Directive (RED)

*“The RED sets a target for the level of renewable energy in the overall EU energy mix, as well as defining which energy sources can be considered ‘renewable’ and therefore contribute to the target.”* (FSR,2021)<sup>(4)</sup>The foregoing RED’s target was roughly at 32% renewable energy by 2030, while now this target has increased to 40%. It is worth mentioning that many bottlenecks are existed in the supply chain for putting up renewable energy infrastructure. That’s why there is a need of financial and regulatory support to overcome the upcoming barriers.

### 2.3.6 Energy Efficiency Directive (EED)

The EED establishes a new objective for all increases in energy efficiency, particularly at the building efficiency rate. When compared to the previous EED targets of 32.5 percent improvement in overall energy efficiency by 2030 and 3% renovation of all publicly owned and privately occupied buildings, the new targets after revision are 36-39 percent improvement in overall energy efficiency and a 9 percent reduction in total energy demand. Finally, energy efficiency goals are legally binding!

### 2.3.7 Carbon Border Adjustment Mechanism (CBAM)

The main goal behind the Carbon Border Adjustment Mechanism (CBAM) initiative is to preserve EU industry from ‘carbon leakage’ of production to other regions with lower operating costs. To succeed this, there is a necessary need of the obligation of producers in third countries and domestic producers to pay the EU ETS carbon price. The mechanism will be worked on phases, with full implementation in 2026.

### 2.3.8 Hydrogen

Sub-targets for renewable hydrogen are included in the revised RED. The revised Alternative Fuels Infrastructure Directive (AFID) calls for one hydrogen refueling station for every 150 kilometers of the TEN-T core network, as well as refueling facilities at every metropolitan node. In order to reduce CO<sub>2</sub> emissions, the modification to the law defining CO<sub>2</sub> emission requirements for automobiles and vans specifies hydrogen as a decarbonization alternative for heavy-duty vehicles. All renewable and low-carbon fuels, including decarbonized hydrogen and derived fuels, are covered by the new FuelEU Maritime plan. Electrolysers will now qualify for free credits under the amended ETS, and the updated Energy Taxation Directive (ETD) would provide advantageous tax rates for the use of renewable and low-carbon hydrogen.

## 3 East Med Countries

### 3.1 Greece

At the tripartite level, the following aspects have contributed to the further deepening of Greece's relations with Cyprus and Israel:

- the 6th Tripartite Summit of 6.3.2019 in Jerusalem with the participation of the USA, in the framework of which a Joint Declaration was adopted, attached paramount importance to regional cooperation for energy security and resource diversification following gas discoveries in the Eastern Mediterranean. In addition, the Joint Declaration of the 5th Tripartite Summit (20.12.2018) reaffirmed the parties' support for the implementation of the EastMed gas pipeline, as well as their interest in the EuroAsia electricity interconnection. Finally, the parties expressed their support for cooperation in the field of RES, alternative fuels and electric vehicles and encouraged innovation and joint pilot projects.

- the tripartite Ministerial meeting of Greece, Israel and Cyprus in Athens (7.8.2019). In this meeting, Greece set as a priority the cooperation of the states in cybersecurity issues with special emphasis on the protection of critical infrastructure. Greece has also set as a priority the coordination of policies in regional forums and organizations such as the East Mediterranean Gas Forum / EMGF and the Union for the Mediterranean (UfM).

-It is, also, noted that back to 2011, a Memorandum of Trilateral Cooperation was signed in Nicosia between Greece, Israel and Cyprus in the fields of energy, environment and water, with which the parties pledged to consider ways to make optimal use of natural resources in the region, to jointly promote research and regional cooperation.

#### 3.1.1 Natural gas sector

The discovery of exploitable natural gas deposits in the Eastern Mediterranean but also the search for safe routes for their export to European markets by strengthening the role of Greece as a transit country are key issues.

The EastMed gas pipeline is a flagship project of transnational cooperation for security of supply and diversification of sources in both the tripartite and EU countries. In fact, the confirmation of the registration of the project in October 2019 in the 4th list of Projects of Common Interest of the European Commission underlined its importance for the EU. The signing of the Intergovernmental Agreement for the EastMed gas pipeline on 2.1.2020 in Athens, gave a strong impetus to the

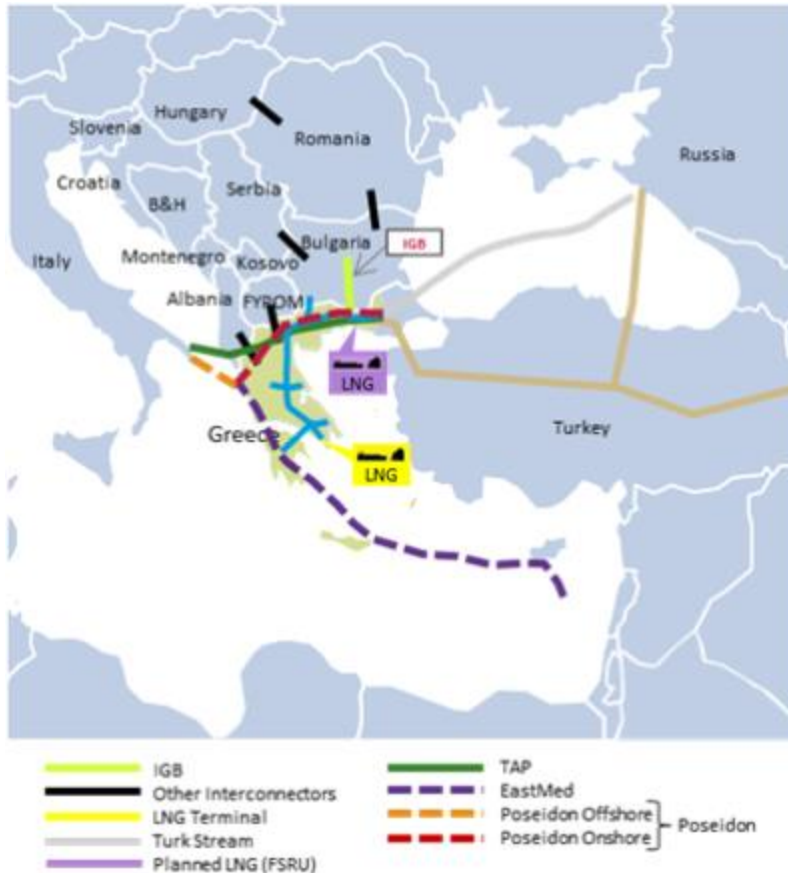


bilateral and tripartite cooperation for the implementation of the project. This was followed by the ratification of the agreement by the Greek Parliament with a broad cross-party majority on 14.5.2020 (Law 4687/2020), as well as by the Parliament of Cyprus and the Parliament of Israel.

### 3.1.2 Electricity Sector

Regarding electricity issues and in particular regarding the construction of the Greece-Cyprus-Israel electricity interconnection, it is noted that at the end of May 2020 the company "Euroasia Interconnector" submitted an application for financing the construction of the Cyprus-Crete section from the European financial instrument "Connecting Europe Facility - CEF". This application was co-signed by the competent authorities of the two European countries related to the project (Greece-Cyprus). The interconnection, due to its high importance, is promoted as a project of Common European Interest (PCI).





**Source: depa.gr**

### 3.1.3 Independent Natural Gas System of Alexandroupolis

The project of the Independent Natural Gas System of Alexandroupolis is a modern, innovative and high-tech project that consists of an offshore floating unit for the storage and gasification of Liquefied Natural Gas and a system of submarine and overland pipeline (Transfer) of Natural Gas (NSRF) and from there to final consumers.

The Liquefied Natural Gas (LNG) will reach the floating unit with LNG transport tankers, where it will be temporarily stored in the cryogenic tanks of the unit and then it will be gasified in the gasification facilities located on the floating unit and through a special device will be transferred from the floating unit to the submarine pipeline which following a route of 24 km will land in the area of Apalos, east of Alexandroupolis. Lastly, it will end at the new Metering and Regulating Station in the area of Amfitritis where it will be connected to the National Natural Gas Transmission System. The commercial operation is expected in 2022.

What is more, our country will build a second liquefied natural gas terminal with private funds in Alexandroupolis." *We will not allow any imitator of revisionism to act in our region,*" Mr Mitsotakis said in a message to Turkey. Greece in order to diversify its energy policy started negotiations with Bulgaria for the construction of a new nuclear power plant. The signing of a 20-year contract with Greece for electricity from the new unit, as well as cooperation in the port of Alexandroupolis are being discussed.

#### 3.1.4 Greece - Bulgaria Interconnection Pipeline (IGB)

The Greek-Bulgarian Interconnection Pipeline (IGB) project involves a 182 km long pipeline (of which 31 km are within the Greek territory), as well as the support facilities (Metering Stations, bathhouses, Operating Center). With a starting point in Komotini, the pipeline will end at Stara and Zagora respectively, attaching the natural gas networks of Greece and Bulgaria, while there will be the possibility of reverse flow. It is also planned to be connected to the TAP pipeline.

The IGB pipeline with an initial capacity of 3 billion cubic meters of natural gas per year, has an extending possibility of reaching up to 5 billion cubic meters of natural gas annually -after the construction of a Compression Station.

It is noted that both Greece and Bulgaria actively support the Project, characterizing it as a project of national importance and public interest (Greece: Law 4001/2011, Article 176, Bulgaria: Decision of the Council of Ministers No 452 of 07.06.2012). In addition, the European Union has included the Project in the Projects of Common Interest (PCIs) of the current list under European Regulation 347/2013. The project is also on the list of priority projects of the Central and South Eastern Europe Gas Connectivity (CESEC) Energy Interconnection initiative.

The Interconnector Greece-Bulgaria (IGB) pipeline was planned to have been ready by the end of 2020 but due to pandemic had delays. Sofia's 25-year deal with gas company SOCAR from Azerbaijan to import 1 billion cubic meters of natural gas a year has already launched. The 182-kilometer pipeline, is being implemented by a joint venture of Bulgaria's state energy company BEH and Greece's gas utility DEPA and Italy's Edison.

*"The pipeline, with an initial annual capacity of 3 billion cubic meters, is important to Europe's plans to cut its reliance on Russian gas, as it will be linked to the Trans Adriatic Pipeline (TAP),*

*the final leg of a \$40 billion project named the Southern Gas Corridor, that will carry Azeri gas to Europe.*” [Reuters] <sup>(5)</sup>

#### 3.1.5 Poseidon Pipeline

The Greece-Italy POSEIDON interconnector consists of two sections: the 760 km long land section that starts from the Greek-Turkish border in Kipi and the submarine part of the project, with a length of about 210 km which connects the Thesprotian coast with Otranto of Italy and is developed by the Greek company under the name "Submarine Gas Pipeline of Greece – Italy". POSEIDON SA. DEPA and the Italian EDISON participate in this company, equally.

The pipeline is constructed with an initial capacity of 12 billion cubic meters of natural gas per year to Italy, with the chance of upgrading to 20 billion cubic meters of gas per year, which will be available at the Greek border. The POSEIDON pipeline enhances energy security in the EU by allowing it to be connected to gas sources in the Caspian, Middle East and Eastern Mediterranean.

The EU recognized the strategic importance of the POSEIDON pipeline, including its submarine section in the Projects of Common Interest (PCIs) of the current list under European Regulation 347/2013. The POSEIDON pipeline is a mature project having received all the licenses for its submarine section while the licensing process for its land section is in progress. The project is being developed in full compliance with the *acquis Communautaire*, on a purely commercial basis according to the standards of other major gas infrastructure projects of cross-border interest.

#### 3.1.6 VERTICAL CORRIDOR

In 2017, DESFA, Greece's natural gas grid operator, was about to sign a new Memorandum of Understanding with its counterparts in Bulgaria (Bulgartransgaz), Hungary (FGSZ), and Romania (Transgaz), as well as ICGB, the consortium formed to develop the proposed IGB (Greek-Bulgarian Interconnector) pipeline project. The Memorandum of Understanding would look into the possibilities of connecting Bulgaria with Romania and Hungary, a stretch that would make up a significant portion of the Vertical Corridor.

Authorities conducted investigations into which projects need to be built, as well as the technical requirements of interconnections and compressor stations, as part of the process. Following a Joint Statement signed by the four operators and ICGB in Budapest on the margins of a Central and South Eastern European Gas Connectivity (CESEC) meeting led by the European Commission, the anticipated MoU was the next step.

The signees had stated their intention to increase their technical and regulatory efforts for the development of the Vertical Corridor, which was projected to consist of a network of short pipelines that would transport natural gas from Greece to Ukraine and vice versa. The intermediate nations of Bulgaria, Romania, and Hungary would benefit from increased supply diversification as a result of the project.

The IGB would transport Azerbaijani natural gas from the Shah Deniz 2 well to southern Italy and was intended to be linked to the TAP project; crossing northern Greece, Albania, and the Adriatic Sea. The IGB project was scheduled to begin construction in 2018 and be completed in early 2020.



Source: energia.gr

### 3.1.7 Natural gas networks in Megalopolis



**Source:energyfeed.gr**

The construction of natural gas networks in Megalopolis is included in the NSRF 2014-2020 and more specifically in the Operational Program "Competitiveness, Entrepreneurship and Innovation". More specifically, this is the project entitled "Development of Low and Medium Pressure gas networks in the city of Megalopolis" with beneficiary and implementing body DESFA. The amount of funding from the NSRF amounts to 3.6 million euros with a horizon of completion on December 31, 2022.

The operation concerns the construction of the low and medium pressure network for the supply of the city of Megalopolis with natural gas. The network will consist of a High / Medium Pressure Station (MR 50/19), a Medium Pressure Network (19bar), two Medium / Low Pressure Stations (MR 19/4) and a Low-Pressure Network (4 bar). The Low-Pressure network is supplied by the Medium / Low Pressure stations and distributes the gas to domestic and commercial consumers for the smooth operation of the Distribution network. The layout of the network is carried out in such a way that ,on the one hand, it spatially covers the area of the Operating Sector and on the

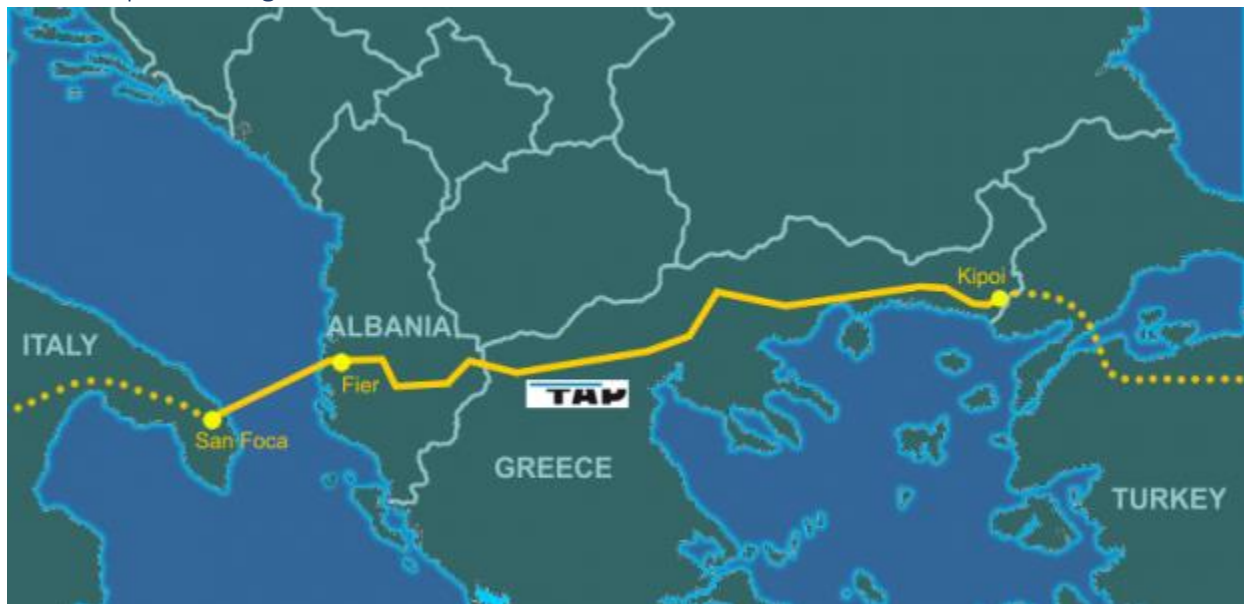
other hand, the layout passes in front of the large Commercial Consumers for their immediate supply. It is planned to supply the area initially with a capacity of 12,000 Nm<sup>3</sup> / h and then with 15,000 Nm<sup>3</sup>/h. The pipeline has a total length of 158.94 km and is divided into three sections:

Section I (Agios Theodoros - Examilia)

Section II (Examilia - Tripotamos)

Section III (Tripotamos - Megalopolis)

### 3.1.8 Kipi Metering Station



**Source:energypress.gr**

The Kipi Metering Station is located at a distance of 3.5 km from the Greek-Turkish border, in the Municipality of Ferron, next to the settlement of Peplos. The main object of the station is to measure the quantity and determine the quality of natural gas imported from Turkey. The Station operates on a 24-hour basis without staffing.

The monitoring of the operation of the station and all the important manipulations are done remotely from the Cargo Control and Distribution Center (through the SCADA system) located in Patima, Magoula. The construction of the compression station in Kipi has been undertaken jointly by a consortium consisting of the Italian company Renco and the Greek TERNA.



This is a project of great importance, because it allows the safe transport of natural gas inside the pipeline, as compression is required for its smooth flow. At the same time, however, it is going to bring a very significant benefit to Alexandroupolis: the installation of a hot water production unit through a heat exchanger.

### 3.1.9 Operation & Maintenance Center of Northern Greece



**Source: depa.gr**

The Operation & Maintenance Center of Northern Greece is located in the area of Nea Mesimvria, Thessaloniki. Its area of responsibility extends from the Karperis station in Serres to the Xastropagida station in Platamonas, Pieria.

The project is considered to be connected with the TAP pipeline and with the NSRF, upstream of the existing compression station in Nea Mesimvria. In order to ensure the hydraulic adequacy of the network, there is a need to strengthen the existing compression station in Nea Mesimvria, with a third compression unit, with similar technical characteristics to the existing ones. The type of compressor, whether electric or using gas, is under consideration. The project is complementary to the new compression station in Ampelia. If everything works properly, the Station will join the System at the end of 2022.

### 3.1.10 Compression Station

The Compression Station consists of:

- two (2) compression units (one in operation and the other in reserve), consisting of a centrifugal compressor (SOLARC453) and a gas turbine (SOLARTAUROS 70) with a capacity of 7.7 MW,-
- two (2) separation filters (one in operation and one in standby) for separation of liquids and

filtration / purification of Natural Gas, as well as condensate collectors,-condensers at the Compressor,-compressed air system,-backup generator working with diesel fuel,-ventilation system,-Medium Voltage (MT) substation (2x1000kVA),-lightning protection and protection against voltage fluctuations,-uninterruptible power supply (U.P.S.) system,-cathodic protection,- fire extinguishing, fire protection and gas leak detection systems, and -Station monitoring and management systems, through Distributed Control System (DCS) and Load Sharing System.

### 3.1.11 Operation & Maintenance Center of Central Greece

The Operation & Maintenance Center of Central Greece is located in the area of Ampelia, Farsala. The operation of the station aims to meet the needs of the Natural Gas market in Greece. The operation of the station initiated in December 2012.

### 3.1.12 Underground Natural Gas Storage Facility in South Kavala





The project consists of the utilization of the almost depleted submarine natural gas field of South Kavala as an underground natural gas storage facility. This facility, due to its geology, its size, its closeness to the southern passage of pipelines, the existing infrastructure, becomes ideal for the proposed use.

The Underground Natural Gas Storage Facility in South Kavala is an energy infrastructure concerning the security of supply of the Greek Market and will ameliorate the market of Natural Gas Suppliers.

According to the first stage of the design of the project, the capacity of the underground storage (UGS) is estimated at about 1 bcm, while the annual active volume throughput is approximately at 360 million Nm<sup>3</sup> or 720 million Nm<sup>3</sup>, for one or two cycles per year, respectively. The maximum daily injection rate of the Underground Gas Storage with Natural Gas, is evaluated at 5 million Nm<sup>3</sup>/d. The gas field in the Thracian Sea is under the control of Energean Oil & Gas S.A.

The project has already been added to the list of Projects of European Interest (PCI), adopted on 17 October 2017 by the European Commission and the Member States at the meeting of the Regional Groups for PCI.

### 3.1.13 Elica GREGY interconnector project

The GREGY interconnection project is promoted by the company Elica of the Kopelouzos Group. It concerns the creation of a new interconnection between Greece and Egypt that will have great benefits such as market coupling, enhanced security of supply (Adequacy, Flexibility, Stability) and socio-economic prosperity.

A large part of the project envisages the construction of wind farms with a capacity of about 3300MW, in order to utilize the high wind potential of Egypt, mainly in the Gulf of Suez and on the banks of the Nile. Therefore, the project is expected to allow the export of RES energy from Egypt to Greece in periods of high-RES production and vice versa, to contribute to a significant increase in the share of RES in the energy mix as well as to reduce greenhouse gas emissions.

Since last year, GREGY has been included in the consulted projects of the updated list of the European Organization of Electricity System Operators (ENTSO-E) in view of the preparation of the new ten-year development program for the period until 2030. According to Mr. Kopelouzos, the investment will exceed 3.5 billion. euros, while part of the cost, amounting to 1.5 billion. euros will be financed by a group of Greek banks. At the same time the project is a candidate for PCI integration.

The idea of the Kopelouzos group dating back to 2008. The double submarine cable following a route of 954 km from El Sallum to N. Makri will transfer cheap "green" energy of 3 GW from wind and photovoltaic parks with a total capacity of 61 GW. 1/3 of the imports will be supplied to the domestic industry and the other 2/3 will be exported to the EU. To be precise, 1 GW will be transferred from the networks of Greece - Italy and Greece - Bulgaria and another 1 GW will be used for production of "green" hydrogen. Most of it will also be exported to Europe.

"ELICA INTERCONNECTION" is accelerating licensing and financing after the war in Ukraine. The electrical interconnection comes to offer an alternative source of supply in Greece and the EU, facilitating the reduction of energy dependence on Russia. Energy from the RES of Egypt is much cheaper in relation to the prices of the Greek market. As Mr. Kopelouzos explained in the North African country, RES auctions gave prices of \$ 17 / MWh, when the lowest price in RAE tenders was last year at 37 euros / MWh. Even taking into account the transport costs, the price of electricity from the RES of Egypt will be lower than that of 37 euros. The weather conditions for RES in Egypt are much better than those of Greece, something that the government of the country

is exploiting by developing wind and solar energy projects of 61 GW. It is worth noting that the electrical interconnection will be completed by the end of 2025 with the beginning of 2026.

#### 3.1.14 Greece-Bulgaria interconnection (electricity)

The project concerns the implementation of a second interconnection line between the Systems of Greece and Bulgaria that will be carried out with an aerial interconnector GM. 400 kV between the Nea Santa HVC and the Maritsa East Substation. The line will have a nominal carrying capacity of 2000 MVA and will have a total length of about 151 km, of which about 30 km belong to the Greek Territory and about 121 km to the Bulgarian Territory.

The new 400 kV interconnection line Greece - Bulgaria is an important project of pan-European interest. The project is included in the Ten-Year Development Plan (TYNDP) of ENTSO-E since 2012. It is also on the EU's List of Projects of Common Interest (PCI) of the NSI East Electricity Prior Corridor (North-South Electricity Interconnections in Central and Southeastern Europe) from 2013, as an integral part of the wider corresponding cluster for the aforementioned PCI projects. Construction on the Bulgarian side, which proportionally has the largest part of the Transmission Line in its territory, began in March 2020.

Some of the benefits of the construction of the project are the increase of the transport capacity at the border of the two countries - to 800 MW for the direction from Greece to Bulgaria and to 1350 MW for the direction from Bulgaria to Greece, as well as the safe handling of increasing power flows in the North-South direction of the Balkan Peninsula. Also, it could broaden the margin of adequacy and increase the possibility of further installation of RES units in the northern part of the country, while strengthening the European transmission system at the eastern border, an area where the 400 kV system is sparse and the connection to Turkey's large-scale system is relatively weak, contributing to the integration of European and Turkish electricity markets.

#### 3.1.15 Electricity interconnection Greece - Libya

Another proposal that agreed on the first evaluation of ENTSO-E is the electricity interconnection Greece - Libya (Linoperamata - Tobruk), which was included in the previous ten-year development program of the Organization, 2018 by GreenPower 2020.



It is necessary to increase the penetration of RES in the energy mixture in order to achieve the goals of NECP by 2030, since it provides the interconnected network with the required flexibility and stability for safe and efficient transmission and distribution of electricity. At the same time, it contributes to the stabilization of prices in the electricity market and to the rapid response to changes in demand. And of course, it contributes to the independence of Greece from imported fossil fuels and the coveted energy autonomy. However, apart from being a necessary condition, it is also capable, since the geophysical relief of our country that is full of large altitude differences that are combined, in many locations, with large volumes of water, high wind potential and sunshine.

The large storage of electricity offered by the method of pumped storage, with a prominent investment in the project in Amfilochia, is the key - along with the interconnections - for the energy transformation of Greece and its conversion into a natural battery for the entire SE. Europe, ie a regional energy player.

### 3.1.17 Two large-scale energy storage stations of the EEG, in the wider area of Ptolemaida of Western Macedonia and in the wider area of Megalopolis Arcadia of the Peloponnese

The Hellenic Energy Group EUNICE ENERGY GROUP (EEG) announced that the issuance of production licenses has been approved by the Regulatory Authority for Energy (RAE) and is rapidly proceeding, for the immediate implementation of its two emblematic projects, of rapid response energy storage. Projects that are energy investments of Greek added value and know-how of European importance and global technological value, totaling over 600 million euros.

These are the two large-scale energy storage stations of the EEG, in the wider area of Ptolemaida of Western Macedonia and in the wider area of Megalopolis Arcadia of the Peloponnese, with the characteristic names "Ptolemaida Battery Energy Storage System".

The EEG Group planned for the two large-scale energy storage stations to start their construction in 2021 and to be fully operational by 2022, if, without the usual obstacles, the approvals of the remaining procedures (environmental permit terms) are completed in time. (Connection conditions and construction permits).

The two EEG projects in Ptolemaida and Megalopolis -similar capacity 250MW / 1000MWh- are symbolic investments of the new era of Greece's and Europe's economic and energy change, as it is documented that:

- They contribute to the development of the national economy, extroversion and international technological cooperation, investments as well as local economies and employment.
- They make Greece and the South Europe, as an energy hub, increasing the possibility for participation in the regional and European energy market.
- They serve the national and European objectives of the National Energy and Climate Plan (NECP).
- They are at the forefront of international leadership in the field of large-scale energy storage, as they integrate lithium-ion battery technology, which ensures reliability, and competitive costs for effective market participation.
- They give 100% domestic added value both during construction while during their operation. The lithium battery and other subsystems are produced in our country. Already, in the region of Western Macedonia, business extensions are being made for the production of lithium-ion battery technology.
- Contribute to the diversification of the energy mix and energy security at national and cross-border level.
- Participate with absolute success in the 4 markets (forward, day ahead, intraday, balancing) of the Target Model.
- They operate fully in the liberalized electricity market through the Greek interconnected system, providing at the same time significant support to it.
- They have zero environmental footprint during their construction and operation, while each of the two projects for its development requires an area of up to 100 acres, in the so far burdened by the lignite mining of Ptolemaida and Megalopolis.

### 3.1.18 National Energy and Climate Plan



The National Energy and Climate Plan (NECP) is the Strategic Plan of the Greek Government for the issues of Climate and Energy. The NECP presents a detailed roadmap for achieving specific Energy and Climate Objectives by 2030. It captures and analyzes the objectives of the NECP as a key tool in shaping national energy and climate policy. In addition, it identifies interdependencies between goals, possible interactions and synergies. In this way, a critical analysis of NECP and a global picture of the environment that it forms for business activities in the field of energy is carried out.

The obligation of the Member States of the European Union (EU) to submit integrated NECPs for the period 2021 - 2030 was introduced by the Regulation on the governance of the Energy Union and Climate Action (EU / 2018/1999) with a deadline of its end 2019. The Greek NECP was presented in its original form in January 2019. The European Commission found that the ambition of the original plans in all Member States was not sufficient to achieve the 2030 targets as set out in the Directive on the promotion of energy use by renewables (recast) of December 2019 (EU / 2018/2001). Therefore, they urged Member States to review the plans and to put forward more ambitious strategies. Accordingly, the final configuration of the NECP sets more ambitious national targets, which go beyond the respective EU targets.

The central objective is to achieve the goals of the EU by 2030 through specific Policy Priorities which have been set in accordance with the dimensions of the Energy Union:

- I. Climate Change, Greenhouse Gas Emissions and Absorption,
- II. Renewable energy sources,
- III. Improving energy efficiency,
- IV. Security of energy supply,
- V. Energy market,
- VI. Research, innovation and competitiveness.

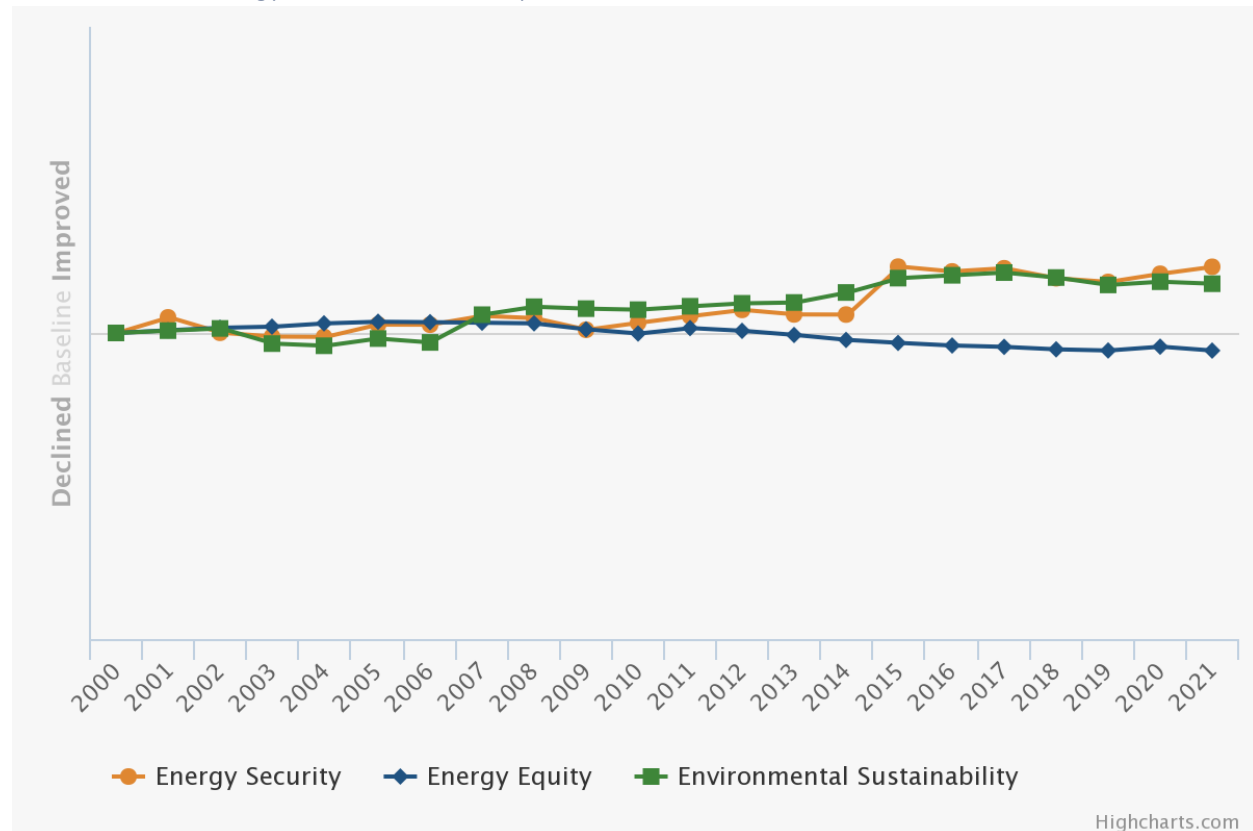
#### 3.1.19 Objectives of NECP

- I. Reduction of greenhouse gas (GHG) emissions by more than 42% compared to 1990 levels (significant reduction compared to the original NECP which provided for a reduction of 33%)

II. Participation share of Renewable Energy Sources (RES) in the final energy consumption of at least 35% (31% in the initial form). Regarding the gross final consumption of electricity, the share of RES participation exceeds 60%.

III. Achieve energy efficiency improvement by 38% (32% in the original NECP).

### 3.1.20 World Energy Trilemma: Country Profile: Greece



Through the “World Energy Trilemma” indicator, energy systems are evaluated on an annual basis, in each of the following dimensions:

- Energy Security: Their ability to respond reliably to current and future energy demand, to withstand and recover quickly from vibrations and power outages.
- Energy equity: Their ability to provide universal access to reliable, affordable and adequate energy.
- Environmental Sustainability: Their progress in the effort to move to zero carbon emissions.

Greece's best performance is in the dimension of Environmental Sustainability, with the increase of the production of low carbon electricity (lignite less than 15%, RES and natural gas significantly increased), combined with the lower energy intensity, to justify the upgrade environmental sustainability ranking in 25% of the best performing countries. The country's lowest performance is in the area of Energy Security, as the impending phasing out of lignite plants could jeopardize the adequacy of electricity capacity if not accompanied in a timely manner by investments and infrastructure of low and zero carbon emissions. Indeed, the COVID19 pandemic delayed planned investments in major energy projects. However, some vital infrastructure initiatives are progressing, such as the "Attica-Crete HVDC Interconnection", further enhancing Energy Security. In terms of the Energy Equity dimension, while performance has remained relatively stable for several years, in 2021 there was a reduction in efficiency compared to 2020, which could be attributed to the increase in electricity costs, combined with the increase in dependence from imports and declining incomes due to the COVID pandemic<sup>19</sup>. As the World Energy Council points out, this dimension poses the greatest risk, due to the rally in gas prices this year.

## 3.2 Cyprus

### 3.2.1 CyprusGas2EU



Source:IENE

The CyprusGas2EU project is a PCI project that stops the isolation in energy of an EU Member State-Cyprus. Concerning this gas project, the Council stated that, “*No EU Member State should remain isolated from the European gas and electricity networks after 2015, or see its energy security jeopardized by lack of the appropriate connections*”.

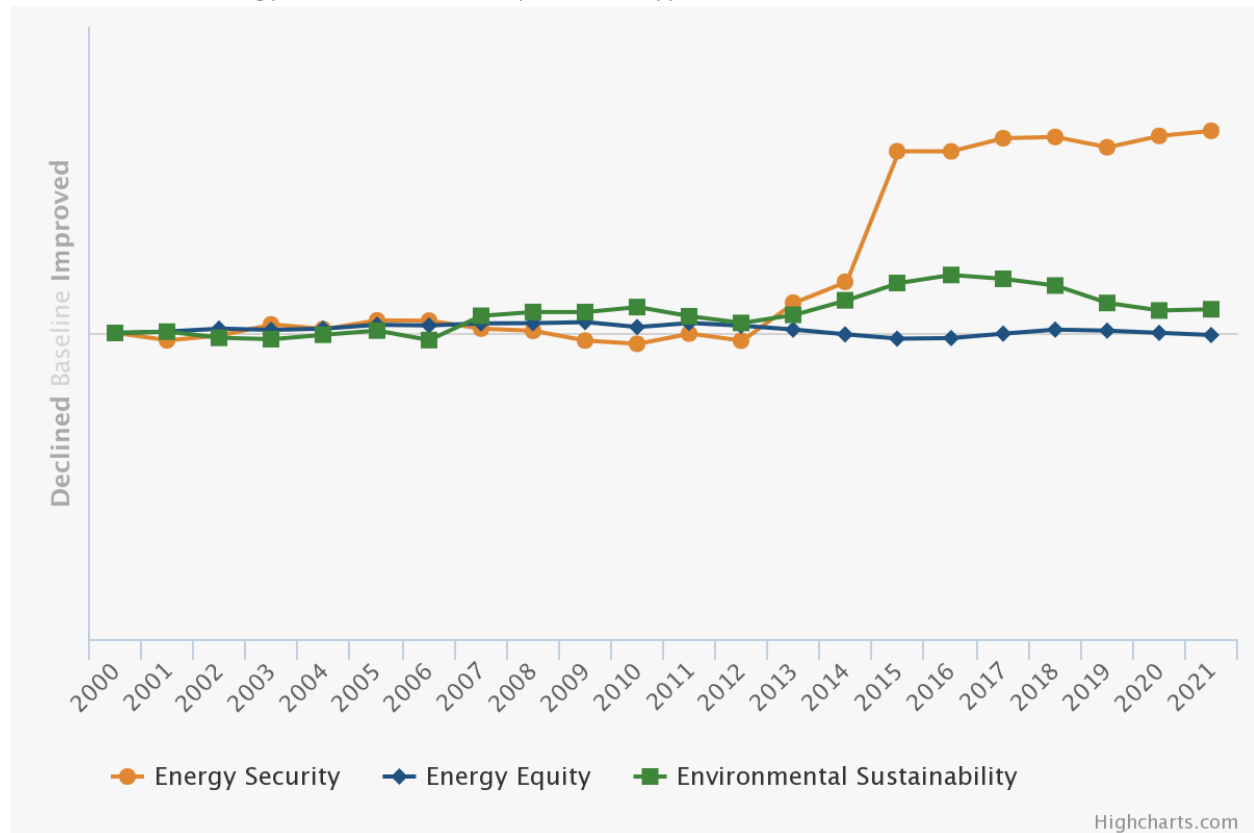
The 2020 goal is linked to the obligation of the Republic of Cyprus to lessen its emissions and stick to the country’s environmental commitments. The imported gas will be transferred at first pace to the main power station in Vassilikos while after it will be transmitted to the other power stations at Moni and Dhekelia or other Independent Power Producers (IPPs).

The impact of the project is the security of supply, the market integration, the competition, and the sustainability. More specifically, it will come up with the market integration, as it will allow Cyprus to connect with the Trans-European gas networks. Last but not least, the project will be under of the objectives of sustainability and this due to the reduction of GHG emissions in the island. The European member states that are involved are Cyprus (CY) and Greece (GR). The project, actually, is complementary to the EastMed pipeline and it may cause (in)direct impacts to regional investment plans in Italy and Bulgaria and direct impacts in Greece.

### 3.2.2 Cyprus and EU Green Deal

The Green Deal can be considered as a great opportunity for Cyprus to catch up with its European counterparts. Does Cyprus need the Green Deal? Definitely! The institutions should start embracing the green deal in its intergenerational dimension and will profit from it. Cyprus can count on the European resources and with the leadership of a courage leader may tackle its inherent distortions, to a more sustainable future. It is now or never....

### 3.2.3 World Energy Trilemma: Country Profile: Cyprus



Isolation from the rest of the world in terms of energy is still a key issue for Cyprus. Despite significant improvements in energy security over the last decade, the government continues to focus on diversifying the energy mix, as well as other measures to link to Trans-European networks.

International oil corporations have been driven to Cyprus by the discovery of offshore gas resources, and the island republic hopes to become a big gas producer in the coming years. In this regard, the Republic has granted the Aphrodite Field its first Exploitation License, with first gas expected in 2026. Drilling had been postponed to late 2021 as the oil giants revised their upstream

plans and trimmed their budgets. Cyprus is now working on the construction of an LNG import terminal in the Vasilikos region, which won a €101 million grant from the Connecting Europe Facility and is expected to be finished by the end of 2022. The initiative helps to integrate the market, reduce energy isolation, and promote the development of a viable and competitive natural gas market. Furthermore, it improves Cyprus' energy security, diversifies imported energy sources, and helps to reduce greenhouse gas emissions.

Two projects are in the process to establish energy interconnectivity in Cyprus: the EastMed pipeline, connecting Eastern Mediterranean gas deposits to Europe, and the EuroAsia Interconnector, linking Greek, Cypriot, and Israeli power grids through submerged HVDC power. The interconnector's completion, together with the completion of many domestic infrastructure projects in the following years, will increase the domestic power market's competitiveness.

In January 2020, Cyprus released its National Energy and Climate Plan (NECP), outlining major policies, objectives, and action plans that would eventually lead to full decarbonization by 2050. Cyprus plans to update the NECP in 2023 to reflect the COVID-19 pandemic's effects, new macroeconomic data, revised European policies for 2030 and 2050, national obligations resulting from revisions and initiatives under the "Fit for 55 package" linked to the European Green Deal, technological progress, the operation of a competitive electricity market, and the growing role of hydrogen in the energy transition.

### 3.3 Turkey

#### 3.3.1 Blue Stream Pipeline



**Source: Wikipedia**

The Blue Stream pipeline is a natural gas pipeline that runs from Russia to Turkey, spanning land and the Black Sea. It is owned and operated by Blue Stream Pipeline BV, a joint venture between Gazprom and Eni. The Russian portion of the project is owned by Gazprom, while the Turkish portion is owned by BOTAS. The onshore phase of the project was started in September 2001 and finished in May 2002; the entire project was finished in 2005. It stretches over 396 kilometers. The total cost of construction was \$3.4 billion. By 2010, the capacity has grown to 16 billion cubic meters of gas per year. It has achieved 62 billion cubic meters of gas by August 2011. Because of considerable challenges among the states in the execution of the Nabucco consortium pipeline, BlueStream was chosen as an alternative to the Nabucco pipeline.

Why did Turkey consent to this initiative in the first place? Turkey is adjacent to Russia, and because it lacks major reserves geographically, it is more profitable to enter into deals with nations like Russia, who have abundant deposits. Although these two countries compete because they have competing interests and objectives in the energy industry and beyond.

Due to restoration work, Blue Stream was shut down from May 2020 until mid-August, however it was taken down for scheduled maintenance even beyond August.

### 3.3.2 Turk Stream Pipeline



Source: euronews.com

Turk Stream is a 910-kilometer natural gas pipeline that connects Russia and Turkey. The combined capacity of the "twin pipelines" is 31.5 billion cubic meters of gas per year. After Germany, Turkey is Russia's second-largest "customer." Turkey is reliant on gas imports from Russia, Azerbaijan, and Iran, while local supply barely covers 2% of its need. Turkey's overall energy demands are 1/3 met by imported gas. Gas consumption hit a new high of 53.5 billion cubic meters in 2018, an increase of 20% over the previous year.

Turk Stream is this mean that could help Ankara to gain the position of the energy hub in the wider region. TurkStream can be considered as the symbol of reconciliation between Russia-Turkey; with their key goal to be the European re-dependance on the Russian hydrocarbons. The Turk Stream pipeline is the different path for transferring natural gas from Turkey; a country which is



not an EU-Member and not under on its policy. The pipeline bypasses Ukraine! Leaving Ukraine behind means the rise of Turkey's energy security consists of no interruption in between. Any interruption would decrease Turkish reliability as well as it would impose a significant risk to its economy.

### 3.3.3 TurkStream 2 Pipeline

In 2018, Russia's Energy Minister Alexander Novak stated that the TurkStream 2 Gas Pipeline will run through Bulgaria, Serbia, and Hungary. TurkStream 2 parallels TurkStream for its 930-km length from Russia to Turkey. In 2019, Greece's New Democracy party said that the country *“was considering whether to allow the new pipeline through Greek territory.”*

Bulgaria is ready to invest €1.4 billion (\$1.6 billion) in the project. Although, its completion is under the control of the approval from the necessary authorities, including the European Commission. Serbia's 250-mile segment of pipeline is reportedly complete. The project to meet its full capacity is expected by October 2022. Until March 2020, the Bulgaria segment was still under construction. However, in October 2020, the pipeline was considered as operational, filling the Balkan region with natural gas that previously had been shipped via the Trans-Balkan Pipeline and Ukraine. In July 2020, U.S. Secretary of State Mike Pompeo made it clear that the TurkStream 2 pipeline and the Nord Stream 2 Gas Pipeline would be subject to U.S. sanctions, as well as the companies that are involved in the projects would be subject to U.S. penalties if they did not stop their work. As a result, in September 2020, International Group of P&I Clubs, the world's largest shippers' insurance group, announced that it would not insure any ships working on these projects due to US sanctions.

### 3.3.4 TANAP



**Source: Defence-point.gr**

The TANAP Project is a pipeline whose aim is to transfer the natural gas produced in Azerbaijan's Shah Deniz-2 gas field, firstly to Turkey, and then passing to Europe. The TANAP Project is one of the projects of the Southern Gas Corridor, along with the South Caucasus Pipeline (SCP) and the Trans-Adriatic Pipeline (TAP).

The \$6.5 billion TANAP pipeline will traverse the Turkish-Georgian border, going through 20 provinces before finishing in Edirne's psala district on the Greek border, while the TAP Pipeline will link to the current network, bringing natural gas from Azerbaijan to Europe. It has the capacity to carry up to 16 billion cubic meters of Azeri gas per year. With additional investment, capacity might be expanded to 31 bcm. The main pipeline will be 1850 kilometers long, with 19 kilometers running beneath the Marmara Sea, and will include numerous off-take stations and aboveground installations, including 7 compressor stations, 4 measuring stations, 11 pigging stations, 49 block valve stations, and 2 off-take stations, all of which will connect to Turkey's national natural gas network.

The Southern Gas Corridor Company owns 51 percent of the company, while Turkey's BOTAS owns 30 percent, BP owns 12 percent, and SOCAR Turkey owns the remaining 7%.



Source: TANAP.com

The Trans-Anatolian Natural Gas Pipeline (TANAP) is considered as a milestone in a major project to help reduce Europe’s dependence on Russian gas.

*“TANAP is a critical project, as it will boost the security of energy supplies”,* said Berat Albayrak, Turkey’s energy and natural resources Minister. *“The regional cooperation between Turkey, Azerbaijan and Georgia turned into global cooperation. TANAP is a project of vision, stability and strong leadership,”* Albayrak said. (6)<sup>(6)</sup> Erdogan said Turkey is the world’s 18th largest natural gas market and adjacent to Europe, the second largest market in this context. As a result, TANAP has significant potential *“in terms of delivery to Turkey and Europe of the natural gas to be produced at other natural gas fields in Azerbaijan, other Caspian resources as well as other countries of the region.”*<sup>(6)</sup>

### 3.3.5 Baku-Tbilisi-Erzurum or South Caucasus Pipeline



Source: ResearchGate.net

The South Caucasus Pipeline (also known as the Baku–Tbilisi–Erzurum Pipeline, BTE pipeline, or Shah Deniz Pipeline) is a natural gas pipeline that runs from Azerbaijan's Shah Deniz gas field to Turkey. It goes in the same direction as the Baku–Tbilisi–Ceyhan pipeline (crude oil pipeline). It travels via Azerbaijan and Georgia before connecting to the Turkish gas distribution system in Turkey, much to the Baku-Tbilisi-Ceyhan (BTC) pipeline.

SCP was built in collaboration with BTC in order to reduce the environmental and social effect as much as possible while also achieving capital and operational cost savings. The pipeline has been carrying gas from Shah Deniz Stage 1 to Azerbaijan and Georgia since 2006, and to Turkey since July 2007. It is 691 kilometers long, including 443 kilometers in Azerbaijan and 248 kilometers in Georgia. Commercial supplies to Turkey began in June 2018 and to Europe in December 2020, thanks to the enlarged portion of the pipeline. The South Caucasus Pipeline Company (SCPC) was in charge of the pipeline's construction and operation.

### 3.3.6 Baku-Tbilisi-Ceyhan



Source: Wermac

The Baku-Tbilisi Ceyhan (BTC) pipeline runs through Azerbaijan, Georgia, and Turkey, transporting crude oil from the Azeri-Chirag-Deepwater Gunashli (ACG) field.

The pipeline was built by the Baku-Ceyhan-Tbilisi pipeline business and was initially used by BP in June 2006. (BTC Co). It has a total length of 1768 kilometers. BP operates the Azerbaijan and Georgia sections on behalf of its BTC Co. shareholders, while BOTAS International Limited operates the Turkish section (BIL).

From March 2006 to March 2009, the capacity was projected to be approximately one million barrels per day. It has since been increased to 1.2 million barrels per day. BTC's capacity at the Ceyhan facility in Turkey topped 2 billion barrels of oil in 2014.

*“In the first quarter of 2021, BTC spent more than \$41 million in operating expenditure and more than \$6 million in capital expenditure. Since the 1,768 km BTC pipeline became operational in June 2006 till the end of the first quarter of 2021, it carried a total of 3.62 billion barrels (about 482 million tonnes) of crude oil loaded on 4,729 tankers and sent to world markets” (BP, 2021) <sup>(7)</sup>*

The Baku pipeline is at the core of several strategic significances that go from economics to relationships including social, political and environmental issues. The geopolitical choice of the

Pipeline was not random at all. The dismantling of the links with Communist Empire and decrease of Russian's leadership over oil and gas transportation showed that those countries chose to tend towards the westernization. China which is attracted by the wealth of the territories in oil and gas, that's why they asked Azerbaijan for an expansion of the Azeri-Chinese relations with implications to the textile, military, trade and political spheres.

### 3.3.7 Marmara Ereğlisi LNG Terminal



**Source: BOTAS.gov.tr**

In 1989, BOTAŞ constructed Marmara Ereğlisi LNG Import Terminal, which was actually the base load plant and was operated in 1994 after a great need peak shaving for the gas purchased during LNG import operations.

Three main functions of the LNG terminal, which has a 37 million Sm<sup>3</sup> /day gasification capacity and 3 storage tankers (85.000 m<sup>3</sup> capacity for each), are: The Storage of the imported LNG, the dispatching of the re-gasified LNG Russian Federation- Turkey Natural Gas Pipeline at required volumes and loading LNG to trucks.

### 3.3.8 Izmir Aliaga LNG Terminal



**Source: korfezdeniz.com.tr**

Izmir Aliaga LNG Terminal is a liquified natural gas (LNG) receipt terminal in Aliaga, 60 kilometers south of Izmir, Turkey. In fact, it was the first ever in the world to be built without firm capacity contracts in place. Its first LNG shipment was received in December 2006. The terminal is used to supply BOTAŞ, Turkey's state-owned oil and gas company. There are two full containment tanks of 140.000 m<sup>3</sup> each, while the regasification capacity of 40 mioSm<sup>3</sup>/day, (1,4 bcf/day). EgeGaz, a company within Çolakoğlu Group, is the owner and operator of EgeGaz Aliaga LNG Terminal. It is the first private entity at investing in the Turkish natural gas sector.

### 3.3.9 Turkey-Greece Interconnector (ITG)



**Source: tornosnews.gr**

Known as the ITGI, the project supplies natural gas from the Caspian Sea and the Middle East to Europe. The collaborative agreement was signed by the representatives of three countries in July 2007 in Rome. The European Union was considered it as a “project of European interest” in the European recovery plan.

The ITGI project consists of three parts: expanding the Turkish national grid for natural gas transmission between Italy and Turkey, constructing a pipeline between Turkey and Greece, and constructing a pipeline between Greece and Italy. Interconnector Turkey Greece (ITG) is the pipeline connecting Turkey and Greece, whereas Interconnector Greece Italy is the pipeline between Greece and Italy (IGI). A bypass line between Greece and Bulgaria is part of the proposal. In 2015, the ITGI project became operational. It was proposed as a route for natural gas to be transported from Azerbaijan's Shah Deniz gas field Phase II to European markets through Greece and Italy. The Turkey–Greece pipeline was finished in 2007, however the future of the Greece–Italy pipeline is uncertain owing to the Trans Adriatic Pipeline, which is competing with it.



The main core of the project was two countries, meaning Greece-Turkey, which are the two key countries, to have been pulled their resources together by establishing close collaboration on both technical and economic matters.

The MoU for natural gas for the ITGI pipeline was signed on June 17, 2010 by Edison, Italy's top power and gas business, Depa, Greece's state gas utility, and Botas, Turkey's state gas and oil transportation and gas trading firm (Interconnection Turkey-Greece-Italy). It was the first time that the EU acknowledged the so-called "Southern Corridor" as a "Project of European Interest" in the European Recovery Plan, with a planned funding of 100 million euros. The MoU has the potential to enhance the relationship between Edison, Depa, and Botas in a variety of ways, including Botas' involvement in IGI Poseidon SA (company equally owned by Edison and Depa). IGI Poseidon SA was in charge of constructing the offshore pipeline that connects Greece and Italy (Poseidon pipeline).

### 3.3.10 Turkish-Danish Energy Relations

An increasing number of Danish companies have made an appearance in Turkey as a regional hub for filling and exporting renewable energy sector products and equipment.

With just transition and clean energy as the spine of the new climate strategy of Denmark, Danish Consul General in Istanbul Anette Snedgaard Galskjot told Anadolu Agency (AA) *“of the country’s firm commitment to contributing to global sustainability and the green transition agenda, and consequently, eyeing sourcing and collaboration opportunities with countries such as Turkey.”*<sup>(8)</sup>

The COVID-19 has produced many disruptions in the wind industry, while new markets, such as Turkey, have emerged. According to surveys, the Turkish wind energy industry has a steady increase of around 500 megawatts (MW) each year making it one of the largest in Europe. In 2022, two physical delegation trips will take place, one focusing on wind energy and the other on water, wastewater technology, and energy efficiency, all of which are priorities for the Trade Council of Denmark in Turkey. According to the Central Bank of the Republic of Turkey, \$642 million (TL 5.54 billion) in foreign direct investment (FDI) was made from Denmark in Turkey between 2002 and 2020, whereas \$25 million in FDI was made from Turkey to Denmark.

The introduction of LM Wind Power, a Danish wind turbine rotor blades manufacturer, into the Turkish market in 2017 is only one example of many. A joint venture between the Turkish firm Bayramolu İnşaat and the Danish company Resolux Denmark for the manufacture of wind turbine interior kits is another example of bilateral energy cooperation.

3.3.11 Turkey and Russia rapprochement on nuclear energy issues



Source: Wikipedia

Turkey's only nuclear power station, the Akkuyu Nuclear Power Plant, is located in Akkuyu. In May 2010, Moscow and Ankara agreed that Akkuyu NGS Elektrik Üretim Corp. would build, own, and operate a power plant in the Akkuyu area with four 1,200 MW VVER units. The major construction started in March 2018, and the first unit is scheduled to be completed in 2023. By 2025, the three remaining units should be operational. The project is being funded by Russian investors, with a ROSATOM subsidiary providing 93 percent of the funding. Other investors, such as the Turkish enterprises Park Teknik and Elektrik Üretim, can later get up to 49 percent of the shares. In actuality, Russia will build and run the Akkuyu reactor for at least 49 years.

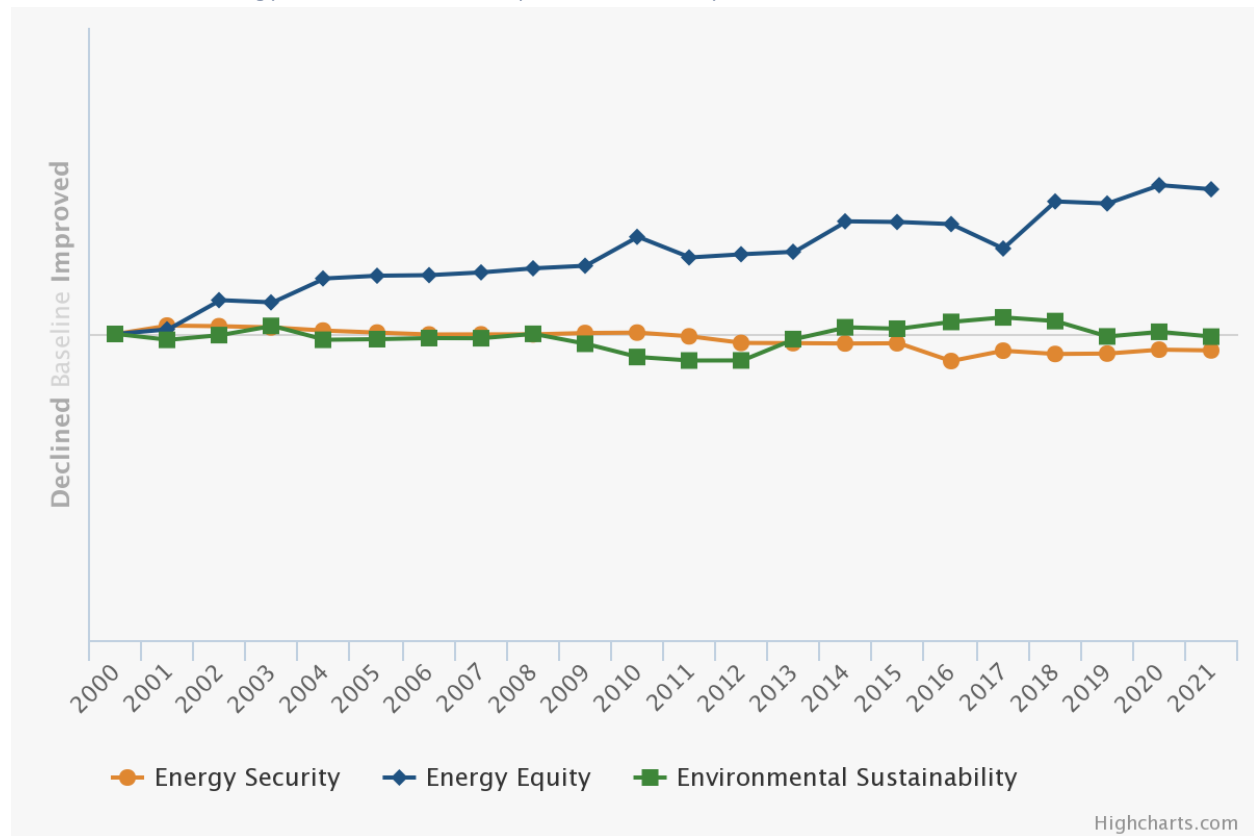
Ankara's aspiration, all these years, is to become a nuclear power. However, there are 2 main concerns! The first one has to do with the location of the nuclear reactor in an area that is seismic. If a nuclear accident was caused, that meant huge problems in a closed ecosystem, like Eastern Mediterranean. The second one focuses on Turkey's nuclear ambitions (nuclear weapons vs energy).

Turkey's nuclear plant, worries not only neighboring countries, like Greece, but also the scientific community, as it is believed that Ankara's real pursuit is to acquire nuclear weapons. Erdogan's stated that the fact that some countries have nuclear warhead, but Turkey does not have the right to possess nuclear weapons, it is something unacceptable.

Turkey insists that the meaning of this nuclear power plant is to diminish the country's dependence on imported gas, but Akkuyu does not make Turkey less energy dependent, as Russia will possess the ownership and responsibility for the operation of the Station.

Turkey is an ally of Russia and this is evident from its stance on the Russian-Ukrainian war. Turkey seems to keep equal distances; but it's not true, for example it closed the Straits of the Bosphorus after the Russian ships passed through. At the same time Turkish President, Mr. Erdogan complained about the membership of the Ukraine in the EU, as the country does not meet the conditions applied; while he insisted that the EU does not accept Turkey under its umbrella.

### 3.3.12 World Energy Trilemma: Country Profile :Turkey



Turkey has a well-balanced Trilemma triangle, with particularly strong results in the Energy Equity component. The most essential variables in the Equity score are high access to power and modern energy, as well as cheap electricity, oil, and gas costs. After a drop in the previous year, the increase in the diversity of power generation owing to investments in renewable energy and efforts toward import independence has helped them regain their Energy Security score. The lowering trend in GHG emissions from energy and the growing trend in low carbon power generation resulted in an increase in the Energy Sustainability component compared to the previous year. Turkey is now ranked 47<sup>th</sup>.

Turkey has a very ambitious National Energy Efficiency Action Plan that seeks to invest roughly 11 billion dollars by 2023 in order to cut primary energy consumption by 14%, resulting in the avoidance of 66 million tons of carbon emissions. 4.8 billion dollars in investment over the previous four years has resulted in 1.2 billion dollars in energy savings and 10 million tons of carbon emissions avoided. Turkey intends to integrate nuclear power in its energy mix as part of its diversification and emission reduction goals. Turkey is Europe's fourth largest gas market,

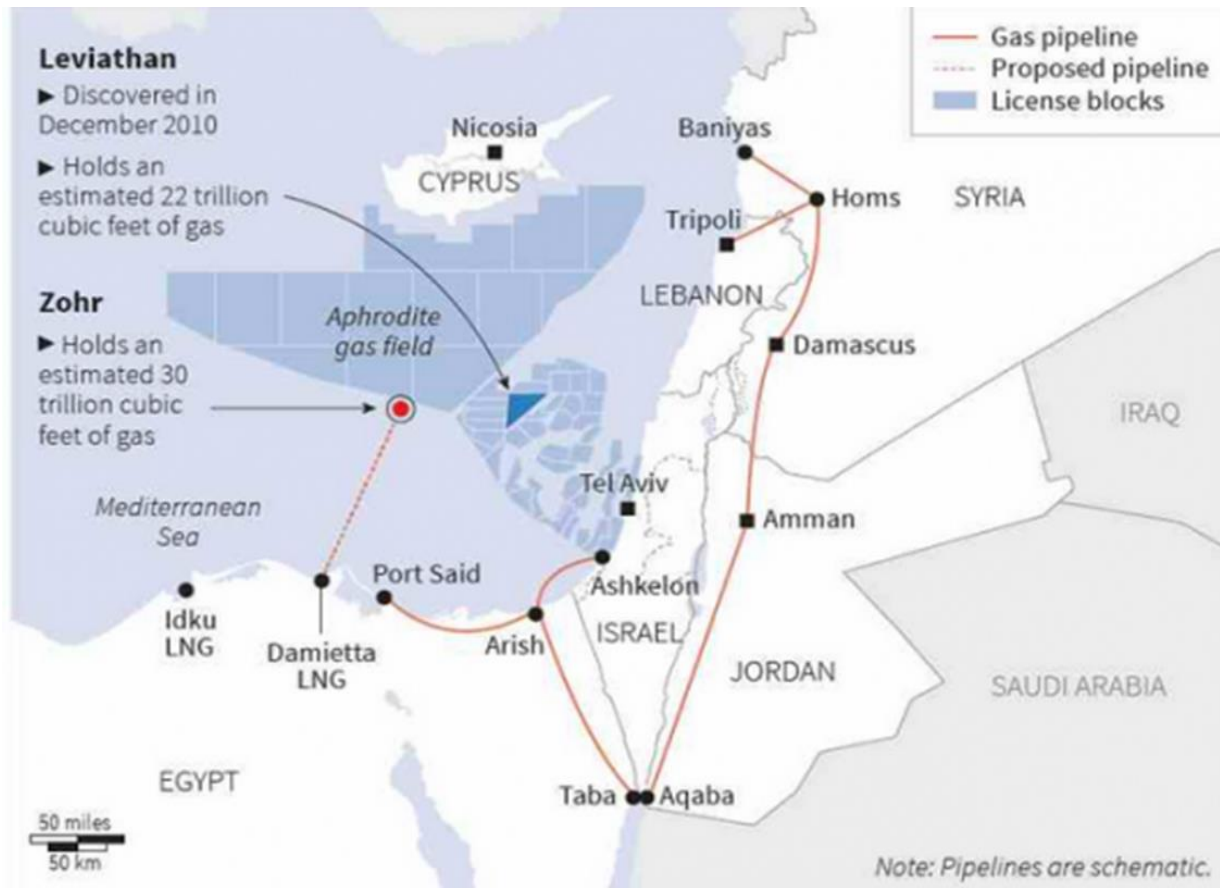
importing nearly all of its gas. As a result, Turkey has made significant investments in several infrastructural and international gas projects, including TANAP and Turk Stream. Turkey has also boosted its regasification capacity and plans to raise subterranean storage capacity from 4.5 billion cubic meters to 11 billion cubic meters by 2023. Finally, with the world's greatest offshore gas discovery in the Black Sea, estimated to be approximately 540 billion cubic meters, Turkey's future discovery potential might be a game changer.

Worth mentioning that installed capacity reached 97.7 GW by the end of the first half of 2021, with renewables accounting for 53% of that total. Furthermore, renewables account for 98.4 percent of new capacity added in the previous year and CHP systems account for the majority of the rest, indicating that energy efficiency is being implemented well.

### 3.4 Egypt

Egypt is the energy hub of Europe and Africa

#### 3.4.1 Zohr



Source: [egyptindependent.com](http://egyptindependent.com)

The Italian energy company ENI announced on August 30, 2015 the discovery of a "supergiant" deposit, within the Exclusive Economic Zone of Egypt. The Zohr deposit is the largest deposit ever discovered in the Mediterranean. The deposit was discovered on the Shorouk plot, 190 kilometers north of the coast of Egypt. The quantities of natural gas in this field are estimated at 30 trillion cubic feet of natural gas, in an area covering about 100 square kilometers. With these data, the Zohr becomes the largest deposit discovered not only in Egypt, but throughout the Mediterranean.

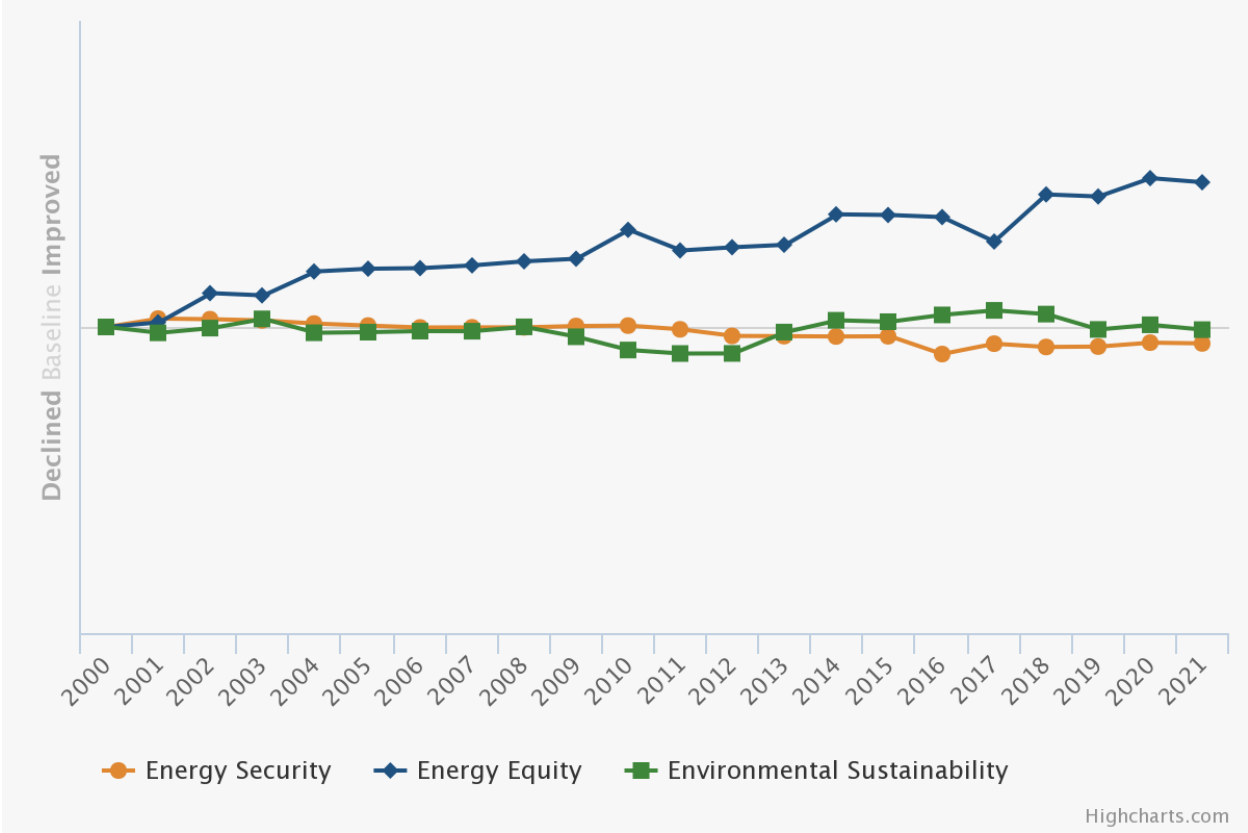
ENI is the largest oil and gas company in Africa, and in June 2015 signed a \$ 2 billion exploration agreement with the Egyptian Ministry of Energy to explore the Sinai, Gulf of Suez, Mediterranean and Delta Nile. The company has been active in Egypt since 1954, through its subsidiary IEOC, which discovered the Abu Maadi deposit in the Nile Delta region in 1967. ENI, which is 30% owned by the Italian state, participated in the Damietta Gas liquefaction terminal, which was closed due to a lack of gas.

The Zohr field, once fully developed, is enough to meet Egypt's domestic gas needs for several years. Egypt consumed 1.7 trillion cubic feet of gas in 2014, and at the same rate, Zohr alone could meet the country's gas demand for almost two decades. Egypt's gas production rose sharply to 7 billion cubic feet per day from 6.8 bcf/d at the end of June 2019, according to a senior official of the country's Ministry of Oil.

Egypt seeks to make the most of its strategic geographical location, as well as its infrastructure, to establish itself as an energy hub in the Mediterranean. In fact, since the end of 2018, it has announced that it is now self-sufficient in terms of natural gas. The discovery of hydrocarbon deposits in the Eastern Mediterranean region in recent years is particularly important and in addition to their economic importance, they have significant geopolitical and geoeconomics value.



3.4.2 World Energy Trilemma: Country Profile: Egypt



### 3.5 Israel

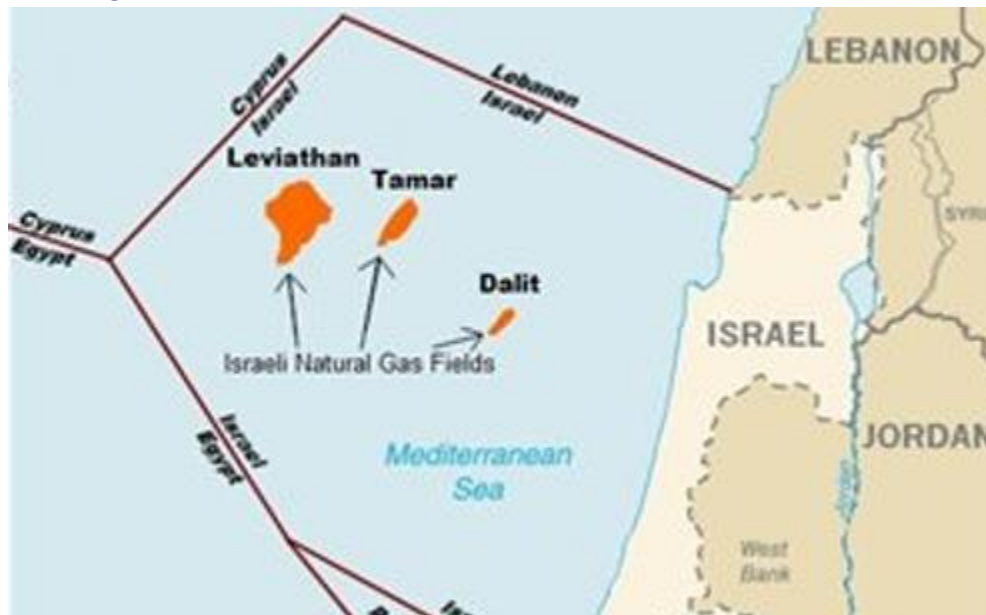
#### 3.5.1 TAMAR gas field



**Source: oedigital.com**

The Tamar gas field is a natural gas field located in Israel's Exclusive Economic Zone in the Mediterranean Sea. It is expected to contain proved reserves of 200 billion cubic meters of natural gas, compared to roughly 23 billion cubic meters in the nearby Tamar South field. Noble Energy discovered the Tamar field in January 2009, and it is the field's operator. Noble Energy owns 36 percent of Tamar.

### 3.5.2 Leviathan gas field



**Source: nrgedge.net**

The Leviathan gas field is a natural gas field in the Mediterranean Sea located in the Levantine basin. Even though the field was first discovered back in 2010, it began its commercial production on 31 December 2019. Noble Energy started drilling on the Leviathan-1 well in October 2010. At first stage, the well was experienced a minimum of 67m of natural gas. At second stage of drilling, the well was planned to reach the estimated natural gas reserve at around 25tcf. Approximately, the Leviathan reservoir has estimated reserves and resources of 649 BCM/natural gas; containing close to two-thirds of the total gas resources discovered to date offshore Israel. It was considered as one of the largest deep-water gas discoveries in the world in the first decade of the 21st century.

The Leviathan gas reservoir is the key factor of Israel's energy security while it secures Israel's geo-political position in the region. Leviathan reservoir development plan has to do with the transportation of huge quantities of natural gas to consumers in the Israeli market and in global markets. The development plan includes four subsea production wells, a subsea production system connecting the production wells and the platform, a processing platform located approx. 10 km offshore within Israel's territorial waters, as well as a designated pipeline to shore. Actually, the production from the reservoir started at the end of December 2019. What is more, in the first phase/stage of the development plan is included a thinking to expand the production capacity to 21-24 BCM/year by adding drilling wells and upgrading the production platform.

The Leviathan reservoir is gradually being inaugurating as a regional energy anchor which can meet the energy needs of countries, except Israel, and international companies making operations in the region.

**NEPCO** – *An agreement with the Jordanian electric company (NEPCO) for the sale of natural gas, at a volume of approx. 45 BCM for a period of 15 years. This agreement constitutes an anchor for the Jordanian electric market, and makes it possible for Jordanians to shift to an economy based on regional natural gas<sup>(9)</sup>*

**Dolphinus** – *An export agreement between the Leviathan and Tamar partnerships and Dolphinus Holdings for the export of natural gas to Egypt, under which Leviathan will be supplying a quantity of up to 60 BCM of natural gas to the domestic market in Egypt for approx. 15 years<sup>(9)</sup>*

### 3.5.3 Chevron

Chevron has been ordered by Israel's energy ministry to restore operations at the Tamar offshore gas field, which was shut down owing to regional tensions. This occurred following Chevron's negotiations with Offshore Energy on May 13, 2021. Chevron owns and operates a 25% stake in the Tamar gas field. The net daily output of natural gas in 2020 was 173 million cubic feet per day. According to recent rumors, Delek Drilling wants to sell its interest for up to \$1.1 billion. Delek Drilling had agreed to sell all of its holdings in the Tamar gas field to the Israeli government a few years ago. How is Israeli innovation helping advance Europe's Green Deal goals? From encouraging biodiversity to getting rid of pollution and empowering more sustainable transportation options, a number of Israeli projects are receiving Horizon funding to meet the climate challenge.

### 3.5.4 Qatari Diplomatic Breakthrough in Underwriting Gas Pipeline from Israel into Gaza

Palestinians, Israelis, Qataris and Europeans have shown the willingness and funds to alleviate the energy crisis which plagues the Gaza enclave.

Natural gas pipeline crossing through Israel from the Eastern Mediterranean will be transported via a new extension into Gaza. The Eastern Mediterranean region has become one of the world's major offshore drilling zones. Qatar has announced \$60 million for the pipeline on the Israeli side, while the European Union over \$24,448,800 to fund the pipeline on the Gaza side of the border. There will be two contracts for the gas pipeline: The first will focus on the purchase of gas between

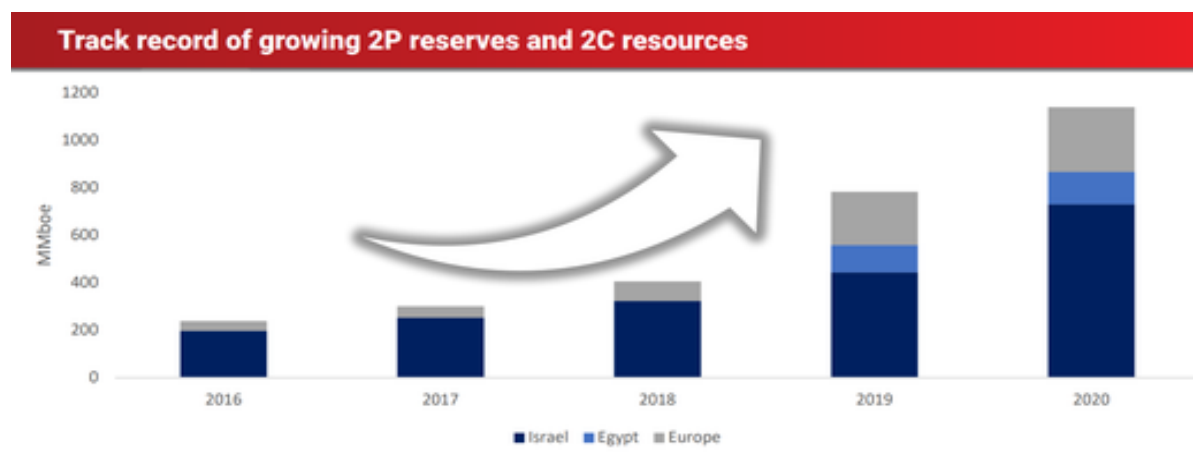
the Palestinian Authority and Israel's Delek Group-one of Israel's largest conglomerates involved in energy and infrastructure- and the other on the extension of gas pipelines between Israel and the Hamas-run Gaza Strip.

### 3.5.5 Israel as one of the world's leading solar producers

Israel is making a gradual and coordinated shift to renewable energy, with solar energy being the country's biggest target, according to the Global Times. At present, Israel generates 8% of its electricity from photovoltaics. stations and sets a goal in 2025 to reach the specific percentage of 20% and 30% in 2030.To achieve such rate of solar use, Israel will need to evolve a modern storage system to gather/collect enough energy for periods when the sun is not shining. Israel is the leader/ “boss” in storage facilities with approximately 800 MW of solar installations having an additional four hours of storage that supplies electricity at peak hours after sunset. As it is known, the production of solar energy depends on the radiation that is altering due to the position of the sun, day or night, winter or summer.

### 3.5.6 Energean

Offshore Israel's multi-tcf Karish, Karish North, and Tanin fields are the company's key development assets. The Karish and Tanin leases, as well as Blocks 12, 21, 23, and 31, are 100% owned by Energean Israel (Energean's 100% subsidiary). It also owns an 80% stake in four licenses in Israel's EEZ's Zone D, with Israeli Opportunity owning the other 20%.



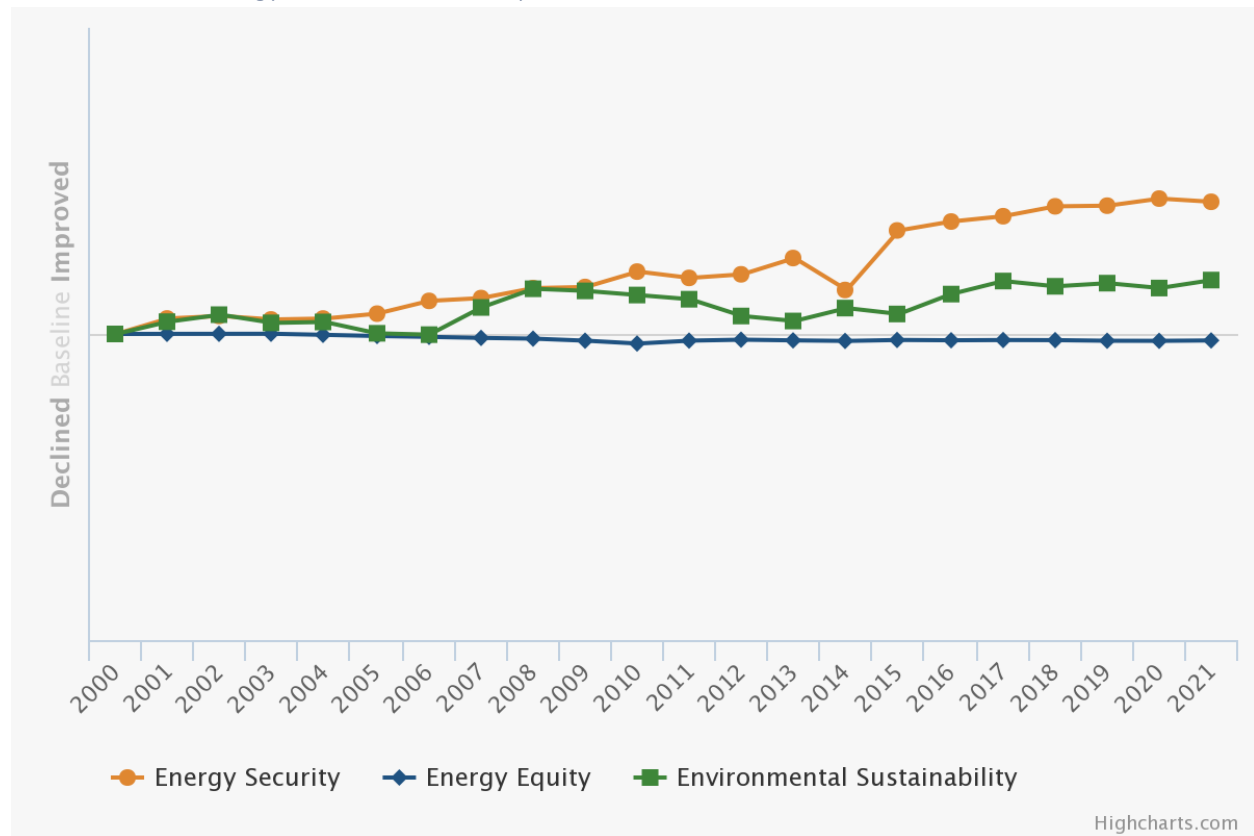
Source: energean

Energean, a London Premium Listed FTSE 250 and Tel Aviv 35 Listed E&P business with operations across the Mediterranean and UK North Sea, was founded in 2007. Since its IPO, Energean has evolved to become the Eastern Mediterranean's leading independent gas-focused E&P business, with a strong production and development growth profile. The Company investigates and invests in innovative ideas, concepts, and solutions for producing and developing energy in an efficient, low-cost, and low-carbon manner.

Energean's production is primarily sourced from Egypt's Abu Qir field and fields in Southern Europe. The company's flagship project is the 3.5 Tcf Karish, Karish North, and Tanin development offshore Israel, where it plans to start producing first gas in mid-2022 with the newbuild fully-owned FPSO Energean Power, which will be the only FPSO in the Eastern Mediterranean.

Energean is committed on maximizing production from its large-scale gas-focused portfolio to provide meaningful free cash flow and maximize total shareholder return in a sustainable manner, with a solid track record of growing reserves and resources. Energean prioritizes ESG and health and safety, aiming to operate in a safe and dependable manner while achieving carbon neutrality across its operations by 2050.

### 3.5.7 World Energy Trilemma: Country Profile: Israel



Even though Israel has had two linked natural gas reserves since the end of 2019 and is exporting to Egypt and Jordan, the energy security index score has dropped. The fact that Israel relies on local natural gas, has connected a third natural gas reservoir, exports to two nations, and plans to export more, demonstrates the country's strong energy security, which is likely to improve in the future years. Due to low electricity and natural gas prices, as well as energy access indices, Israel's equity index stays high. Given Israel's aim to phase out coal use by 2025, which is already cutting greenhouse gas emissions, the environmental sustainability score is likely to rise.

The electrical sector has begun a phase of transformation after years of monopolistic dominance by the Israeli Electric Corporation. Solar farms and other independent power sources can now supply electricity to the grid. Following the discovery and exploitation of offshore sources in the Mediterranean, coal-burning units are being phased out, while gas-burning units are ramping up. The Tamar and Leviathan natural gas reservoirs are crucial to the country's energy security, ensuring increased self-sufficiency for a geographically isolated energy system.

## 4 Wars

### 4.1 Turkey vs Hellenism



**Source: greekcitytimes.com**

Following the example of Israel (Tamar field), the Republic of Cyprus hurried its exploration activities along the southeastern boundaries of its Exclusive Economic Zone (EEZ), which is close of Israeli fields (Tamar and Leviathan). In 2011, the discovery of the Aphrodite gas field -of estimated 4.5 trillion cubic feet or 140 bcm- in Cyprus's southern Exclusive Economic Zone surfaced. After this discovery, Cypriot authorities granted licenses to many energy companies for the offshore blocks. As a result, all of 13 Cypriot offshore blocks in its EEZ have been allocated to oil and gas companies from the Netherlands, France, Italy, the United States and Israel to discover and invest.

In December 2016, Cyprus approved an international bidding process by awarding exploration rights to four multinational companies: Eni and Total; Eni; and ExxonMobil and Qatar Petroleum



International, respectively. Eni, on the other hand, was the sole firm to declare the discovery of a gas-bearing structure in the Calypso 1 well in 2018. Calypso is expected to hold somewhere between 6 to 8 trillion cubic feet of natural gas-, much more than the Aphrodite's 4.5 tcf found in 2011. Exxon Mobil and state-owned Qatar Petroleum have been awarded rights to perform drilling surveys in Block 10 (Delfini region), which is near to Zohr and Calypso.

In February 2019, Exxon Mobil declared the first exploration outcomes. *“According to a preliminary interpretation of the well data, the discovery could represent a natural gas resource of approximately 5 to 8 trillion cubic feet (142 to 227 billion cubic meters)”* (ExxonMobil 2019). In October 2018, DEFA-Cyprus's natural gas public company- issues some documents for the design, construction, and operation of a Liquefied Natural Gas (LNG) import terminal that will be created at Vasilikos. The most recent discoveries are Calypso (2018) and Glaucus-1 (2019).

The Herodotus and Levantine Basins are the two most important in the Eastern Mediterranean. Greece, Turkey, and Cyprus border the first Basin, as do the south-eastern beaches of Rhodes, Karpathos, and Crete, as well as the eastern and southern coasts of the Meis Kastellorizo complex. The Levantine Basin, on the other hand, is located between Egypt, Israel, Lebanon, Syria, Turkey, and the eastern and southern parts of Cyprus.

Turkey sabotaged the Egypt-RoC agreement of 2003, because it did not have any profit from Levantine Basin deposits. Turkey claimed that the absence of the TRNC lacked legitimacy and validity of the delimitation agreement. *“On the transit side, virtually all of the various pipeline projects planned to move the Caspian natural gas to the European markets involve Turkey as a transit country.”* (Liakouras,2019)<sup>(12)</sup>

*“Turkey has so far focused on its objection as to the RoC offshore exploration and exploitation activities, as to the undelimited continental shelf/EEZ zone in adjacent areas of Eastern Mediterranean where RoC has entitlements, as to the un-delimited continental shelf/EEZ zone in the adjacent areas of eastern Mediterranean where Greece has entitlements and as to the neutralizing the possibility of RoC-Israel energy cooperation towards resulting in the creation of an alternative route for exporting the Levantine Basin resources to Europe.”* (Liakouras,2019)<sup>(12)</sup>

Turkey accepts that territorial sea is the only zone that an island can claim; an island cannot claim full effect in the delimitation process beyond the outer limit of the 12nm territorial sea. *“Turkey*

*objected strongly and repeatedly on international platforms, noting that as the Mediterranean is a semi-closed sea, all littoral states with a vested interest should be involved in delimitation agreements.*” (From Rep. of Turkey Ministry of Foreign Affairs, August 14, 2020)

In 2011, Turkey agreed with the self-proclaimed TRNC (Northern Cyprus), delimitating the continental shelf between these two on the basis of light equity. However, TRNC is an illegal entity and not a country according to international law. Turkey sent the oceanographic vessel, – Barbaros - to explore hydrocarbons. However, they did not have any permission from the RoC. That’s why, their seismic activity was illegal (UNCLOS Art.77). Turkey challenged Nos 1,2,3,9,13 blocks that are owned by RoC. *“It contended first protection of the inalienable rights of the T/C community demanding sharing of profits at least, and second argued that RoC alone cannot enjoy rights from a dubious delimitation agreement.”* (Liakouras,2019) <sup>(12)</sup>

Turkey asserted exclusive sovereign rights in an area that encompasses overlapping claims of Turkey, Greece, and Cyprus with reference to continental shelf /EEZ in a letter to the UN/SG dated March 2019. In 2019, Turkey dispatched a new drilling vessel, the "Yavuz," to commence drilling and seismic surveys off the coast of Cyprus' Karpass peninsula. These acts were once again prohibited! "Yavuz" then proceeded to plan No. 7, a block that RoC has licensed to the Italian and French corporations ENI and TOTAL, respectively.

Turkey until May 2019 invoked that it has sovereign rights in Eastern Mediterranean across Rhodes Island. This is a remark that still holds true today. Both nations began talking about resolving the delimitation dispute in the mid-1970s. Greece accepts the median line method of delimitation (between eastern islands and opposite Turkish continental coasts, with judicial settlement), whereas Turkey prefers an equitable solution (between opposite continental coasts, with delimitation close to Turkey Greek islands excluded) and a comprehensive political settlement. For a quarter-century, there was no willingness to compromise.

A year ago, there was a scenery of escalating crisis and diplomatic moves framing the Greek-Turkish relations, especially after the first NAVTEX that was conducted by Turkey in the sea area, south of Rhodes and Kastellorizo and southeast of Crete. The reserves in the south of Crete are estimated to be 5 trillion M3 of natural gas, according to scientific assessments conducted by the Hellenic Hydrocarbon Management Company; reserves that may satisfy 50% of the EU's energy

demands for the next 50 years. This would put Greece at the forefront of events, perhaps reducing Europe's reliance on Russian hydrocarbons.

*“The Mediterranean is becoming one of the world’s most militarized zones, as littoral states and outside powers boost their naval presence”* (France to Bolster Mediterranean Military Presence over Turkish Prospecting: Macron,2020) There two events that made Ankara so angry. The first was the Eastern Mediterranean Gas Forum in January 2020, which headquartered in Cairo. The RoC, Greece, Israel, Italy, Jordan, Palestine, and Egypt were the members of EMGF, while France and the US openly were in favor. The second was the agreement of the EastMed Pipeline by Greece, the RoC and Israel. *“The fact the EMGF, the EastMed pipeline and other regional initiatives are being supported by the US and the EU further contribute to the conviction that Turkey is being marginalized by its allies.”* (Tolga Demiryol,2020) <sup>(10)</sup>

*“Ankara’s heightened threat perception is reflected in the prevalence of the notion of Mavi Vatan, or blue homeland, in the Turkish security discourse.”*<sup>(10)</sup>(Tolga Demiryol,2020) The term “Blue homeland” originally depicts Turkey’s maritime claims in the Mediterranean. *“Over the past four years, the blue homeland concept has gained traction both in the decision-making circles and the public discourse.”* (Ihan Uzgel, “The ‘Blue Homeland’ and Turkey’s New Forward Defense Doctrine,” 2020) <sup>(11)</sup>

The Blue Homeland doctrine for Turkey represents two key factors/ideas: First, it depicts an expanded vision of Turkey’s maritime zones in the Mediterranean. Even though the doctrine does not have any legal basis, Turkish politicians are so determined to defend and protect the borders, referring to the doctrine. Second, Blue Homeland is the Turkish’s reminder in order Turkey becomes a maritime power country and third gaining again a place in the world.

The ‘Memorandum of Understanding between the Government of the Republic of Turkey and the Government of National Accord-State of Libya on Security and Military Cooperation’ can be seen as reciprocating Libya’s support of Turkey’s intentions to demarcate the maritime zones in the Mediterranean. Turkey is providing military training, supplies, and services to Prime Minister Fayeza Mustafa al-government. The British newspaper “The Guardian” claimed in January 2020 that Turkey had sent 35 military trainers and 2,000 Syrian rebels to Libya to battle field marshal Khalifa Belqasim Haftar, a warlord and leader of the Libyan National Army stationed in Tobruk.

According to media reports, Turkish backing was successful: Haftar's assault on Libya's capital, Tripoli, came to a halt.

Article 58 defining the rights and duties of other States in the Exclusive Economic Zone states (United Nations Convention on the Law of the Sea, article 58): “...*all States, whether coastal or land-locked, enjoy, subject to the relevant provisions of this Convention, the freedoms referred to in article 87 of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention...*” After the 61<sup>st</sup> round of talks, both countries couldn't resolve the issues at the root of their hostile relations.

#### 4.1.1 Energy in the Eastern Mediterranean – Worthless Resources?

Noble Energy, a US corporation, found seven trillion cubic feet of natural gas southwest of Cyprus in December 2011. It was expected that this would give electricity to Cyprus for nearly 200 years, and that the EU would profit from the new energy source as well, lessening its reliance on Russian gas. According to research published by the USGS in 2010, the Levant Basin has a mean of 1.7 barrels of recoverable oil and 122 trillion cubic feet of recoverable gas. Resources, on the other hand, are not the same as reserves. Resources are defined as amounts of gas and oil that exist but are not (yet) commercially exploitable or cannot (yet) be extracted by existing technical methods. Reserves are natural resources that can be used given current technological and economic circumstances. Considering this distinction, there is strong evidence that the aforementioned anticipated amounts of gas and oil in the Mediterranean should be classified as resources rather than reserves.

When the French Total and the Italian ENI failed to uncover the natural gas reserves they had anticipated to find in 2015, the constraints of utilizing gas and oil resources became clear. Noble Energy, a US company, identified a deposit but was compelled to admit that mining would be unprofitable. The initiative to produce liquefied natural gas (LNG) was shelved.

Overall, there are at least four barriers to gas and oil extraction in the Mediterranean: First, investment is considered as too dangerous if hostilities between Mediterranean governments persist. Companies plan energy projects for decades, not years, and they want solid political and

legal circumstances in order to invest. Business is discouraged by conflicting governments, confronting warships and military planes, and maybe even the deployment of weapons. Second, whether the price of oil and gas from the Eastern Mediterranean will be competitive is debatable. The experiences of Total (France), ENI (Italy), and Noble Energy (USA) raised doubts about economic feasibility, making businesses more hesitant to invest. Third, gas and oil production in the Eastern Mediterranean will be more profitable if energy is supplied on European markets rather than just to Cyprus and Greece. However, given the EU's climate ambitions, it seems dubious that consumption would rise in Europe, and that there will be a demand for more fossil energy. The Commission's 2030 Climate Target Plan intends to reduce greenhouse gas emissions by at least 55 percent below 1990 levels by 2030. Policymakers and investors have been advised not to start investing since the use of fossil fuels would be drastically decreased in the near future. Fourth, when it comes to delivering Europe with this energy, two options are being discussed: LNG transit or pipelines—but both LNG and pipelines would result in higher pricing than present Russian imports. Today, Europe has diversified its gas suppliers, with the majority of its gas coming from pipelines in Russia, Norway, Algeria, and Libya, as well as LNG from Qatar, Nigeria, the United States, and other countries.

#### 4.1.2 The Greek Strategy Towards Turkish Aspirations

The worst-case scenario, which has already been announced by Erdogan, is its state-owned hydropower research company TPAO to commence, by the isolated Libyan government, contract research in a sea plot south of Crete, in an area that contained in the so-called Turkey-Libya EEZ. This development must be prevented in every way. The settlement of the Greek-Turkish disputes is the International Court of Justice in The Hague, following a joint statement with the issue of settlement the delimitation of reefs under International Maritime Law coast and EEZ simultaneously in the Aegean and the East Mediterranean, ie from Evros to Kastellorizo. In the research competition in the Ionian and southern Crete of October 2014, Greece had set at the southeastern tip of Crete the sea plots 15 and 20, on the borders of the Greek EEZ, according to the average line of equal distances between Crete and Libya. Unfortunately, in June 2015, which was the deadline for expression of interest files, the government composition at the level of prime minister and co-responsible ministers had formed. The relevant expression of interest would be

taken as granted. Thus, despite the interest that had been expressed in the original call for tenders in October 2014, finally no dossiers were filed. The sequel was equally charming, with those in charge at the time not declaring for whole years no international round of concessions, especially in sections 15 and 20, which were certain Turkey would claim. Since 2015, Mr. Maniatis had been asking all Energy Ministers to assign at least plots 15 and 20 to energy colossi e.g. American and / or French interests, so that these companies can support our national sovereign interests south of Crete. Worth mentioning that the "Maniatis law" is important. With article 156 of law 4001/2011, Greece essentially proceeded with a pre-notation of its sovereign rights. Greece has delineated the foothills of the continental shelf and the EEZ.

However, even today, 2022, Turkey threatens our country! According to Erdogan, Greece can't have its military on its own land but Turkey can have its military on land that doesn't belong to Turkey.

## 4.2 What does happen in Syria, Lebanon, Libya?

### 4.2.1 Geo-Economics

Geo-economics field studies the data of a geographical area -even on an international scale-, which are concerned to economic power (economic activities in relation to the geographical environment), in order to make use of them. The geo-economic networks are consisted of the various pipelines of electricity, oil, gas, sea and land trade routes, etc. *“Several analysts have argued that all economic policies, domestic or foreign, should be considered geo-economics, as long as they have strategic implications.”* (Mark Thirlwell, May 24, 2010). *“For others, geo-economics is a synonym of economic statecraft, which traditionally has referred to a state's use of economic policies to influence another state.”* (David A. Baldwin, 1985); Jean-Marc F. Blanchard and Norrin M. Ripsman, 2015). *“It is understandable that geo-economics are a tool for the irregular energy war. Today, states have become intricately linked economically, and no country can prosper without extensive economic ties to other states and access state's military competitiveness also depends on its ability to prosper in the globalized economy.”* (Stephen G. Brooks, 2007)

### 4.2.2 How is Geo-economics altering the International System?

Regarding the Book “War by other Means” by Robert D.Blackwill and Jennifer M.Harris , *“there are five in number changes to the IS due to geo-economics. First of all, Geo-economics statecraft enables new policy choices. Secondly, Geo-economics enables states to use new foreign policy tools, some of which are unavailable to U.S. and other Western leaders. Also, as certain states come to employ geo-economics tools, it can change not only the nature of diplomacy but that of markets as well. Moreover, these geopolitically motivated deals can become important factors in a given state’s foreign policy calculus. Many of these contracts, often negotiated autocrat to autocrat, seem to be designed to bolster the respective regimes in question, which are often proved effective. Last, but not least, once- distinct security and economic tensions tend to reinforce each other to a greater degree than in previous eras.”*

#### 4.2.3 Libya

MUSIAD and TUSIAD are the two major federations in Libya. MUSIAD is loyal to Erdogan, while TUSIAD is pro-European. Libya has the largest oil reserves located in Africa. Turkey got involved in Libya in order to succeed the expansion of maritime borders and offshore exploitation. Owning oil fields and terminals in the Cyrenaica, Ankara could find and establish bases near the border with its eastern neighbor, and secure its military presence and control over the oil fields and oil exports. Natural resources can be found in Libya are petroleum, natural gas and gypsum. Hydrocarbons contribute about 95% of export earning, 65% of the GDP and about 80% of government revenue; this was happened before 2011. Crude oil was till then the energy source that have been using a lot, making up almost 79% of energy production. Renewable sources (at least for the year of 2011) have been abandoned as a thought.

In 2020, the Turkish company "Karadeniz" announced that it would produce 1000 megawatts of electricity in Libya amounted to 16 billion dollars. Although, the project should have been stopped due to the conflicts and the coronavirus pandemic.

An agreement was signed on October 23th,2020, after the internationally recognition of Government of National Unity (GNA) in June was achieved and the forces of the Libyan National Army (LNA) were repelled of eastern Libya. The two parties have agreed on a perpetual ceasefire agreement. That would mean, all foreign fighters ought to leave from Libya within three months. Turkey was one of the biggest losers after the agreement as the war in Libya served exactly the consolidation of the Turkish presence in the Eastern Mediterranean. Turkey for Libya was a

regional superpower. Libyan oil industry was the mean that Turkey could serve its aspirations while it could blackmail EU and Russia, at the same time.

The signing of the Turkish-Libyan memorandum created a sense of optimism in the neighboring country that Turkish companies would play an active role in rebuilding the country. In fact, the head of Turkey's External Economic Relations Council, Niall Olpak, announced that Turkish companies would undertake projects not only for the construction of power plants but also for the distribution of electricity in the country. He stressed with meaning that "*Libya prefers to cooperate with Turkish businessmen*". However, in July 2021 this changed, after the successive meetings with the chairman of the Libyan Investment Authority, Dr. Ali Mahmoud and with other Libyan economic agents, with the Deputy Foreign Minister, Mr. Costas Frangogiannis, who was accompanied by the Secretary General of International Economic Relations, Mr. Giannis Smyrlis. During the meeting, it was agreed that a memorandum of cooperation will be signed between the organization and Enterprise Greece. Also, the Undersecretary of State for Foreign Affairs announced that Greece intends to offer know-how in the creation of a similar organization with Enterprise Greece in order to support Libyan investments abroad, but also to bring foreign investments to their country.

Libya's government announced the Renewable Energy Strategic 2013-2025 Plan in 2013, with the goal of achieving a 7 percent renewable energy contribution to the electric energy mix by 2020 and a 10% contribution by 2025. Wind, concentrated solar power, solar PV, and solar heat would all contribute to this. In 2019, OPEC crude output grew 60 kb/d in April to 30.21 mb/d as greater flows from Libya, Nigeria, and Iraq offset Iranian losses, according to IEA.

Libya has long been a dominant oil producer in the Middle East and North Africa (MENA). Libya's National Oil Company, which possesses the continent's largest proved oil reserves, has set production targets of 1.45 million barrels per day (bpd) by the end of 2021, 1.6 million bpd by 2023, and 2.1 million bpd by 2025. Furthermore, the government has re-established the Ministry of Oil and Gas and nominated Libya's previous OPEC representative as its new minister. The establishment of the ministry paved the way for long-awaited regulatory reforms, including simplified, oil-and-gas-specific laws that will attract more international investment and collaboration.



#### 4.2.4 The Libyan Imbroglia: Linking Maritime Disputes to Geopolitical Confrontation

In November 2019, Turkey and Libya's UN-recognized Government of National Accord (GNA) agreed on two memorandums of understanding: the first dealt with the Delimitation of Maritime Jurisdiction Areas in the Mediterranean Sea, and the second with the Security and Military Cooperation Agreement. The initial agreement established Turkey's maritime borders with Libya, with a bilateral EEZ extending from Turkey's southern Mediterranean coastline to Libya's northeast coast, disregarding Greek islands like Crete and Rhodes. The second deal allowed the GNA to stave off an attack on Tripoli by the self-styled Libyan National Army (LNA) leader Khalifa Hifter, as long as Turkey provided military backing to the GNA. Libya compensated Turkey with marine zones in exchange for military assistance.

According to this deal, the East Med pipeline project would ought to cross over the maritime areas claimed by Turkey (Turkish-GNA maritime deal), thereby Turkey's intention is to postpone any projects that could possibly isolate the country. Greece's reaction was immediate, as expelled the GNA ambassador from Athens while started developing closer relations with the LNA. Due to this situation, Greece signed a similar deal with Egypt in August 2020 to delimitate their respective maritime jurisdictions.

In addition, the Libyan conflict has blemished Turkey against the UAE, Egypt, and France, with overabundance effects across the eastern Mediterranean. *“The UAE and Greece's decision to hold military exercises in Crete while Turkish-Greek tensions were running high, as well as the UAE's repeated expressions of support for Greece's position in the eastern Mediterranean, cannot be delinked from the deepening rivalry between the UAE and Turkey across the region, and particularly in Libya.”* Fearing the isolation, Turkey has tried to approach Egypt in order to find a modus vivendi with Cairo in Libya.

#### 4.2.5 Syria

Why Syria is so important?

Syria's proved reserves were estimated to be 2.5 billion barrels and 8.5 trillion cubic feet (TCF) at the end of 2012, according to the Oil & Gas Journal. Between 2000 and 2011, the usage of gas in Syria increased by roughly 33%. Hydrocarbon exploration areas abound in Syria. Syria has the ability to generate its own electricity. The overall output of electric power plants is 17 billion kWh.

The balance of the self-generated energy is either exported or left unused. Renewable energy accounted for roughly 0.9 percent of total consumption in Syria in 2018.

In 1950, Aramco, an American firm, was in charge of constructing the TAP (Trans-Arabian Pipeline), which extended from Saudi Arabia's Al Zahran area to the Mediterranean via Jordan, Syria, and Lebanon. This project was proposed as an alternative to the planned MEPL (Middle East Pipe Line), which was a joint venture of an Iranian-British oil business and US companies that would start in Iran and travel via Iraq and Syria to the Mediterranean's oil transportation. The pipeline is now inoperable. It might, however, be used as a viable transit route for oil exports from the Persian Gulf to the West, costing 40% less than shipping via tanker through the Suez Canal.

An agreement of co-operation was made with Turkey in 2009. Ankara suggested to build a 56-mile pipeline. The pipeline would be connected to the AGP (Arab Gas-Pipeline) while it was expected to be ready in 2012. However, this contract was stopped applied at the beginning of 2009. In June 2010, Syria and Azerbaijan made an agreement, on which the latter would transport natural gas to Damascus through Turkey. The only term was the implementation of the AGP pipeline.

In 2011, Syria signed an agreement with Iran, Iraq and Lebanon to build the Islamic Gas Pipeline (IGP), supplying the European market. The pipeline would be 2,000-kilometers long and cost \$2.5 billion. If had been ready, it would transport 110 million cubic meters of gas per day from Iran, including 20 million cubic meters that would be sold to Syria and 25 million to Iraq. This pipeline would not cross Turkey and would definitely reduce the European dependence on Russian gas. "In November 2012 the United States dismissed reports that construction had begun on the pipeline, saying that this had been claimed repeatedly and that "it never seems to materialize. *"A framework agreement was to be signed in early 2013, with costs now estimated at \$10bn."* (Iraq greenlights gas pipeline deal with Iran, Syria, Agence France-Presse, Hürriyet Daily News, 19 February 2013). The plans were annulled due to the Syrian Civil War.

In 2020, Syrian and Russian military officials have issued a joint statement condemning Syria's Kurdish deal with a US oil company, saying it is a clear violation of international law and acts as a cover for illegal US policy in the region, aimed at "undermining Damascus' efforts for peace. The Syrian-Russian reaction against the Kurdish commanders of the pro-American "Syrian Democratic Forces" (SDF) was triggered by the agreement with the American oil company "Delta Crescent", with the blessings of US Secretary of State Mike Pombeo and the Trump administration.

At the time, the Syrian Foreign Ministry had denounced the agreement, stressing that it was an agreement between thieves who steal and thieves who buy, which is an "attack on Syrian sovereignty."

In November 2020, the United States imposed new sanctions on Syrian lawmakers and military officials accused of backing Syria's oil production in favor of Bashar al-Assad. In total, the US Treasury Department and the US State Department blacklisted 19 individuals and entities. These are companies in the oil industry, Arfada Petroleum Private Joint Company and Sallizar Shipping SAL, based in Lebanon and Syria, as well as their executives. Among those listed are the head of the Air Force intelligence service, Gassan Jawadat Ismail, and the head of another branch of the intelligence service, Nasr al-Ali.

However, worth mentioning, that an unexpected solar energy revolution is under way in rebel-controlled northwestern Syria, where people whose lives have been turned upside down by 10 years of civil war have embraced this form of energy because it is the cheapest source of electricity available to them. Solar panels, large and small, old and new, are found everywhere in the province of Idlib on the Syrian-Turkish border, mounted on roofs, balconies, tents, near farms and factories. The solar revolution in northern Syria has nothing to do with fears of climate change or the Syrians' desire to reduce their carbon footprint. It is the only viable option for an area where the government has cut off electricity and where imported fuels are too expensive. The province of Idlib became a guerrilla stronghold early in the war. That is why the government cut it off from the national power grid, which relies on oil, gas and hydroelectric power plants on the Euphrates. Initially, the locals resorted to generators. The constant noise and smoke became part of their lives. Refined fuels were also used for a while. But a spike in prices turned them to solar panels.

In August 2020, an explosion on a gas pipeline has cut off electricity to all of Syria. According to the Syrian government, the explosion took place in between areas near the capital Damascus. The blast, was probably due to a terrorist act. In 2021, there are still dozens of clashes in Syria, hundreds of dead people. In June 2021, the U.S. military had launched airstrikes against Iranian-backed militias in Iraq and Syria in retaliation for UAV attacks on U.S. personnel and facilities in Iraq. The strikes targeted operational facilities and weapons depots at two locations in Syria and one in Iraq, according to the Pentagon.

#### 4.2.6 Power Competition Without Solution: Libya and Syria's Common Dilemma

The current events in Libya (General Khalifa Haftar's strategic retreat from the western portion of the nation) and Syria (the Russia-Turkey agreement that ended combat in Idlib) look to be in a time of evaluation, but the crises do not appear to be over. External forces want to put an end to these confrontations in the hopes of creating a de facto win-win situation.

*“The ratio of this pattern of negotiation is based on two main features: on the one hand, the new international framework created after the Cold war, in which aspiring powers tried to leverage their involvement in different ways but did not get directly involved in the conflicts; on the other, the fact that these civil wars did not have clear winners and losers.”*(ISPI,2020) This pattern advanced over the years, with its pillars have followed the same path: 1) managing compromises among the local actors, 2) protecting conflicting interests for the external powers. So, Libya and Syria wars, have failed, without changing the balances but ended up with endless conflicts and humanitarian catastrophes. International powers started proposing a new model based on a crystallization of conflicts and the protection of their interests. This approach has initiated to widespread in every crisis on the wider Mediterranean, mainly in Syria, where Russia, Turkey and Iran have tried to cope with the conflict by freezing the war.

This new model of negotiation is known as Astana Process, which is not aimed to solve any crisis but to freeze it, anticipating a good compromise between the involved actors. An attempt to adopt this approach in Libya was made, but the outcome was the same-failure. *“Although this process could be an agile diplomatic tool to guarantee a tactical success in the power proxy strategy, it also highlights the external actor's inability (or unwillingness) to resolve the interminable crises.”*(ISPI,2020) Obviously, the Astana approach cannot be a model solution in Syria and Libya, where militia groups could potentially break the compromise, as well as the other proxy powers in Libya (such as France, Egypt, UAE) and in Syria (as Iran or Hezbollah) could dispute any agreement that doesn't satisfy their goals. The Astana model is a short-term solution; a diplomatic tool to guarantee sharing power and to prevent military escalations. *“The same framework that has been used – without any results – in Syria since January 2017 and in January 2020 during the Berlin Conference for Libya aimed at stopping the violence and defining steps towards a truce for those on the ground.”* (ISPI,2020) Although, the deal signed in Berlin has been considered a failure, due to the civil war.

### 4.3 Hezbollah-Lebanon

Hezbollah was established in 1982 by the "Guards of the Islamic Revolution", an Iranian army group, economically reinforced by Iran itself. Syria is on their favor. The EU divides Hezbollah into two parts stating that the military wing is a terrorist group, while its political wing is not. Lebanese Shiite group supports Hezbollah. Hezbollah is elected by the public holding 14 seats in the 128-seat parliament.

In 2018, Hassan Nasrallah, who is the leader of Hezbollah, urged Lebanon's government to exercise its rights against Israel, even violent, in order to declare access to an energy windfall. Lebanon, Israel and Cyprus encompassed the Levant Basin in the eastern Mediterranean, where sub-sea gas fields have been found there since 2009. In 2010, Israel and Cyprus made an agreement on maritime zones/boundaries. Lebanon not included. *"This is Lebanon's wealth and hope,"* Nasrallah said. *"If you [Israel] prevent us, if you bomb us, we will bomb you, and if you hit us, we will hit you,"* said Nasrallah.

In April 2021, the Lebanese government approved the expansion of the country's EEZ, a fact that complicates the long-standing dispute with Israel and "freezes" the relevant negotiations. According to the Israeli Globes, with its declaration, Lebanon expands the EEZ by 1,430 sq.km. thus, applying Hezbollah's views on the issue. It is noted that the area claimed by Lebanon is a target for hydrocarbon exploration for both sides.

Electricity is luxurious good that only rich people can have. In 2019, there was a tense march demanding the uninterrupted energy supply. The public was so angry to the state's electricity company, EDL, as the numerous energy shortages-all these years- are due to under-investment in power plants. This under-investment and the following failures of the national grid made profit for the politicians. Most Lebanese have to pay two electricity bills - one concerning the EDL and the other to their local generator owner. That's why it is very common, many Lebanese to steal electricity in order to ensure getting it free.

On the upcoming months, the Turkish company Karpowership, which supplied till that time Lebanon with electricity from two barges, made clear that it was cutting off supplies due to arrears and a legal threat to its vessels as the country struggles to cope with a deep economic crisis. The company, which supplied 370 megawatts (MW) or about a quarter of Lebanon's current supply,

declared the government that it would be forced to lower the switch as no steps were taken to resolve the issues. This could lead to longer power outages across the country, which did not have the capacity to meet demand even before Karpowership's move today. In particular, Lebanon is said to have a debt of 180 million euros to the Turkish company, the repayment of which is delayed for 18 months.

Karpowership was facing serious court adventures in Lebanon. The Turkish company has been under the microscope of justice since last March (2020), as Beirut prosecutors launched an investigation into allegations of corruption and money laundering. Sources close to Karpowership point out that the company was forced to resort to the extreme solution of the power outage in Lebanon not only because of the debts owed to it, but also because of the lawsuits from the country's prosecutors that it was facing. As they emphasize, no company can work in an environment full of such immediate and unjustified risks.

The leader of the powerful Shiite party Hezbollah, Hassan Nasrallah, warned that in the event of a fuel shortage in Lebanon, a country plagued by unprecedented economic collapse, his party will import gasoline and fuel from Iran. Lebanon has been running out of fuel for months, which has become particularly severe. Large queues of cars form every day in front of gas stations. Some drivers have to wait more than an hour to fill the tank with just ten liters of gasoline. Describing the situation as "humiliating", Nasrallah called on the Lebanese authorities to make a "brave decision" and overcome their "fear" of the United States by importing oil products from Iran, which is subject to Western sanctions. Since the autumn of 2019, Lebanon has been plagued by an unprecedented political and economic crisis, with its currency losing more than 85% of its value against the dollar. Central bank dollar reserves used to import basic goods, such as fuel, are dwindling and the country has been without a government for ten months.

Hassan Nasrallah, announced that more Iranian ships were transporting fuel to Lebanon. The country is going through an unprecedented political and economic disaster and is facing a huge shortage of petrol - even after the arrival of the first ship on 19 August. Some worry that Iranian-funded Hezbollah could replace the collapsing Lebanese state or companies. Others worry that the United States may impose sanctions on Lebanon over its relationship with the Islamic Republic of Iran. In fact, the US ambassador to Lebanon, a few hours after Hezbollah's statement, said that Washington is in talks with Jordan and Egypt to find solutions to the fuel crisis in Lebanon, which

has affected businesses. The project will be able to supply Egyptian gas to Jordan to generate additional electricity that can be transported to Lebanon via Syria, as well as to facilitate the transport of natural gas to Lebanon. Negotiations are ongoing with the World Bank to finance the cost of gas.

#### 4.3.1 Wind Energy

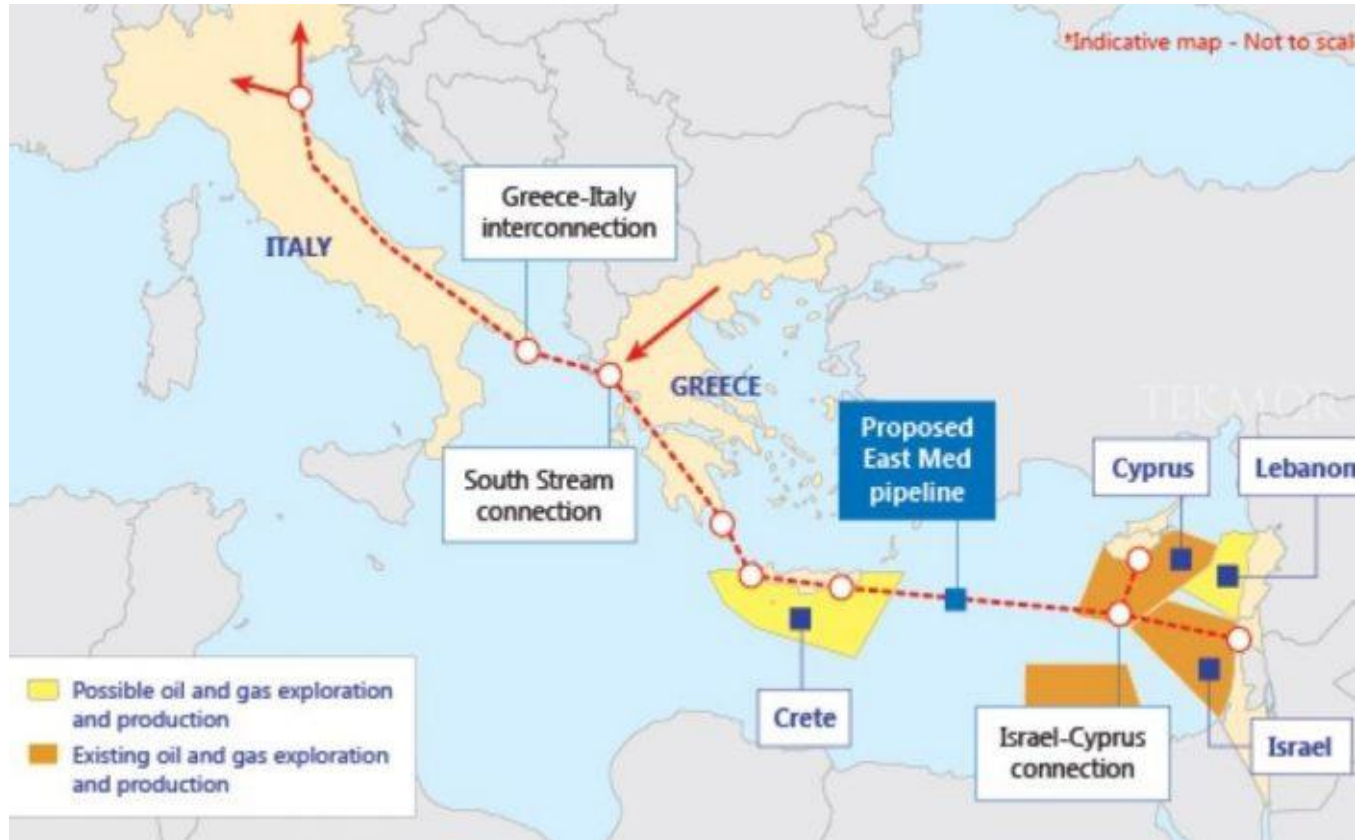
*“Wind energy is an untapped resource in Lebanon with extremely restricted production”* (Kinab, El Khoury, 2012). Although, in 2010, according to researches, Lebanon has the potential to produce approximately 5,400 MW of wind energy. *“The recently approved tender by the Ministry of Energy and Water (MEW) of 200MW in Akkar is promising for all parties involved. In fact, Electricite du Liban (EDL), the national utility agency, will sell power at a gain and provide stable electric current for around 145,000 households”* (Riachi, 2018).

#### 4.3.2 Solar Power

Solar energy could also be a valuable resource in Lebanon. *“Solar energy currently represents around 26% of the country’s energy mix”* (UNDP, 2017). *“To grow this energy source, the MEW is launching two separate bids for solar farms with total production capacity of around 450 MW”* (MEW, 2018).

## 5 Pipelines of great importance

### 5.1 East Med Pipeline



**Source: greekreporter.com**

The Eastern Mediterranean pipeline, or simply EastMed, is a planned offshore and onshore gas pipeline that will directly connect the energy resources of the Eastern Mediterranean to mainland Greece via Cyprus and Crete. The pipeline is being developed by the company "Greece-Italy Underwater Natural Gas Pipeline / YAF A POSEIDON SA", in which the Greek DEPA and the Italian company Edison participate equally. The pipeline will be about 1,900 kilometers long, reach depths of about 3 kilometers and have a capacity of 10 billion cubic meters per year. Its construction is expected to be completed in about 7 years and its cost amounts to 7 billion dollars. On January 2, 2020, the agreement for the construction of the EastMed pipeline was signed in Athens by the leaders of Greece, Cyprus and Israel. The Eastern Mediterranean (EastMed) interconnector pipeline aims to transport gas directly from the Eastern Mediterranean fields to the



European Natural Gas System, via Greece. More specifically, the EastMed pipeline will follow an underwater route to Cyprus, then to the coasts of Crete and then, through the Peloponnese and Western Greece to the coasts of Thesprotia and Italy. In Florovouni, Thesprotia, the EastMed pipeline can be connected to the POSEIDON pipeline project, further enhancing the completion of the EU energy market with new discoveries in the Levantine Basin.

Since July 2014, the management of the Project belongs to the subsidiary of DEPA "YAFA - POSEIDON", in which the Italian Edison participates equally. This cross-border project has been included since 2013 in the List of Projects of Common Interest (PCIs) of the EU, based on the European Regulation 347/2013.

In 2015, the EU started the co-financing of the Pre-Feed Studies of the project. All the studies prepared and completed in March 2018 confirmed the technical feasibility, financial viability and commercial competitiveness of the Project. They also pointed to the added value of the EastMed pipeline, as well as its complementary character, in the context of the prospects for the export of natural gas from the South-Eastern Mediterranean to enhance Europe's energy security.

On January 25, 2018, the European Commission approved the co-financing in the amount of € 34,500,000 of the main remaining stages of project development and maturation (Implementation Study phase - Front End Engineering Design - FEED). The amount covers 50% of the cost for the elaboration of the environmental studies, the Implementation Study (FEED) as well as the conduct of the Detailed Marine Survey (DMS). The Grant Agreement amounting to € 34.5 million from the resources of the Connecting Europe Facility program was signed in June 2018.

The development of the EastMed pipeline, beyond the EU, enjoys from the outset the active support of the Governments of the countries through which it will pass. In this context, at the end of 2018, the negotiations between Cyprus, Greece, Israel and Italy for the conclusion of an Intergovernmental Agreement (IGA) to support the implementation of the project were completed. The text was signed within the second half of 2019, following the approval of the European Commission.

#### 5.1.1 The Behavior of Turkey

Erdogan's neo-Ottoman Turkish policy is aimed at unhooking Turkey from its complete entanglement with its Western interests. During the year 2010-2011, Turkey-Israel relations

deteriorated due to Turkey's fault. This deterioration has called into question the once-smooth functioning of the US-Israel-Turkey strategic Middle East stability triangle. Since then, Turkey's relations with its other two former strategic partners have been extremely problematic. In the last five years, Turkey has begun cooperating with Russia in strategic areas. One of them is energy. The crisis in Ukraine has forced Moscow to redesign its energy strategy. The replacement of SouthStream with TurkStream is a geopolitical development, as Turkey is in NATO. Therefore, Turkey's credibility as an energy - and not only - Western partner has been reduced to a minimum and thus its integration into the region 's western energy planning as an energy hub is precarious.

#### 5.1.2 Israel

Since its founding in 1948, Israel has established a stable strategic culture that follows key principles of political realism. The creation of a state surrounded by hostile countries led Israel to equate its high strategy with its own survival and existence. For Israel, the rise of any regional power in the Middle East must be prevented. This means that Israel does not want any kind of dependence on neighboring countries that could potentially trap it in policies that are inconsistent with its survival.

#### 5.1.3 Hellenism

Greece and Cyprus saw the material base of their power decline and entered into fiscal stability programs over the past decade. Given the growth of Turkey, Hellenism had to look for allies who would have sufficient power to deal with the Turkish threat. The best possible time for Greece and Cyprus was when the strategic triangle between the US-Israel-Turkey split. Once the right ground was found for Greece and Cyprus to reach out to Israel and knowing that the state of Israel has excellent relations with the United States, an improvement in Hellenism-Israel relations also meant a more effective Hellenic-US approach. Greece and Cyprus want to secure their sovereignty in the Aegean and the Cypriot EEZ, contrary to the aspirations of Turkey, which does not respect Greek sovereignty in the Aegean or the Cypriot EEZ. After all, the possible construction of the pipeline creates commitments in American, Israeli and European interests.

#### 5.1.4 The role of the US in the Eastern Mediterranean

The United States of America is characterized as the conservative force of the international status quo that seeks to maintain its dominance in the international political scene by preventing the rise

of any regional power. One of the American values over time is the stability that through the East Med seems to be able to thrive in the Eastern Mediterranean region. The "East Med Act" was included in the US budget in order to achieve an effort to strengthen energy security - primarily - of Israel. Reducing the EU's energy dependence on Russia is in America's interest, and the East Med pipeline in conjunction with TAP is hurting Russia's energy plans in Southeast Europe.

#### 5.1.5 Can the pipeline finally be implemented?

States that influence and are influenced by East Med take into account both political and economic actors. With economic factors the budget reaches an amount of around 7 billion euros due to the technical requirements to be covered under the sea and the distance. An alternative that could be even more economical as it would cost half the budget would be to cross Turkish territory, which is not in the interest of any of the states involved-at least at the moment. From a political point of view - as mentioned above - it brings huge benefits of a geostrategic nature. However, even the European climate change policies under development provide for a zero-carbon footprint by 2050 making the situation even worse. On July 2021, as part of the planned EastMed natural gas pipeline, Greece, Cyprus and Israel have leased a vessel to research and conduct seismic surveys between Cyprus and Crete, and between Cyprus and Israel.

However, Washington proposes abandoning the project both for reasons of economic viability and because of tensions in the Eastern Mediterranean. The non-paper given by the United States to the Greek side regarding the future of the EastMed gas pipeline has caused serious questions in Athens, as well as annoyance for the expediency and timing of its filing. By doing so, Washington is effectively proposing to abandon the project both for reasons of economic / commercial viability and because of the tensions causing in the Eastern Mediterranean region - in an indirect but clear reference to Turkey's moves. The document, about one and a half pages, contains a number of other details that are not necessarily negative for the Greek side - but this does not mean that they do not exist and serious "gray spots". The American document makes a clear and positive reference to the Euro-Asia Interconnector (Israel - Cyprus - Greece) and Euro-Africa Interconnector (Egypt - Greece) electrical interconnection cables, while the harassment of the oceanographic vessel "Nautical Geo" by Turkey was clearly characterized as "unacceptable". It is noted that the governments of the Republic of Cyprus and Israel have also become recipients of the American non paper. The question that arises is the following: As the cable essentially follows the path of

EastMed (passing through the illegal Turkish-Libyan memorandum of 2019), what will happen if Turkey tries to prevent its sinking?

Another cause on which the American argument is formed in the informal document is the necessity of dealing with climate change. In this context, and given the commitments made at the recent Glasgow Climate Summit (COP26), building infrastructure such as the EastMed Gas Pipeline (EMGP) with uncertain economic viability should not be a priority in the fight against climate change and the promotion of renewable energy sources.

However, everyone can confirm that this ambitious project would provide Southeast Europe and the EU a new energy source, a new corridor, and a reliable source of supply with long-term contracts at a time when Europe is trying to reduce its reliance on Russian energy. However, an upgraded route and a hydrogen-ready design may help allay the fears of the US government, despite the project's huge cost suggesting that it would require both financial and political support to materialize. ExxonMobil's appraisal well in Glaukos, however, may alter the international companies' present "wait and see" attitude toward Cyprus. The potential extent of the gas deposits south of Crete may potentially boost the profitability of a pipeline, as the Greek government has reprioritized its own exploration program in response to the energy crisis. Any of these events would be in favor of establishing one if gas costs stay high. However, in the medium term, the LNG terminals in the area will be the primary means by which the gas discoveries in the Eastern Mediterranean reach the market.

## 5.2 EuroAsia Interconnector



Source: [newmoney.gr](http://newmoney.gr)

*“The EuroAsia Interconnector is part of the European network of intra-country and cross-border electricity grids that are interconnected via bi-directional cables to provide stable and sufficient electricity supply through national transmission operators. Initial electricity production is generated at local power stations (fossil fuels, natural gas, renewable sources, hydro and solar) and transferred via high-voltage direct current cables (HVDC) on to consumers, both retail and industrial.”*(EuroAsia Interconnector Official Website,2021) <sup>(13)</sup>

EuroAsia Interconnector Limited is the project manager of the electricity interconnection accounting the initial transmission capacity of 1,000 MW at a cost of Stage 1 estimated at 2.5 billion euros. The implementation dates are:

Cyprus - Greece commissioning in December 2023

Cyprus - Israel commissioning in December 2023

The project will begin in Hadera, Israel, and travel to Cyprus through the subsea channel, where it will connect with the Kofinou station. It will use the west route and then a sub-sea path to Korakia in Crete, Greece. The 1,208-kilometer EuroAsia Interconnector connects Europe and Asia (Israel-

Cyprus 310 km; Cyprus-Greece 898 km;). 3,000 meters will be below sea level/sea level. The EuroAsia Interconnector is a Project of Common Interest (PCI) that has been funded with a total of €8.7 billion.

5.2.1 There benefits are several. Let's discuss some of them:

Electricity demand in Europe

*Europe needs an increasing supply of electricity to meet its long-term energy demand, as the economy grows and consumer demand exceeds output supply, with environmental needs constantly exerting pressure for the use of the cleanest fossil fuels and renewable sources of energy in power generation.*(EuroAsia Interconnector Official Website,2021) <sup>(13)</sup>

Diversity and security of energy supply

*As part of the strategic goal to enhance Europe's energy security and diversity, the European Commission fully supports the construction of the EuroAsia Interconnector by declaring it a Project of Common Interest (PCI) as part of its strategic policy to provide diversity and security of supply in electric energy.* (EuroAsia Interconnector Official Website,2021) <sup>(13)</sup>

Host countries' support

*The economic and strategic benefits of the EuroAsia Interconnector are also important at a regional as well as national level in the countries through which the cable passes. Israel, Cyprus and Greece have signed a number of Inter-Governmental Agreements (IGAs) in support of the EuroAsia Interconnector and continue to cooperate fully with the project.* (EuroAsia Interconnector Official Website,2021) <sup>(13)</sup>

What is more, the EuroAsia Interconnector has been approved and supported by literally everyone -from national energy regulators, transmission operators, to general public.

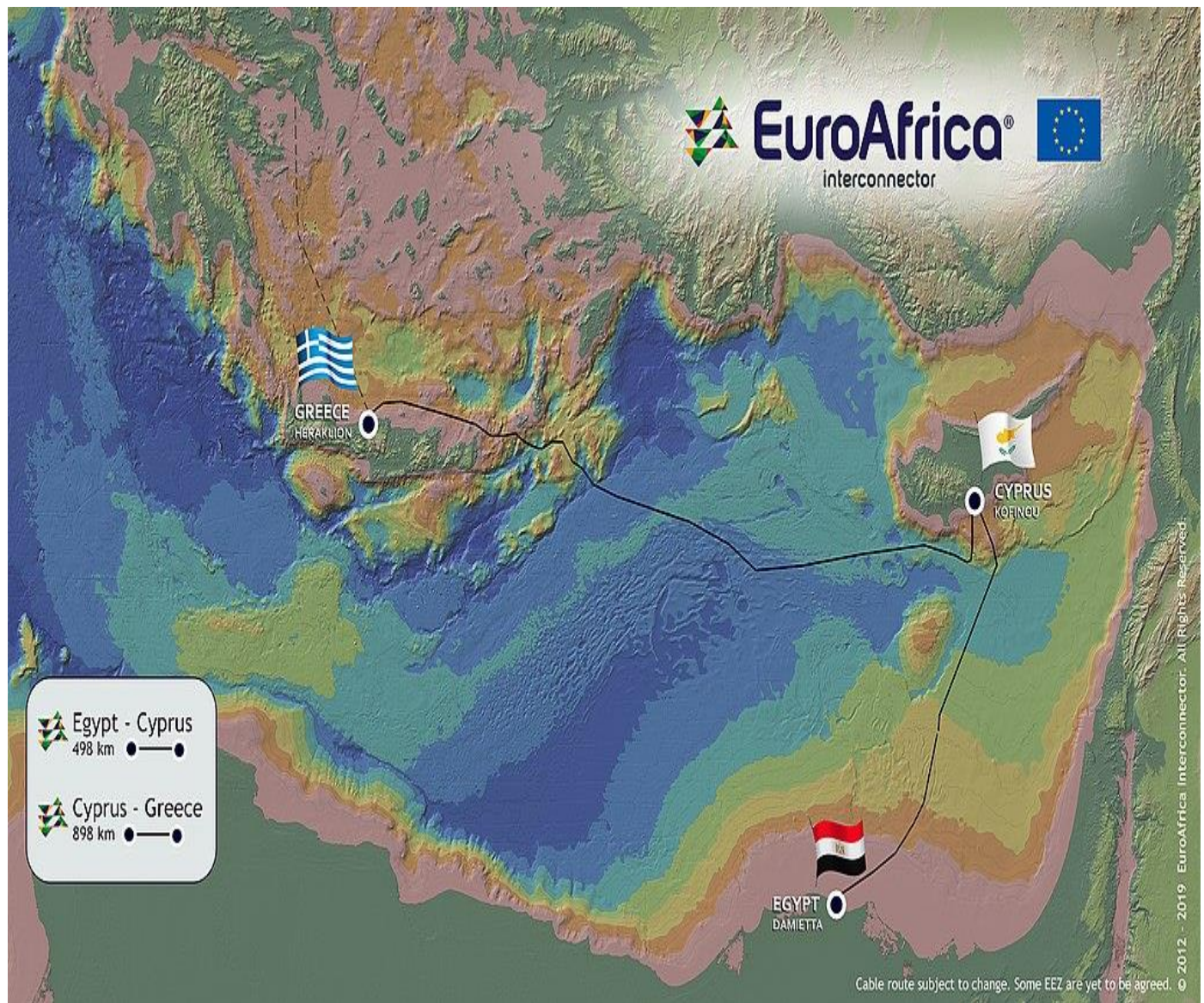
Regional opportunities

The EuroAsia Interconnector is devoted to secure a fair and sustainable development of local economies and their national interests. A megaproject that, connects two continents by transferring electricity, worries the EU about what China plans to do with a related project. Turkey also agonizes about an alliance that could be shaped against it. As for the geopolitical plot, the Chinese share in a Greek energy company is making European officials to wonder if China could use this

share as a Trojan horse that plans to dash into Europe's grid. Chinese investors have been intrigued to other projects. In December 2019, Cyprus and a Chinese consortium signed a 290m-euro contract for the construction of the island's first-ever LNG terminal, while in October this year, Chinese companies showed their interest in underground gas storage in Kavala, northern Greece.

The Atlantic Council Washington think tank estimates that China's energy investment in the Belt and Road initiative will increase to \$ 27 trillion by 2050-only \$ 7 trillion kept for power grids. According to the Turkish news agency Anadolu, Turkey has expressed strong objections, as it crosses "its territorial waters", then they refer to its "continental shelf", in an act of manipulation by their side to give any permission for surveys. For Cyprus, the EuroAsia Interconnector terminates the energy isolation of the island, ensures security of supply, and allows increased use of electricity from cleaner sources. Cyprus' recovery plan allocates 41% of its total devotion to measures that brace its climate targets.

### 5.3 EuroAfrica Interconnector



**Source: Wikipedia**

*The EuroAfrica Interconnector comprises the electricity interconnection between the grids of Egypt, Cyprus and Greece (Europe) through a subsea DC cable and with HVDC onshore converter stations at each connection point, with a total capacity of 2000MW. (EuroAfrica Interconnector Official Website,2021) <sup>(14)</sup>The project makes the bridge for two continents, Africa and Europe, with a total length of 1396 km.*

The construction of the project's cable will be divided into two phases (Cyprus-Egypt, Cyprus-Greece). According to the initial schedule, the Cyprus-Egypt section is expected to be operational



in December 2022 and the Cyprus-Crete section in December 2023. A goal that is considered too ambitious given that the EuroAsia Interconnector is expected to start operating in 2025. *All land used will be reinstated to at least its original condition and sub-sea routes are determined to avoid significant natural formations and geological obstacles.* (EuroAfrica Interconnector Official Website,2021) <sup>(14)</sup> The President of the Arab Republic of Egypt, the President of Cyprus and the Prime Minister of the Hellenic Republic declared a joint declaration at the 7th Trilateral Summit, happened in Cairo on October 8, 2019.

EuroAfrica Interconnector, like EuroAsia Interconnector, brings Cyprus' energy isolation to an end. It creates an electricity highway from Egypt to Cyprus to Greece (Europe) through which the European Union can be securely supplied with electricity generated from Cyprus and Egypt's gas reserves, as well as from available Renewable Energy Sources (RES), contributing to the completion of the European Internal Market at the same time. Furthermore, it protects third-country energy supply security and stimulates the development of renewable energy sources. Last but not least, it helps the nations involved in terms of socioeconomics and geopolitics.

#### 5.3.1 The tripartite EuroAfrica Interconnector

The project belongs as an idea and management to a separate company from EuroAsia Interconnector, headed, however, by the same people. The political support for the project by the three countries was expressed in October 2020, through the Tripartite Declaration issued by the Presidents of Cyprus and Egypt Nikos Anastasiadis and Abdel Al Sisi, respectively as well as the Prime Minister of Greece Kyriakos Mitsotakis. At the same time, as stated by the company, the three countries have signed a series of Intergovernmental Agreements (IGAs) in support of the EuroAfrica Interconnector, while the project has the approval of national energy regulators and other bodies.

Egypt through this project will be the producer of cheap renewable energy becoming a regional export hub. The exports from electricity could be profitable for Egypt. Almost 8.6% of the country's power derives from renewable energy sources and targets 20% by 2022 and more than doubling it by 2035. Egypt's capacity has been improved over the years due to three power plants built by Siemens AG, a \$ 4 billion solar park in the south, Benban and a wind farm.

#### 5.4 NordStream 1-2



**Source: Wikipedia**

The Nord Stream Pipeline, a natural gas pipeline that runs from Russia to Germany and is owned and controlled by Nord Stream AG, will transport gas over the Baltic Sea. There are two parallel lines in the project. The initial yearly capacity was 55 billion cubic meters, but following the construction of two more lines in 2019, it had quadrupled to 110 billion cubic meters. The pipelines have been opposed by the United States, as well as other Central and Eastern European nations, since they threaten Russia's dominance in the region.

The demand for imported gas increases in Europe as local gas supply has been depleted, a reality that Russia is well aware of. Because of Russia's weaponization of energy, Nord Stream 2 had thrown the US and Germany into a bilateral conflict. Russia was set on increasing European reliance on its hydrocarbons, but the European Union and the United States required a zero-sum relationship with them. The United States did not want the pipeline to be built because it was considered that it would jeopardize the bloc's energy security. Washington always wanted to supply Germany with LNG, especially from them. That's why, last year three Republican senators, Ted Cruz, Tom Cotton and Ron Johnson, sent a dissatisfaction letter to the Sassnitz port in the Baltic Sea, in order to make clear that the U.S. would impose sanctions on the port's implementation.

In 2021, the price of gas has skyrocketed, sweeping away any service or processing that uses it. Since the beginning of the year, almost simultaneously with the resumption of economies from the pandemic and the expected increase in demand, there have been significant technical problems in gas production and transportation infrastructure. In Europe, the Norwegian liquefied natural gas (LNG) station in Snøhvit has been closed for a year due to a fire. A fire also broke out at one of Gazprom's main LNG stations (in Novy Urengoy), further affecting Europe's shortage of gas supplies.

The Russian government had in mind to transport synthetic gas through controversial Nord Stream 2 offshore gas pipeline to Germany. Gazprom and ROSATOM-state-owned Russian energy companies- used to address by Russia's energy ministry to export large amounts of hydrogen by 2024. Gazprom stated that it may mix up to 20% hydrogen to gas flowing through older pipelines and may rise its share of up to 70% in newer ones. Nord Stream 2 is viewed as either a means of ensuring European energy security or a target for Russian hybrid warfare. This pipeline, which bypasses Ukraine, is seen as an attempt by Russia to erode Ukraine's strategic advantage as a transit nation. Three more nations' territorial seas and EEZs are crossed by the pipeline: Finland, Sweden, and Denmark.

The Biden administration in August, 2021 imposed economic sanctions on a Russian ship and two companies involved in the Nord Stream 2 gas pipeline. Biden has imposed sanctions to the pipeline, as it would bypass Ukraine, risking gas transit fees. In July 2021, the United States and Germany had made an agreement under which Berlin ought to impose fines/sanctions on Russia

if the second weaponizes of energy against Ukraine and other central European countries. Under this signed agreement, Germany would utilize "all available leverage" to expand by 10 years the Russia-Ukraine gas transit rapport that would last till 2024.

The last pipe was welded. The first gas delivery was expected in October. The approval of Nord Stream 2 would be possible only if the administrator was organized under a legal framework of German law. In November, though, the German energy regulator, announced the temporary suspension of the certification process of Nord Stream 2, the gas pipeline that connects Russia with Germany, citing a legal hurdle. The decision was likely to delay the service's long-awaited approval, as certification is one of the last steps before the pipeline becomes operational, allowing Russian gas to circulate on the European pipeline network. Following the announcement, the price of gas rose in the markets by 12%, at a time when Europe was already experiencing a price spike.

Nord Stream 2 is being criticized mainly in Eastern Europe for leaving Europe exposed to Russian, increasing its European energy dependence and sacrificing the interests of Ukraine, an ally of the West and a transit country for Russian gas. In Kiev, the head of the Ukrainian energy company Naftogaz welcomed the decision of the German regulator to suspend the evaluation process of Nord Stream 2. Germany, the largest consumer of Russian gas in Europe, is seeking to send a clear message of energy change. German Chancellor, Olaf Solz, has announced that he is slowing down the certification process for the work of the Russian Nord Stream 2 gas pipeline, due to Russian invasion of Ukraine!

In the last few months, as the price crisis has escalated, the flow of Russian gas through the pipelines has covered only 17% of the needs. It is no coincidence at all, that just a few days ago, German Foreign Minister Alena Baerbock announced the appointment of Greenpeace chief Jennifer Morgan as the new state secretary for climate policy. Germany's shift in the promotion of clean energy is clear/strategic move. It is also reflected by the relevant numbers. From the beginning of 2022 until today, 38% of electricity in Germany came from wind energy. And in total, throughout 2021, over 45% of electricity came from renewable sources. The result was that Germany had one of the lowest electricity prices in Europe throughout the crisis.

## 5.5 Southern Gas Corridor-TAP Pipeline



**Source: EURACTIV.com**

The Southern Gas Corridor (SGC), will deliver natural gas from Azerbaijan to Europe through connected pipelines, and is considered as a significant step in order to engage the European energy security. This route consists of the South Caucasus Pipeline, the Trans-Anatolian Pipeline, and the Trans-Adriatic Pipeline. *“This system of mega-pipelines meant to bring gas from Azerbaijan to Europe, is unnecessary for Europe’s declining gas demand. But the billions in public investments*

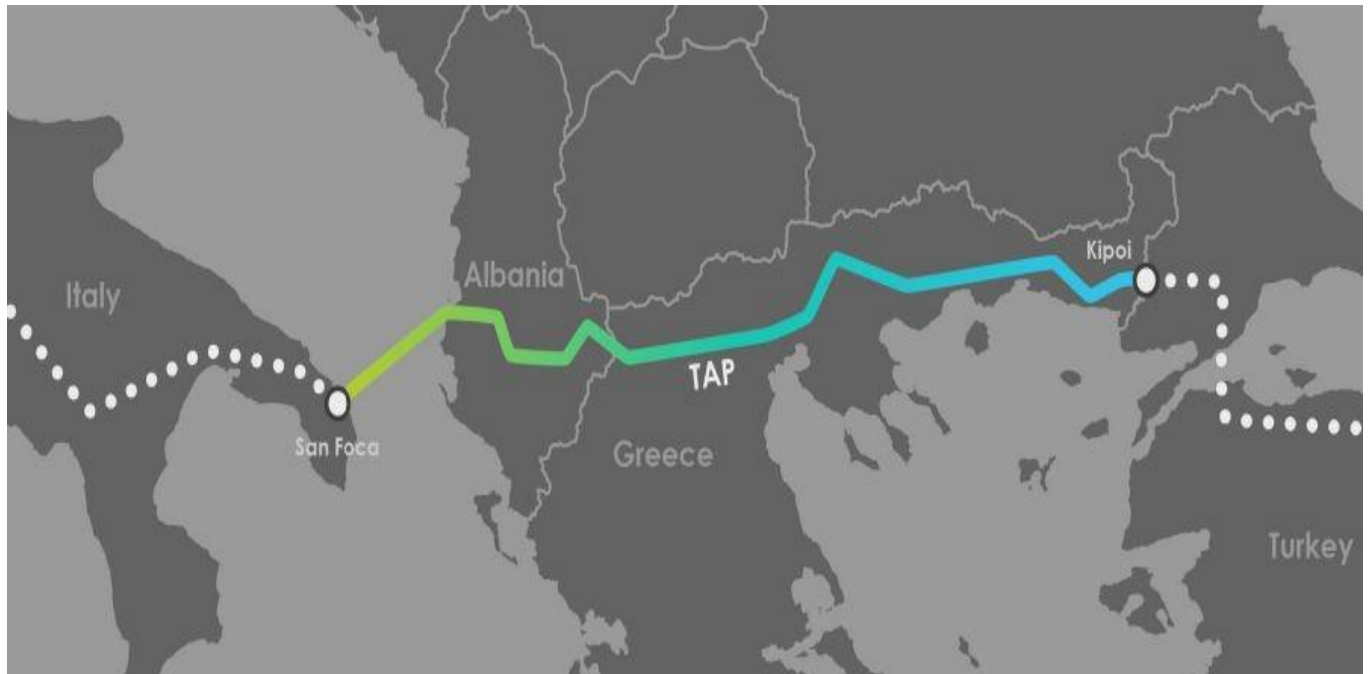
*will boost Azerbaijan's dictatorial regime and cause upheaval for transit communities in Turkey, Greece, Albania and Italy.” (CEE-BANKWATCH NETWORK,2021) <sup>(15)</sup>*

TAP had recommended three alternatives for expansion: 4.4 bcma, 7.1 bcma, and 10 bcma until at least 2026. TAP faces harsh doubts about its operation, that's why took the decision to survey a mix of hydrogen with natural gas. The thoughts of the TAP expansion should not be considered as something new, but as something complex as it is not understandable where any extra gas would come from (Azerbaijan or Central Asia?). Azerbaijani production increases, although its domestic demand grows as well, while the scenario of Central Asian gas transferring by the SGC via a Trans-Caspian Pipeline has neglected, as does the alternative of gas from northern Iraq or Iran, for political-mainly- reason.

TCP has the same problem, due to the East Med pipeline. SCG could be the way out of the Russian gas. But it faces problems compared to the Turkstream pipeline, that can transfer 31 bcma of gas. The SGC has also been the intermediate in prompting complementary projects, like IGB, and Greek LNG terminals to Bulgaria. Natural gas from the Southern Corridor through TAP may help the gasification of small countries like Albania, that lagged behind gas network. Shareholder companies are the British BP, Azerbaijani SOCAR and Russian Lukoil.

#### 5.5.1 TAP

The Trans-Adriatic Natural Gas Pipeline (TAP) starts from Kipi on the Greek-Turkish border, where it is connected to the Anatolian Natural Gas Pipeline (TANAP). It crosses Northern Greece, heading west to Ieropigi, Kastoria and the Greek-Albanian border. Passing through Albania and the Adriatic Sea, the pipeline goes ashore in southern Italy, where it is connected to the Italian natural gas distribution network. The TAP route can facilitate gas supplies to several countries in Southeastern Europe, and the pipeline landing off the coast of Italy provides multiple opportunities for further Caspian gas transportation to wider European markets.



**Source: [tap-ag.gr](http://tap-ag.gr)**

#### 5.5.2 Strategic collaborations

Operation of a pipeline of this size requires significant resources, state-of-the-art know-how, compliance with the highest standards of environmental protection and safety, stable financing and strong collaborations. TAP has developed stable strategic partnerships with the European Union, the three pipeline host countries, and neighboring gas transmission systems operating in those countries. The European Union recognizes the crucial role of TAP in achieving the urgent goal of enhancing Europe's energy security and diversifying its energy supply. TAP has been recognized four times as a "Project of Common Interest" (PCI). In the future, TAP will facilitate interconnection with other gas transmission infrastructure in South East Europe and beyond.

#### 5.6 Conclusion

Greece is on the doorway of an opportunity that could lead the country to become the geopolitical supervisor of the emerging East Africa-Europe and Middle East-Europe trade corridors for the European Union. Definitely, the fight for the Middle East and North Africa region continues after the withdrawal of US forces from Syria in 2016. This vacuum has created new opportunities for all states involved in the region, especially Greece.

Since 2014, Greek-Egyptian relations have become increasingly close. Both are at the forefront of trade and strategic cooperation, through joint talks with the Arab world, building forums and conducting joint military exercises. Turkish expansionism has created a new geopolitical link between Greece and Egypt, two countries that already have a trade history, and could be the decisive link for wider trans-European cooperation. The relationship between Athens and Cairo can be found in an emerging Euro-African trade corridor that crosses the Eastern Mediterranean.

The Greece-Egypt relationship, as it is obvious, is turning around into a more meaningful importance of the joint development of an eastern hub for the interconnectedness between Europe, Africa and the Middle East. At the same time, stronger and stronger trade coordination with Egypt is crucial for the Greek economy, reflecting Greece's extroverted orientation and its pursuit of attracting foreign investment. Greece's connection with Israel meaning the deepening relations with the Middle East at the same time strengthening ties with the Arab world, and especially with the United Arab Emirates (UAE) and Saudi Arabia. Through these relations, Greece is becoming a European player for the continuation of trade activity from the Eastern Mediterranean to the Red Sea in the Arab Gulf states. Greece's growing green energy and innovation economy offers many promising avenues for the commitment of Egypt, Israel, the United Arab Emirates (UAE) and Saudi Arabia to consortia that will turn Greece into a pioneering mediator. After all, according to the Bloomberg Innovation Index for 2021, Greece is ranked as the 30th most innovative economy, surpassing the UAE and Saudi Arabia.

Greece is transforming to a significant power player in the region. That's why it could elaborate more relations with other countries, as well. For example, although, France recognizes Greece as a geopolitical partner, there is room for closer cooperation. Italy's economic relationship with Greece, is although strong, but lasts enigmatic, as Rome's approach to interconnectedness has concentrated mainly on Greece's role as a dependent transit country. A Greek-Italian partnership would therefore be crucial, provided that Rome is willing to treat Athens at a higher exchange rate. It would, therefore, better serve the European Union, as well as -individually- its member states to approach Greece at a higher exchange rate, utilizing its inter-Mediterranean connectivity, in a mutually beneficial context.



## 5.7 Economic Linkages across the Mediterranean: Energy

The Mediterranean inaugurates a crucial energy market on its own. Even if the region consumes more than 9% of the world's power, production declines. Net electricity exporters include France, Spain, Turkey, and Egypt, whereas net importers include Italy and Croatia.

Syria was a modest supplier to the European Union in 2010, supplying 1.35 percent of the EU's petroleum. Syria's oil exports were split between Germany, Italy, France, and Spain, with 32 percent, 31 percent, 11 percent, and 5 percent going to each. Before the 2011 civil war, Libya, which has the world's biggest crude oil reserves and is a member of the Organization of Petroleum Exporting Countries (OPEC), supplied 10% of total EU oil imports, but this had dropped to 6.1 percent by 2018. The Greenstream pipeline and LNG installations, which were damaged during the civil war, were the main importers of Libyan oil and even gas exports. Due to political unrest, production continues to be hampered.

Egypt's oil reserves rated at 3.3 billion barrels, natural gas at 77.2 trillion cubic feet (tcf); hydrocarbon production counted for 13.6% of the country's GDP in 2018. *“Substantial revenues also originate from the Suez Canal and the Suez-Mediterranean (SUMED) Pipeline operation, shipping oil and liquefied natural gas (LNG) from North Africa through the Mediterranean to Asia.”* However, Egypt has changed since the mid-2000s, from a key producer and exporter of oil and natural gas to a net oil and gas importer, due to the fall of demand to its domestic supplies. Due to the Arab Spring, Egypt accepted natural gas shortages, a consequence of a decreased domestic production and an increased demand. When the prices of commodities resumed to raise, wages have stopped to keep up. This situation changed in 2015, when Eni came across with the Zohr gas field in the Mediterranean Sea within Egypt's EEZ. This natural gas field helped Egypt to diminish its imports and for the first time could present a significant export opportunity for Cairo. Access to natural gas fields is the coveted ticket to greater impact and to economic independence.

Egypt owns two liquefaction facilities -only one is operated- which transform natural gas into liquefied natural gas (LNG); smoother for shipping. Egypt's position can make the state behave as an exporter and re-exporter of LNG. The advantages for reexport contain a Cyprus-Egypt pipeline, where Cyprus would send/export gas from the Aphrodite gas field to Egypt for liquefaction and Egypt would then resend/reexport LNG to the European market. Turkey, stands TRNC's ground

insisting that revenue from Aphrodite must be divided. For Egypt, these export opportunities could transform the country into a regional power. Egypt stands with eastern Mediterranean initiatives - the East Mediterranean Gas Forum (EMGF).

Israel and Lebanon are net importers of energy. Export agreements have been struck with nations like as Egypt, Greece, and Cyprus as a result of the Leviathan field discovery. Fuel imports account for around 95 percent of Lebanon's entire energy supply. Due to security concerns in the region, the initiative to use the Arab Gas Pipeline to carry natural gas from Egypt to Jordan and Syria has been halted. Lebanon's Mediterranean ports handle the majority of the country's energy imports. Turkey's "power ships" provide electricity to the country, which is heavily reliant on energy imports. Furthermore, it has gotten electricity from either Syria or Egypt.

Israel desires to be a major energy exporter in the eastern Mediterranean. The Leviathan gas field, and the Tamar gas field are the focal points in order the country pursuits that goal. For the very first time, natural gas from the Leviathan field was exported to Egypt and Jordan in 2020. More important for Israel is the projected EastMed pipeline, which would transport Israeli and Cypriot gas to Greece and then on to Europe. The pipeline must collect the permissions coming from the countries whose EEZs it goes across. That means if Turkey does not give its permission, then every and each effort will be blocked.

Turkey, in fact, compared to its neighbors, is gas-poor state. Historically, it had relied on imports, -from Russia, Azerbaijan and Iran. Today, Turkey desires to become a regional gas trade hub.

The internationally recognized GNA and the Libyan National Army are actively fighting for control of Libya (LNA). The LNA advertises itself as anti-Islamist and is funded by Egypt, the United Arab Emirates, and Russia through the Wagner Group, a paramilitary group, as well as France, which provides more covert support. Turkey is assisting the GNA, which was formerly sponsored by Italy and the United States. Turkey provided guns and personnel to the GNA in January 2020. This movement was instrumental in thwarting Haftar's attempt to seize control of Tripoli. The GNA had inked an EEZ agreement with Turkey two months prior. Meanwhile, in August 2020, Greece and Egypt reached their own agreement.

## 6 Global Powers

### 6.1 Russia



**Source: Wikimedia Commons**

The Nord Stream 1-2, the TurkStream 1-2 pipelines are a proof that Russia weaponizes its energy reserves in order to exert pressure to the Mediterranean region. It is worth mentioning, that a pipeline works like a bond that it is so difficult to be broken, that's why countries like the US strongly disagree with any attempt by Russia to "invade" indirectly to the European region. NordStream2 pipeline is incompatible with European climate goals while it increases the region's dependence on Russian energy exports.

There are not only these pipelines but also previously was the South Stream; a planned natural gas pipeline that would go through the Black Sea and connect Hungary, Italy, and Austria. The project was meant to compete with the Nabucco pipeline and was intended to partially replace the planned

Blue Stream extension from Turkey to Hungary and Austria via Bulgaria and Serbia. The project was scheduled to be completed in 2015. Owing to the Trans-Adriatic Pipeline's supremacy, the Shah Deniz field in Azerbaijan, Nabucco, and ITGI were gradually phased out due to economic and political issues connected to the management of the gas supply field. Following conflicts between Ukraine and the Russian gas corporation Gazprom in 2006, the South Stream pipeline project was examined; with Gazprom examining means of crossing and creating pipeline networks that would not penetrate the interior of Ukraine. The project was dubbed "one of the largest technological energy initiatives in history." Russia, on the other hand, was unable to continue it in 2013. However, an alternate route has been discovered: Turkey, which is the only country that is not directly influenced by European policies. The Turk Stream project likewise bypasses Ukraine and send gas to southern Europe via Turkey. The Turk Stream pipeline represents a reconnection of Russia-Turkey ties, with the ultimate objective of leading to the EU's re-dependence.

A gas pipeline delivering natural gas from Russia to Turkey through land and the Black Sea is referred to as the Blue Stream pipeline project (to diversify Russian gas routes). Blue Stream Pipeline BV, a joint venture between Gazprom of Russia and Eni of Italy, owns and operates the pipeline. The segment of the pipeline that runs through Russian territory is owned by Gazprom, while the section that runs through Turkish territory is owned by BOTAS. Construction on the pipeline began in 2001-02 and was completed in November 2005, with a further expansion planned. The onshore part of the Blue Stream began construction in September 2001 and was finished in May 2002; the stretch is 396 kilometers long. The construction cost was \$3.4 billion. By 2010, the capacity has grown to 16 billion cubic meters of gas per year. It was transporting 62 billion cubic meters of gas by August 2011.

#### 6.1.1 Yamal Peninsula

The Yamal Peninsula's new gas production center is critical to the development of Russia's gas sector in the twenty-first century. Gazprom wants to continue producing in Yamal for more than a century. Total reserves and resources in the Yamal Peninsula and Yamal shelf of the Kara Sea for all Gazprom Group fields: 20.4 trillion cubic meters of gas and 1 billion tons of gas condensate and oil. The Bovanenkovskoye and Kharasaveyskoye fields, which are unique in terms of reserves and will offer gas to consumers for more than 100 years, are part of the Yamal gas production center. Yamal's production: 99.25 billion cubic meters of gas in 2020.



**Source: Gazprom**



**Source: Gazprom**

On January 1<sup>st</sup>, the flows through the Yamal-Europe pipeline remained reversed for a 12th day and increased, although calls for westbound deliveries suggested the unusual reversal would be ending shortly. Gas was flowing east from Germany into Poland at a high pace, with data at the Mallnow metering station on the border showing an hourly volume of more than 5.2 million kilowatt hours (kWh/h), up from roughly 1.2 million kWh/h the day before. In a recent auction, Gazprom secured 8.3 million kWh/h of gas transit capacity over the pipeline for January. The reversal of flows, which began on December 21, 2021, pushed European gas prices to new highs. According to experts and industry insiders, high spot prices and traders using up their yearly amounts of

contractual gas from Gazprom early encouraged sellers in Germany, for example, to access storage to sell to purchasers in Poland, resulting in an unusual reversal of flows.

#### 6.1.2 Relations between Russia-Ukraine

Ukraine, depended/still does on Russian hydrocarbons. When Russia stopped the flow of natural gas, the country faced so many challenges. In recent years, Moscow has been looking ways to bypass Ukraine, that's why Ukraine is looking for alternative sources.

In 2019, both countries signed an agreement in order to resume the transport of Russian gas to Europe without bypassing Ukraine for a period of 5 years. The agreement was made between Gazprom and Naftogaz while came into effect on January 1, changing the one that was previously signed by the two energy giants and ending on December 31. Gazprom, would transfer 225 billion cubic meters of fuel through Ukraine over the next five years. The agreement ensured energy security for both Ukrainians and Europeans-Russia being the main supplier.

Naftogaz had revealed its strategy to 2025, pointing out the urgency to succeed carbon neutrality as one of its three long-term objectives. This sight aligned/lined up with the EU's green targets. Ukraine used to have as key priority to preserve its role as a key transit route for Russian gas. *“Ukraine fought against all odds to secure the renewal of a long-term contract when the previous ten-year deal expired in 2019, and has worked more than many EU members to adopt and implement European legislation.”*(Atlantic Council,2021) <sup>(17)</sup>

Even as Ukraine fought to maintain its transit role in the near term, it used to recognize that the global energy environment was and still is changing at an unprecedented rate, with new technologies substituting fossil fuels such as coal, natural gas, and oil in the long run. Natural gas will continue to be a transit fuel, particularly in Eastern Europe, where countries rely on coal or lignite for around 40% of their energy output.

Ukraine was considering expanding its natural gas exploration and production with the goal of converting a portion of it into hydrogen using Steam Methane Reformation technology (SMR). To ensure that the end product was non-polluting, SMR necessitates the establishment of Carbon Capture and Storage (CCS) facilities. Ukraine could become an important exporter to the European Union if it created a large-scale hydrogen economy. By 2030, Ukraine could develop 10 GW of electrolyzed capacity, or one-eighth of the capacity required by the EU to reduce greenhouse gas

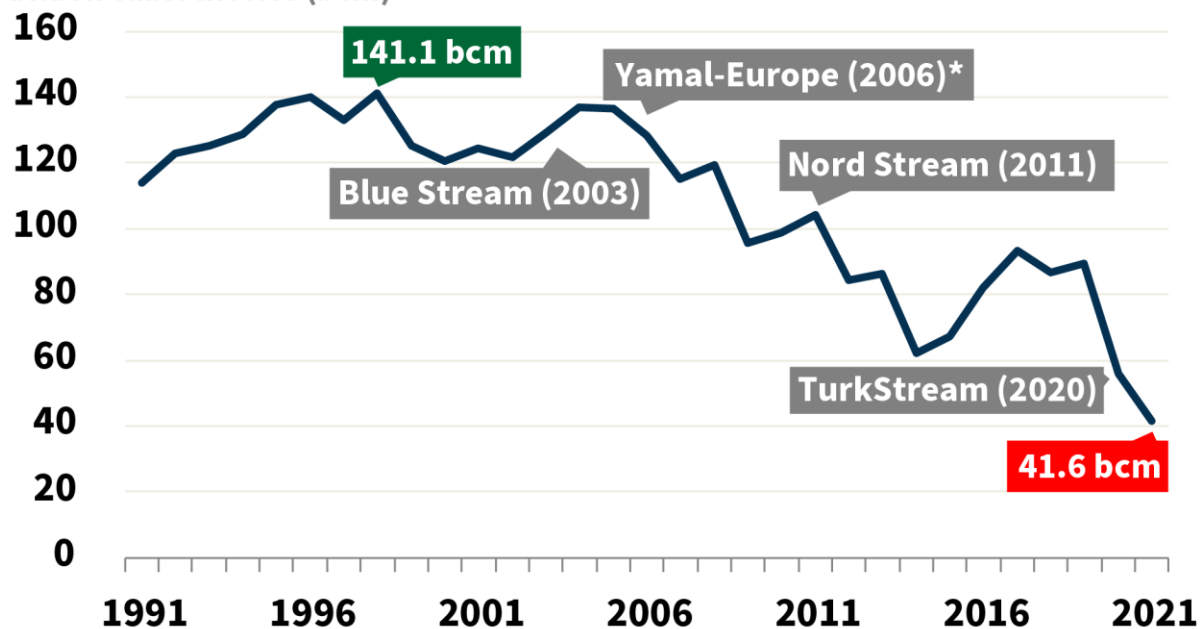
emissions by 55% from 1990 levels. Ukraine would only need to alter its transmission and distribution infrastructures in order to prosper and satisfy the Green Deal's demands. The main issue/challenge was that Ukraine's infrastructure was so old that it had to be upgraded, causing delays in the project's completion.

*As GTSO is looking to decommission parts of the transmission system, which is no longer used at its full capacity of 140 billion cubic metres annually, parts of the system could be reassembled into dedicated test sites. Such a site using decommissioned parts has already been recreated in the north of England, where the transmission system operator National Grid has been working to test technical parameters and understand potential safety risks as well as demonstrate that hydrogen can be securely transported using existing infrastructure. National Grid's experience could help inform Ukraine's own research. (Atlantic Council,2021)<sup>(17)</sup>Hydrogen could be one of the technologies Ukraine could use to decarbonize industry, while electrification could be another, although a more expensive choice.*

Blinken once said that "once Russians are in your house, sometimes it is very difficult to get them to leave." Ukraine used to be a crucial link in the European energy network, but that role has waned. Most of the gas that Russia exported to Europe in the 1990s went through Ukraine. However, Russia has since diversified routes. The Yamal-Europe pipeline, which passes through Poland and Belarus, began to be built in 1994. It was fully operational in 2006. Russia completed a pipeline (Blue Stream) to Turkey in 2003, another (Nord Stream) to Germany in 2011, and a third (TurkStream) to Turkey in 2020. In 2021, Ukrainian transit will be 70% lower than it was in 1998, when it was over 140 billion cubic meters (bcm) thanks to a multi-decade Russian initiative.

# Natural Gas Transit through Ukraine

billion cubic meters (bcm)



Source: Data for 1991 to 2020 comes from Naftogaz of Ukraine. For 2021, see "Transparency platform," Gas Transmission System Operator of Ukraine, <https://tsoua.com/en/transparency/test-transparency-platform/>.

\* For the Yamal-Europe pipeline, the date refers to the year it reached its design capacity. For the other pipelines, the date refers to the launch year.

CSIS

ENERGY SECURITY AND  
CLIMATE CHANGE PROGRAM

Why does Russia want to start this conflict now? Does the Nordstream 2 pipeline play a role or/and the rise in energy prices; The facts answer in an extent these thoughts. Some brief thoughts-questions, about the situation in Ukraine.

1. Did the West believe that Russia would not react when it saw Ukraine attempting to join NATO, a country that belonged to the 'hard core' of the former USSR, which was and still is largely its granary today? The warehouse of its nuclear arsenal and its exit to the sea? And would Russia agree to lose control of Ukraine "because that is what Kyiv wants"?
2. Did the West have the naivety that there are no limits to its sphere of influence? Did the West have the impression that it could spread further east into perpetuation?
3. How disoriented is someone or a bunch of people, who choose to be ruled by a former TV performer? How was such an important country allowed to experience such a lack of people who make up its political scene?



4. What would keep President Putin from getting us where we are? An EU that depends on Russian energy and at the same time seems reluctant to invest in its energy future (albeit at great economic cost) offered by the deposits of the Eastern Mediterranean? An EU that may be tired of looking for alternatives? Or would Russia be held back by NATO?

Russia has not cut off natural gas to Europe, not during the invasion, and certainly not in reaction to Western sanctions. Russia has threatened to stop delivering gas to Europe; while the possibility has increased. Despite this, Russia's gas exports have increased since the conflict began. What is the most effective method to express this paradox? Perhaps Russia is desperate for money. But, assuming this is true, under what circumstances would Russia shut off gas supply? Perhaps Russia feels that by continuing to sell gas, it will have leverage that it can use later. If Russia reduced exports to trigger a crisis and mute Europe's response to an invasion, why send more gas now? Why not force an even bigger crisis?

One conclusion from the crisis is that countries, at least, are willing to continue trade despite the conflict. Europe has never reacted so forcefully to an external danger. One unexpected development has been the response of private actors. Companies have cut relations with Russia, stating plans to depart and refuse to purchase Russian energy. Normally, governments impose trade restrictions; but, in this war, businesses have gone above and beyond what governments have requested. This "self-sanctioning" is an unanticipated aspect of energy weaponization. Public opinion and other stakeholders, not governments, are the driving forces behind it. This public pressure makes government policy more difficult. Western governments have tried to insulate energy from sanctions. European politicians are under pressure from calls for a swift rupture with Russia. Who'd have guessed that Europe, rather than Russia, would be the one to turn the taps off?

This is uncharted territory: it is one thing to import energy from an adversary, another to buy it from an enemy. The relationship between export revenues and the conflict is complicated. There is no doubt that oil and gas export revenues have bolstered Russia's economy and allowed it to invest in the armed forces currently fighting in Ukraine. Similarly, there is little question that Western sanctions have had a significant impact on the Russian economy, imposing costs that are larger than those envisaged by Russia's government. But how exactly sanctions on energy will help win the war is less clear. They do, in fact, "punish Russia." But for what purpose? A weapon

is most effective when it is targeted at a specific target; yet, it is unclear what the Western weaponization of energy exports is meant to accomplish exactly.

Russia demands to be paid in rubles. Four European buyers of gas have already paid Russia in rubles and ten have already opened up an account with lender Gazprombank, part of Russia's state-owned energy giant, and settle all bills in rubles. The "war" of gas is in full swing. Moscow carried out the threats as Russian energy giant Gazprom suspended gas supplies to Bulgaria and Poland because they did not pay in rubles. The Russian company had announced its intentions on April 26 while for several days now Russian President Vladimir Putin has called on "unfriendly" countries to pay for gas imports in rubles. Gazprom has claimed that it will continue to supply gas to Europe via Ukraine, but it remains unclear how much longer as most EU countries oppose ruble payments.

Worth mentioning that the Turk Stream pipeline is in fact the only one that flows natural gas to "friendly"/pro-Russian countries, like Serbia and Hungary; that's why Russia handles this cross-border interconnection more carefully.

### 6.1.3 Record high gas prices

European gas market prices have increased more than 116% since the start of the year (2021), with the ICIS TTF benchmark closing at an all-time high of 47.86 euros (\$56.17) per megawatt-hour on Aug. 16. Due to this unexpected situation, Europe faces incredibly low natural gas storage levels and resiles Asian and South American LNG demand.

*"The current drop in gas deliveries and increase withdrawals from storage, which is elevating gas prices across Europe and benefitting Moscow, is firstly a commercial tactic to help Russia at a time when gas demand around the globe is high,"* said Kristine Berzina, a senior fellow at the Alliance for Securing Democracy, a national security advocacy group. *"But it also shows Europe just how dependent it is on Russia for its gas."* The question is if this slow rise in gas prices with a geopolitical underpinning will be considered a 'weapon' or the dramatic cutoffs be considered a 'weapon'?

### 6.1.4 Russia's Climate Policy Evolution

Mikhail Budyko, a Soviet climatologist, proposed a global warming theory in the 1970s, claiming that any fluctuations in carbon dioxide levels caused by natural geological processes are due to human activity, and that an increase in air temperature would occur within 100 years, melting the Arctic Ocean's ice cover as early as 2050. At the time, Budyko was seen to be provocative. Nonetheless, his work drew the attention of scientists and politicians alike. By the late 1980s, most climatologists concluded that human activities are to blame for global warming, prompting the United Nations Framework Convention on Climate Change to be adopted in 1992. So, actually, the Soviet Union was the leading and first climate voice back in 80s, but 50 years later Russia is not present to the international climate leadership. Russia may sign all UN climate treaties, although possesses one of the worst climate change mitigations plans worldwide.

The fossil fuel lobby has been in charge of new legislation proposals based on carbon emission restrictions. The Ministry of Economic Development's 2050 strategy plan for low-carbon development was shelved, leaving only an increase in carbon emission objectives of 28-52 percent in 2030 and up to 80 percent in 2050, relative to present levels. A carbon regulation law was originally intended to be "regulatory," but it was later converted to a voluntary emissions reporting statute. Any opposing viewpoints have received no attention or consideration.

West is changing, due to the EU Green Deal and its adjustment carbon tax. *At present, the carbon footprint of Russian exports to the European Union is well above 1 billion tons of carbon dioxide per year. If the border adjustment tax rate is designed to correspond to the current price of EU carbon allowances (41 euros per ton of CO<sub>2</sub>), Russian exporters would stand to lose \$45 billion per year, or over 10 percent of total national export revenues. (CSIS,2021)*<sup>(18)</sup>

Even China adopted a zero-carbon plan by 2060 goal. *The share of these Asian partners in total Russian export revenues is about 20 percent, and the carbon footprint is over 350 million tons of carbon dioxide per year. (CSIS,2021)*<sup>(18)</sup> The role of natural gas in the energy sector will be short-lived.

#### 6.1.5 How could Russia place itself in a decarbonizing world?

Well, Russia has the largest store of solar, wind, geothermal, and biofuels in the world. *By some estimates, the total "technologically available" potential of Russia's renewal energy sources (RES) is 25 times higher than all primary energy produced in the country annually. (CSIS,2021)*

<sup>(18)</sup>The green power generation cost has decreased in recent decades, making solar and wind energy

even cheaper than coal and gas worldwide. Although, Russia's RES is under 1% in the national energy mix, while any attempt to raise this rate up to 2.5% by 2020 broke down due to: *a) a lack political will; b) insufficient incentives for "green" energy investors; c) extremely limited state support; d) excessive regulatory burdens (e.g., a separate road must be constructed for turbine installation); e) hidden corruption; f) and subsidies in favor of fossil fuel suppliers.* (CSIS,2021)

<sup>(18)</sup>Significant projects in the solar and wind energy sectors were launched after the government acquired installed capacity, helping to boost overall RES capacity by 1.1 gigawatts (GW) between 2014 and 2019. The government intends to increase this capacity to 5.9 GW by 2024. (58 percent wind, 38 percent of solar, and 4 percent small hydro).

A growing demand of "green" hydrogen, based on zero-carbon electrolysis, can be found in EU countries, Asia, and North America. Russia has infrastructures and knowledge for promoting hydrogen production, and the existing gas pipeline network to transfer it to global markets. The main provocation is to convey this hydrogen based on RES ("green"), not on fossil fuels ("turquoise" or "blue"). Second generation biofuels come from organics are in high demand in global markets. Russia possesses a huge amount of biomass, -wood waste, low-grade wood, and agricultural residues. Even the technologies and techniques to transform these into energy are available. Although, in Russia there is neither policy support nor financial incentives to evolve these techniques. Worth mentioning, the catalytic pressure that the fossil fuel sector and the lobbyists exercise.

#### 6.1.6 Russia-China Relations

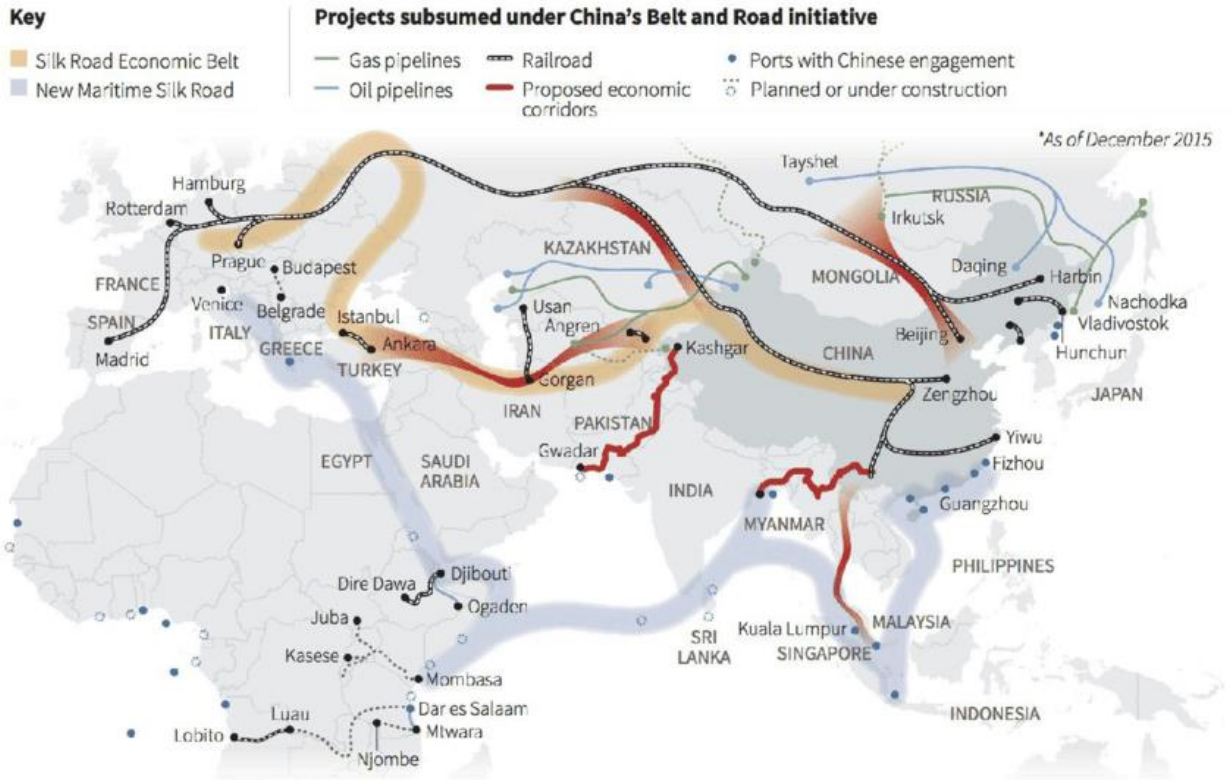
The Power of Siberia project is a Gas Transmission System (GTS) and it is considered as a tremendous project; a 4,000km-long pipeline aims to transport natural gas from Yakutia -1.2 trillion cubic meters of gas reserves- and Irkutsk - 1.5 trillion cubic meters of gas reserves gas production centers in Eastern Russia to China. Russian Gazprom develops the project that its estimated cost is at around \$ 55 billion. The pipeline, that was first launched in 2014, shows a strategic bond between the two states against the US domination. Russia could benefit from the Power Siberia project as it would gain a new source of revenue without the European "contribution". On the other hand, China would gain a new source of energy away from the US need. Both countries could ensure that it would be protected from any future accident or/and disruption concerning other critical markets and suppliers. Although, the truth is that China could diminish in a great extent the volume of liquefied natural gas (LNG) imported by United States by

using the Russian cheaper natural gas in order to meet its domestic production needs. This relationship will end up making Russia into China's most significant supplier, overshadowing Turkmenistan and Australia.

## 6.2 China

### Reviving the Silk Road

Announced by Chinese President Xi Jinping in 2013, the Silk Road initiative, also known as China's Belt and Road initiative, aims to invest in infrastructure projects including railways and power grids in central, west and southern Asia, as well as Africa and Europe.



**Source: ResearchGate**

China's source of energy is coal- 4 million tons. Due to this, it is the largest producer and consumer of coal in the world. Why China chooses this fuel? Because it is cheap and it is quite easy to get produced. Although, Chinese needs call for oil and hydroelectric resources. China, due to its large rivers, is the first country in the world to produce hydroelectric power. The industrial sector and households utilize natural gas to generate electricity, while nuclear energy is also important but not so rife.

Since BRI policy in 2013, the country has invested billions of dollars abroad. The two main policymakers are the China Development Bank and the Export-Import Bank of China (EXIM Bank) which have lent \$ 282 billion to regions in Asia, Africa, Latin America and Europe -so much so that the equity in 2020 deficit - for the first time.

### 6.2.1 Rare Earths-Raw Materials

China's attempt to 'lock up' resources in Africa, according to 2010 research commissioned by the Peterson Institute of International Economics, was not anti-competitive, with the exception of its attempts to exert control over rare earth elements. The worldwide supply chain for minerals has been severely strained by China's need for minerals. Data from the US Geological Survey further reveals that China is responsible for more than 90% of global rare earth output over the last decade, and that China's limits on the supply of rare earth metals, which began in 2010, have prompted initiatives to search for these metals outside of China.

Rare earth minerals are essential for the development of electric vehicles, manned and unmanned aircraft, guided missile batteries, and lightweight materials for jet engines and rocket noses. Due to a lack of local supplies, the US must rely on Chinese sources of rare earths to manufacture 'Made in America' military equipment. It makes no sense to entrust vital military supplies to a security rival.

Rare earths aren't the only metals with strategic value. For industrial uses, lithium, chromium, cobalt, graphite, copper, and manganese are also required. Apart from iron ore, manganese is the most important mineral in the making of steel. However, the majority of electrolytic manganese in the United States originates from China. This is unmistakably a supply chain flaw.

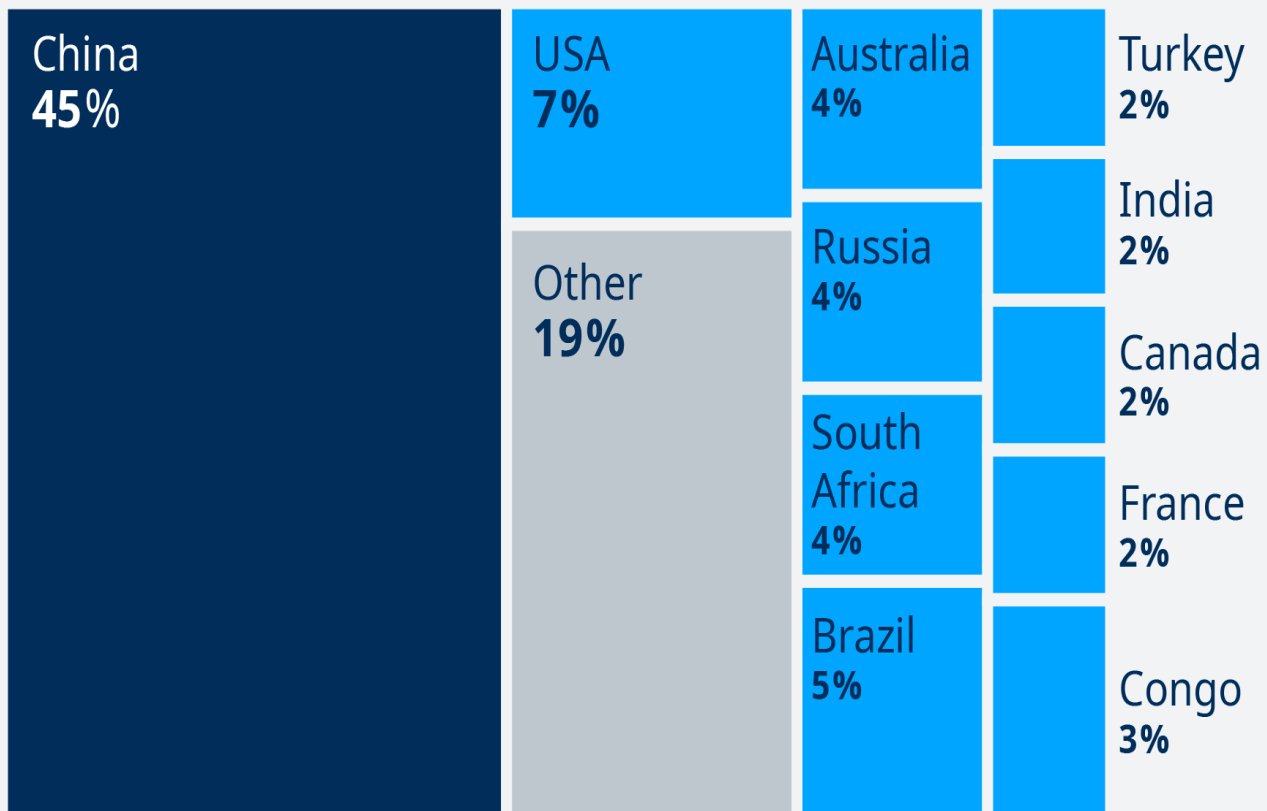
China is the world's top mineral producer, but its high 'burn rate,' or reserves-to-production ratio, has alarmed Chinese officials, raising worries of future supply shortages in all minerals. As a result, China has implemented a strategy known as "Two Resources, Two Markets," which encourages private companies to actively pursue mining transactions all over the world.

In 2012, the United States, among other nations, filed a WTO complaint alleging that China had breached WTO rules by unfairly influencing the rare earths market to distort global market pricing. The complainants claimed that China was hoarding rare earths on purpose to raise global prices while lowering domestic prices. These measures distorted and hampered competitive free trade, that China had an unfair trade advantage, and were used to pressure international companies to move their operations to China through export restrictions. China responded by claiming that their actions were essential to address a significant scarcity of products.

What is more, China boosted the number of mining and mineral processing assets in Africa in which it has a stake from a few to more than 120 in 2015 after adopting the strategy in 2006. Early exploratory and greenfield projects were not included in those assets. Direct and indirect investments, as well as joint ventures and other arrangements, are all on the table.



# China dominates the critical raw materials market



*Suppliers' market share of critical raw materials*



Source: EU Commission | Methodology: [github.com/dw-data/crm](https://github.com/dw-data/crm)

Producers and buyers are both at risk. China's hegemony isn't the only factor to consider when it comes to future supply. Many resources are mined in Asia and Africa, where civil upheaval,

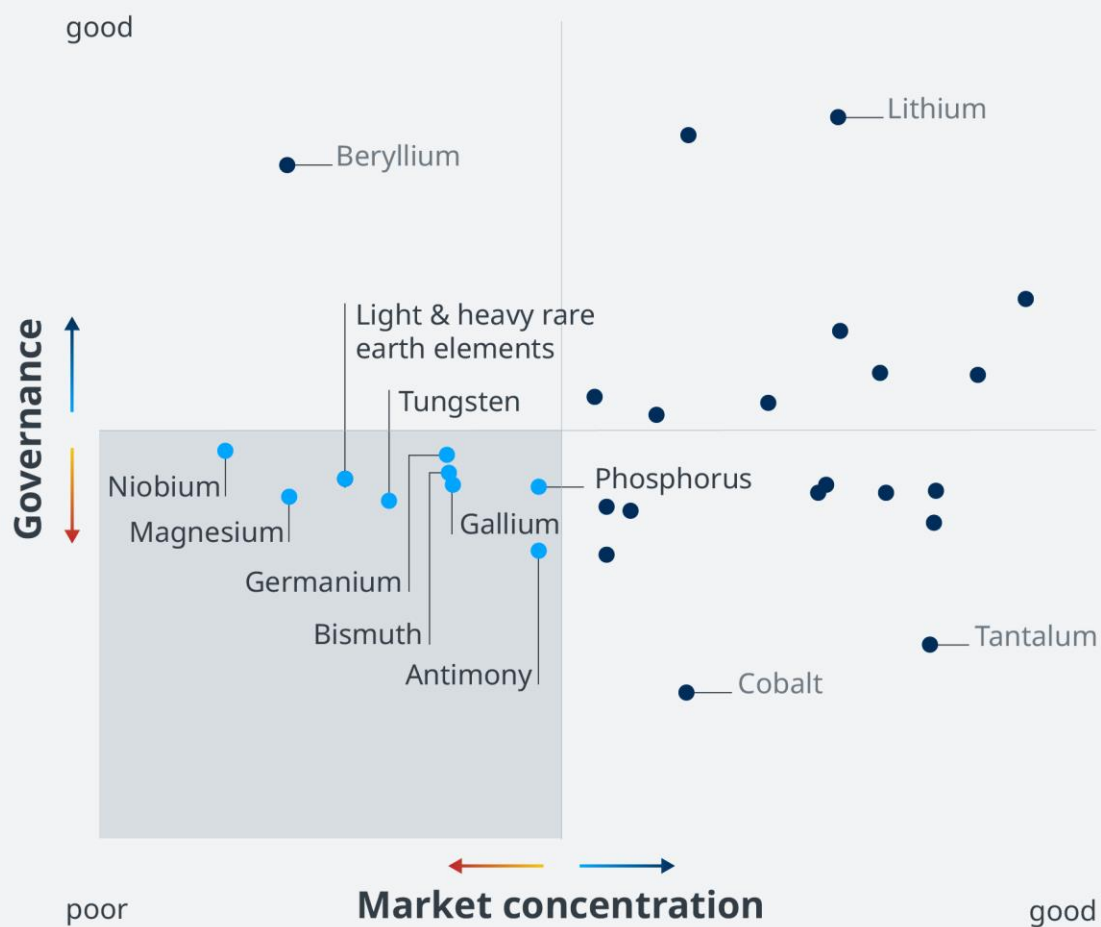
corruption, and authoritarian rule are common. Cobalt is a good illustration of this. Congo, whose internal strife has been prevalent for decades, provides about 60% of world supplies. As a result, cobalt is a "conflict mineral," meaning it is subject to increased public scrutiny since it is mined in a war zone and sold to fund the battle.

The future supply of ten more vital raw resources mined in nations with non-independent judiciary and significant levels of corruption is in doubt. Antimony, bismuth, gallium, germanium, light and heavy rare earths, as well as magnesium, niobium, phosphorus, and tungsten, which are mined in Tajikistan, China, Russia, and Laos, are all of concern, as are magnesium, niobium, phosphorus, and tungsten, which are mined in Kazakhstan, Vietnam, Russia, and China.

The EU is pursuing two key strategies to lessen its reliance on overseas suppliers. According to the EU's 2020 action plan, the bloc proposes diversifying its raw material sources, notably through the exploitation of EU reserves. The European Raw Materials Alliance's mission is to financially support existing new mining sites or to establish new ones "*to increase EU resilience in [...] value chains, as this is vital to most EU industrial ecosystems, such as renewable energy, defense, and space,*" according to the organization's website. The second major strategy is to "reduce reliance via resource circularity." It's debatable whether recycling will have a substantial influence or whether businesses will eventually have to find alternatives.

# Ten critical raw material markets are of particular concern

Each dot represents one raw material. Those in the bottom left corner are produced in strongly monopolized markets in very fragile states. Their supply is at greatest risk.



Source: Worldbank | Methodology: [github.com/dw-data/crm](https://github.com/dw-data/crm)

### 6.2.2 China-Nigeria Relations

China has shown a fast-growing economic, political and energy activities on the African continent. Chinese strongly believe that *“China’s historical experience and vision of economic development resonates powerfully with African counterparts and that the long-standing history of friendly political linkages and development co-operation offers a durable foundation for future partnership.”* (Marcus Power & Giles Mohan,2010.)<sup>(19)</sup>

China is a great need of energy. The Belt and Road Initiative (BRI) was first declared by Xi Jinping in 2013. Beneath this great initiative is the try of China to establish its global geopolitical role. *“The total trade amount among states that take part in BRI was more than \$3 trillion and China's investments reached \$50 billion (2014-2016)”* (Napang, Marthen & Nurhasanah, Siti & Rohman, Syaiful, 2019).<sup>(20)</sup>The BRI has as a goal to bring together through economic cooperation three continents, Asia, Europe, and Africa. It involves 78 countries that are located on these three continents. The investments include railways and roadways, ports, power grids, oil and gas pipelines, and other similar infrastructures.

In 2015, the second Chinese policy paper for Africa depicted the positive reaction from the most African people (76-78% in states as Nigeria, Kenya, and Senegal) to China. *“At the Belt and Road Forum which was taken place in Beijing in 2017, (BRF) the Chinese Global Energy Internet Development Cooperation Organization (initiated by China's State Grid Cooperation) signed an energy agreement with Africa Union (AU)”* (Schwerbrock, Julia, 2017).<sup>(21)</sup>China tries to figure out how to establish its role- energy mostly- in Africa. *“This is the context in which Sino-Nigerian relations should be studied. China sees Africa as a critical landscape in order to achieve its regional and international goals. In 2003, the Nigerian debt to China was canceled by Beijing (335 million Naira)”* (Ige, Ayokunle, 2018).<sup>(22)</sup>

*“Nigeria has become one of China’s most important trading partners, with trade between the two countries increasing with an exponential rate. In 2006, the two countries have signed a Memorandum of Understanding on the Establishment of a Strategic Partnership, thus making clear that Nigeria is an emerging strategic partner of China and Beijing is investing in both commercial and political terms in the country “(Ian Taylor ,2007) (23)China's relations with Nigeria, The Round Table). A lot of Chinese companies are attracted to Nigeria, regarding the construction, oil, telecommunications and pharmaceuticals fields. “The first phase of this project*

*included the construction of power plants, road networks and manufacturing of sundry goods. In the next phases, investments were focused on heavy industry manufacturing, petroleum processing, pharmaceuticals, logistics, tourism, real estate and banking among others” (Ian Taylor,2007).*

<sup>(23)</sup>The close ties between these two countries are obvious in the economic migration of Chinese workers and private investors in Nigeria.

*“Nigeria is Africa’s leading oil producer and, globally, the 13th biggest oil producer (Production of Crude Oil including Lease Condensate 2019”.* U.S. Energy Information Administration).

*“Moreover, estimations regarding Nigeria’s natural gas reserves indicate quantities around 176 trillion cubic feet, from onshore fields and the Niger Delta” (Ian Taylor ,2007).* <sup>(23)</sup>For the growth

of its production capacity, the Nigerian government launched production-sharing contracts (PSCs).

In 2004, Sinopec, the state-owned Chinese oil company, agreed on a Nigerian National Petroleum Corporation (NNPC) to evolve Oil Mining Lease in the Niger Delta.

*“The Chinese company signed another contract with the Nigerian Petroleum Development Company to develop the Okono and Okpoho fields, thus exploiting reserves of around 500 million barrels” (Ian Taylor,2007).* <sup>(23)</sup>Another agreement was succeeded between China National Offshore Oil

Corporation (CNOOC) and the Nigerian government, for the ever first upstream oil and gas assets.

*“Later, CNOOC and NNPC signed an \$800 million contract, which guaranteed 30.000 barrels per day to China over a five-year period, to be reviewed every year” (Ian Taylor,2007).* <sup>(23)</sup>The

mentioned model of agreements between companies *“has been replaced by one in which Chinese energy companies gain access to the country’s oil resources by buying stakes in established companies” (Kafilah, Gold and Devadason, Evelyn Shyamala,, August 24, 2015).* <sup>(24)</sup>

*“In the last years, oil exports towards China are increasing, as shown in Figure 1. Nigeria’s exports to China are mainly oil and gas products. It should be highlighted, that in 2014, petroleum products and natural resources comprised 57 per cent of Nigeria’s export to China.” (Umejei, Emeka, 2015)* <sup>(25)</sup>

In August 2019, Chinese investments in Nigeria’s oil & gas sector are up to \$16 billion. Recent data concerning coronavirus impact on oil markets stated that *“Nigerian cargoes arriving to China this June will mark the highest-ever level, whereas West African exports to China will be the highest since November 2018” (Kafilah, Gold and Devadason, Evelyn Shyamala, August 24, 2015).* <sup>(24)</sup>On July 30, 2021, two Chinese companies -China Railway Construction (International)

Nigeria Company Limited and the China National Electric Engineering Company (CNEEC) Nigeria Limited were “*debarred and thus ineligible to participate in World Bank-financed contracts*” for fraud and corruption issues.

### 6.2.3 Chinese-Afghan Relations

China is already glancing at Afghanistan's vast mineral wealth. In fact, Beijing is "bidding" for its exploitation, citing as an excuse that it wants to help rebuild the war-torn country dominated primarily by the Taliban. According to a recent report by investment consultancy company US Global Investors, Beijing diplomats made a show of providing a "helping hand" before the Americans even left. Who can blame China for this decision, after all? There is a substantial sum of money.

Afghanistan's mineral resources are estimated to be worth between \$ 1 trillion and \$ 3 trillion. In comparison, the country's opium poppy crop is predicted to be worth only \$ 350 million in 2020. In other words, the mineral richness that "hosts" Afghanistan's soil might be worth nearly ten times as much as the country's well-known opium poppy crop. Lithium, gold, silver, platinum, iron, copper, aluminum, and uranium are among the minerals found in this area. The "true prize" among all of the above is lithium, which is a vital "component" in the production of lithium-ion batteries used in electric vehicles. And China, as the world's largest automaker and major electric propulsion "driver," is likely to want to obtain every single pound of lithium available.

Gaining access to lithium deposits and other resources in Afghanistan will help consolidate China's global dominance in the field of raw materials. After all, China already has a prominent position in the possession of rare earths, many of which are used in the manufacture of mobile phones and defense equipment, according to a report by US Global Investors. But will Afghanistan's wealth-making resources improve the lives of Afghans? Probably not. As US Global Investors points out, they are at risk of the “curse of natural resources.” per capita income.

Pakistan, which borders China and Afghanistan, is the country most benefiting from Beijing's efforts to build infrastructure abroad. The China-Pakistan Economic Corridor worth at around \$ 62 billion. Pakistan is the linkage between Chinese interests in Central Asia and shipping "routes" in the Indian Ocean.

#### 6.2.4 The example of Venezuela

China will be uncomfortable with Afghanistan's new leaders. Whereas China has not funded much in Afghanistan, a destabilization of Pakistan cannot afford it. Beijing still remembers the credit trap it fell into with Venezuela six years ago. A new bet on a failed state would heartbreak Xi's dreams for BRI. Venezuela was a favorite destination for Chinese banks. Under the "oil loan" agreements, China was betting that its oil production was enough to pay off its debt. By the time President Nicolas Maduro took office in 2013, China had already supplied Venezuela with a \$ 40 billion credit line,-\$ 30 billion out of \$40 billion are still unpaid.

It was a bad calculation. During the fall in commodity prices in 2014-2015, Brent crude oil fell from \$ 100 a barrel in half. China had to refinance \$ 9 billion from previous loans in order to help the Venezuelans overcome the crisis and control their oil production capacity. China has not yet taken back much of its loan. This credit trap has been a blow to confidence. Chinese banks have not provided new financing to Venezuela since 2013. In addition, their total development loans abroad peaked in 2016, shortly after the debt expansion in Venezuela. The non-success to save China's aspirations in Pakistan would raise even more questions about President Xi's model of reconstruction.

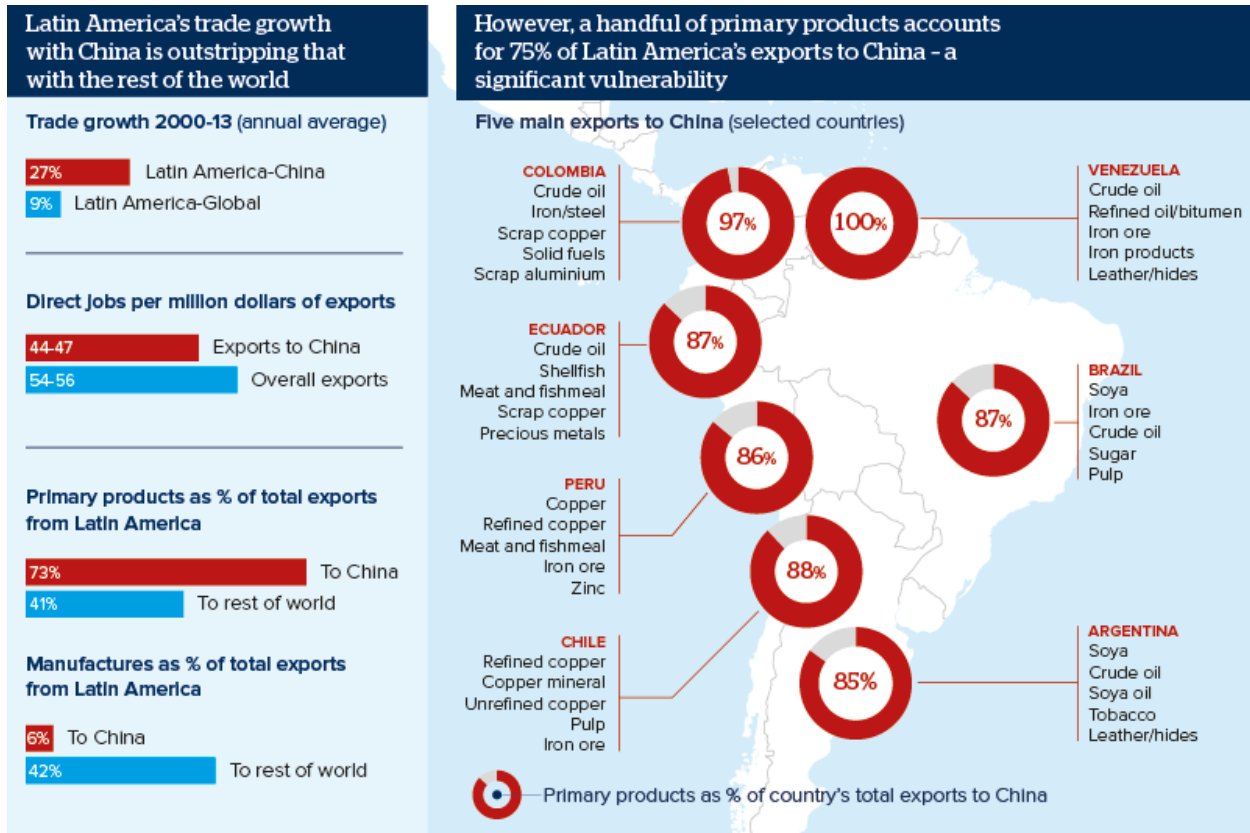
**China will redeem Afghanistan, not invade**, which means that instead of trying to take over Afghanistan by force, it will implement a different plan: to "buy" it, as it has done with many other countries, especially in Africa, as part of the grand plan for the new Road of Silk.

#### 6.2.5 China-Latin America Relations

In the early century, China has announced a significant economic push into Latin America. China continues to spend and grow its influence, despite the fact that several critical projects have yet to be completed. This is due to the longstanding relationships that Latin American countries have with the United States and the European Union. China is interested in gaining a market and access to raw materials in Latin America, as it is in other regions of the world. Beijing's main interest in Latin America is raw materials, both mineral and agricultural. The PRC's key acquisitions in the region are oil, iron, copper, and soybeans.

In terms of mineral resources, China is primarily interested in three countries: Venezuela, Chile, and Peru. Beijing relies on Caracas for oil supply. According to Venezuelan specialists loyal to the opposition, Russia and China have de facto taken control of Venezuela's oil reserves. In the

first quarter of 2020, at least 65 percent of Venezuelan oil was exported to China. Venezuelan "black gold" exports to China are for less than 3% of total exports, yet the nation is a top 10 provider.



Source: lansinginstitute.org

For the duration of the project, Caracas got \$ 62 billion in loans from Chinese banks. To that, another 21 billion should be invested in 790 joint projects, focusing on automobile assembly, electronics, infrastructure development, and, most importantly, oil production and refining. Venezuela has also purchased a large quantity of Chinese weaponry. In the midst of the instability in Caracas, Beijing is searching for ways to retain its ground and gain economic benefits.

China is likewise enthralled by the prospect of receiving metal from South America. Chile is a historic copper supplier to China, accounting for 96 percent of total exports to the PRC. Tianqi Lithium, a Chinese company, has access to lithium reserves in Chile. Beijing has also taken control of this element's resources in Bolivia. Peru is reliant on China for copper and gold exports. Brazil is a key iron ore supplier to China. Simultaneously, co-projects are being developed not just in



South America, but also in China. Argentina is another important food supply partner for China in the area. The PRC is an important source of Argentine beef. Supplies of barley, soybeans (Argentina is the world's third largest producer), soybean meal, and soybean oil are also expanding.

Argentina obtained a \$ 11 billion loan in 2014 for the development of hydroelectric power facilities. The Argentine Congress approved shortly after this decision to build a Chinese satellite surveillance facility in Neuquen, one of the country's southern regions. The station was built as part of a project to develop the far side of the moon, observe space, and operate the Chinese orbital satellite constellation. Such a secluded location might have a dual purpose.

China sought to carry out various large-scale transport and infrastructure projects in the region in the early twentieth century in order to transform the economic situation in favor of China's position. The first project was the construction of the Nicaraguan Canal, which was intended to serve as a replacement for the Panama Canal and connect the Atlantic and Pacific Oceans. The second was a transcontinental high-speed railway that would connect the Atlantic and Pacific Oceans. It was to be the largest Chinese infrastructural complex in South America, stretching from Brazil's Puerto Santo to Peru's Ilo port. It was believed to be worth \$10 billion. Both the first and second projects would have increased Latin America's economic integration and made it easier for China to expand its economic footprint in the area.

## Chinese Transport Infrastructure Development in Latin America

Planned and Completed Projects, 2002 - 2018

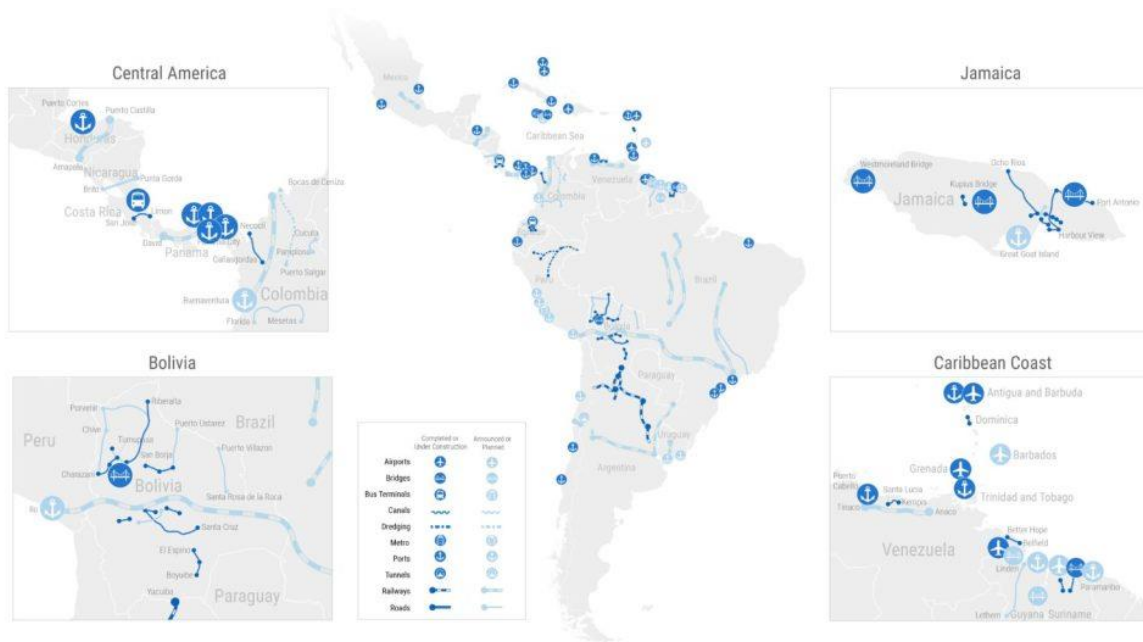


Image Credit: Ruiyang Huang / Inter-American Dialogue

\*Where several routes are proposed, we have selected one as representative of the project.

### 6.2.6 China and Climate Crisis

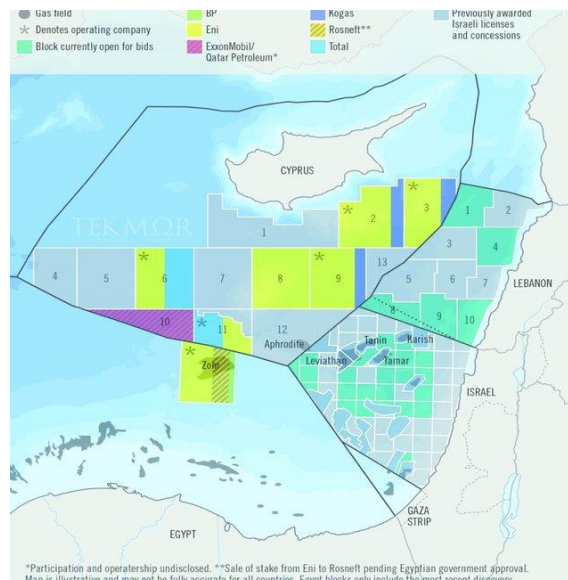
Just 25 major cities, almost all of them in China, are responsible for more than half of the global warming emissions based on samples taken from 167 urban centers around the world, according to an analysis of greenhouse gas emissions. The study compared greenhouse gas emissions recorded in 167 cities in 53 countries and found that 23 Chinese cities, including Shanghai, Beijing and Handan, along with Moscow and Tokyo, accounted for 52% of the total. The average global temperature has already risen by more than one degree Celsius compared to pre-industrial levels and is expected to exceed the limit of 1.5 - 2 degrees Celsius set by the Paris Climate Agreement.

China's big contradiction is that on the one hand it builds most of the factories that use mineral energy and on the other hand it is the country that invests the most in "green" energy. Almost 60% of electricity in China is produced from coal. However, the country is committed to reaching the peak of carbon emissions by 2030, and then to achieve the "neutral carbon balance", with a horizon of 2060. But Beijing does not say how it intends to replace coal. China launched new coal-fired power plants last year that can generate 38.4 gigawatts (GW) of electricity. And this, during the

same period, tripled factories compared to the rest of the world. One gigawatt is equivalent to the power of a nuclear reactor. Despite the winter temperatures, tens of millions of Chinese were faced with power outages. Most of the "clean" energy (wind, solar and hydraulic) in China is generated in the western part of the country. The most dynamic regions for the economy, and therefore the most energy-intensive, are to the east.

China launched its own "coal market" in July. This market sets business pollution ceilings for the first time. If the latter are unable to meet these limits, they will have to buy a "pollution right" from other companies with a lower carbon footprint. But for many observers, the price in China is very low (less than \$ 7) compared to prices in the European Union (almost \$ 36) and California (\$ 17). This coal market allows provincial authorities to set quotas for thermal power plants for the first time and allows companies to buy pollution rights from others with a lower carbon footprint. In particular, the authorities issue a certificate for each tone of carbon dioxide (or other greenhouse gas) that a company is allowed to emit. In case of non-compliance, the latter must pay fines. For reasons of transparency, companies should disclose their pollution data and bring it under the control of third parties. This coal market is currently limited to the electricity sector, whose power plants in China are still heavily coal-fired, one of the most environmentally friendly sources of energy. For some analysts, fines for non-compliance are not sufficiently deterrent. What is more, the pollution licenses are distributed free of charge, instead of being auctioned off. The result is that companies are less motivated to reduce their emissions quickly.

### 6.3 Italy



(Eni Energy Blocks in the Eastern Mediterranean)

**Source: ResearchGate**

Rome is becoming an economic power. Whereas 2020 Italy caught global attention due to the COVID-19 outbreak, in 2021, Rome has turned up as Europe’s quick-rising economic power in the Mediterranean region, and beyond.

*“Italy traditionally maintains three foreign-policy pillars: Europeanism, Atlanticism, and Mediterraneanism.”* (Tanchum,2021)<sup>(26)</sup>Rome, actually, has recently focused in the Mediterranean region. That strategy was agreed in January 2018, after the Italian Defense Minister Roberta Pinotti transferred Italy’s troops employed in Iraq and Afghanistan to missions in Libya and Niger, showing clearly the Italian strategic priorities: *“the heart of our interventions is il Mediterraneo allargato, from the Balkans to the Sahel, to the Horn of Africa.”*

Italy has set up an energy empire in Africa. *“The effort has been spearheaded by Italy’s energy giant Eni, under the de facto control of the government in Rome by virtue of the Italian government being the single largest shareholder.”* (Tanchum,2021)<sup>(26)</sup>Eni controls over 45 percent of Libya’s oil and gas output and is one of Algeria’s most important international partners in the natural gas industry. The 1 Trans-Mediterranean pipeline, which delivers Algerian natural gas via Tunisia to Italy, is jointly owned by Eni and Sonatrach, Algeria’s national oil firm. Furthermore, with the completion of the 192-kilometer-long, 600-megawatt underwater cable between Tunisia and

Sicily, Italy will shortly complete the operation of linking and protecting its electrical system to Algeria via Tunisia. In the Eastern Mediterranean region, Eni owns and operates the 50% of Egypt's Zohr offshore natural gas field, and it owns a 50% stake in one of Egypt's two LNG plants. Also, ENI is the main operator in Cyprus's offshore natural gas exploration. Italy is also an energy leader over the Trans Adriatic Pipeline. Italy is the next commercial partner of Romania -after Germany- which possesses the EU's sixth-largest population. In 2019, Italy was the third-largest economic partner of Bulgaria and second-largest of Croatia.

***“With Italy facing the prospect of being the gatekeeper of European trade to Africa, perhaps all roads may again lead to Rome.”*** (Tanchum,2021)

Italy wanted to diversify its energy supplies, and it was able to do so through bilateral collaboration with other countries, particularly Egypt, Cyprus, and Greece. ENI is now active in both Egypt's and Cyprus' EEZs, since it holds a 50% ownership in Zohr and a part in other energy projects in Egypt's EEZ, while it owns a 50% stake in the Calypso gas field in Cyprus and is undertaking explorations in that country's EEZ. ENI also controls 50% of SEGAS Holding, the Egyptian company that owns the LNG facilities in Damietta, a critical piece of infrastructure for exporting Eastern Mediterranean gas to European and Asian markets. Last but not least, Italy demonstrates its commitment to the Libyan energy market, since ENI controls almost 45 percent of the country's oil and gas output. Italy wants to keep its positive relationship with the Government of National Accord (GNA): the Tripoli-based administration.

## 6.4 France

### 6.4.1 MAVI VATAN VS. PAX MEDITERRANEA



**Source:Google**

Turkey's policy in the EastMed is to establish the "Blue Homeland" doctrine (Mavi Vatan), first mentioned by Admiral Cem Gürdeniz in 2006 while recently became a state doctrine by former Chief of Staff of the Turkish Navy Admiral Cihat Yayci. "Blue Homeland" doctrine is a large-scale aspiration of Turkey's maritime boundaries to surround a large area of 462,000 square meters, with the determination to protect these estimated borders through diplomacy and/or military means.

The doctrine depicts Turkey's nationalist policy and the country's hunt of energy security through access to hydrocarbon resources. On the other hand, French President Emmanuel Macron has the aspiration to reinstate France's power over the Mediterranean, an area that Paris appraises as part of its traditional sphere of influence. Actually, President Macron desires to set a Pax Mediterranean. Being an advocate of a reactivate Europe, Macron externally funded Greece and Cyprus by selling the Rafale fighter jets and Belharra frigates to Greece, sending the Charles de Gaulle nuclear-powered aircraft carrier to the Eastern Mediterranean, and participating in joint military exercises with Nicosia and Athens. The Turkish-French dead-lock is therefore a rivalry between a traditional power in the Mediterranean – France – and a middle power -Turkey.

#### 6.4.2 Nuclear Energy: Renaissance or Medieval?

The energy crisis and the risk of European energy independence, reopen the nuclear debate from several countries (France, Finland, Romania, Poland, among others). The main problem of storing radioactive waste remains unsolved. The data show that European reactors, such as the Hinkley Point C nuclear power plant in the United Kingdom, remain extremely expensive. The new projects, which are under development, record serious budget overruns, such as France's 1.65 GW nuclear power plant in Flamanville (which has already exceeded € 12.5 billion). At this turning point, Europe should not be fooled by the new nuclear delusion. This is not about nuclear fusion technology, which is completely safe, without radioactive waste but is still in the R&D phase.

Macron's announcement as a revolution is actually the investment in nuclear energy. A goal that is in direct conflict with the environmental policy of the emerging new German coalition government, but also of the EU. In energy production France has a model of historical significance, as the country has nuclear power plants for a long time, while 200,000 people work on there. Through them, France is the European country with the lowest carbon dioxide emissions. The country possesses 56 nuclear reactors -which are over 40 years old-, thanks to which the carbon footprint is low but the problem of nuclear waste remains unsolved. 78% of electricity in France is covered by nuclear energy.

## 6.5 United States of America

### 6.5.1 The United States in the East Med

The United States has upgraded its engagement on energy with the Eastern Mediterranean. At one level, these relations can be considered very victorious. As far the United States merges the energy issues into its diplomacy, the East Med is the perfect case study. In some cases, energy has only a submissive role—for example, with Turkey, Israel, and Egypt. In some other cases, like Greece, energy has come out as an essential pillar to establish closer and tighter relations, while in third cases, like Cyprus, energy has emerged new topics of discussion. The East Med region is full of energy, that's why we are on a search of different ways in order to evolve these resources. There is a big effort to place the East Med region into a ***“Europe should diversify from Russia”*** frame.

The United States has become part because never thrust any particular agenda all these years, following a modest role in easing energy deals. The United States has run the role of an overseer. *“This strategy has been successful for two reasons: First, because other partners have been able to act as project enablers and financiers (chiefly, European institutions). Second, because the parties in the region are happy to play up the prospects of progress as evidence of improved relations.”* (CSIS,2019) <sup>(28)</sup>

Let's focus on the case of Greece. A loan from the European Investment Bank enabled the construction of a new storage tank at the Revythoussa LNG project . The EIB, the European Energy Program for Recovery, and state guarantees from the Bulgarian government are also funding the Interconnector Greece-Bulgaria pipeline. The Trans-Adriatic Pipeline (TAP) is sponsored by the European Investment Bank and the European Bank for Reconstruction and Development, while it was made possible through US diplomacy. It's worth noting that the United States is the largest stakeholder in the European Bank for Reconstruction and Development, which funded the pipeline TAP in Turkey. U.S.-Greece relations have been meliorated: the United States supported even more our country than Europe was, during economic crisis, Greek government's willingness to solve the Macedonia name problem, a reconciliation with Israel that started just a few years ago- 10 actually-, the intensive tense between Turkey, a need by Greece to strengthen military relations with the United States, and so on.



In the Israel-Jordan-Egypt triangle, U.S. ties have been more obvious and stronger, consequential with U.S. firms' involvement, as well. *“Diplomacy helped lessen concerns in Jordan about buying Israeli gas, and the Overseas Private Investment Corporation (OPIC) provided insurance for a contract to export gas from Israel to Egypt through the Arish-Ashkelon Pipeline.”* (CSIS,2019)<sup>(28)</sup> Although, there is a main concern if the exports from Israel ever activated any political backlash in the host countries, and if this happened, could ever the U.S. diplomacy aid to hold that backlash. Generally, energy has cemented a geopolitical arc. The East Med experience depicts that the U.S. role as the security guarantor is crucial and countries confirm that the United States give the basic protection that makes all other inter-state relations possible.

#### 6.5.2 The Eastern Mediterranean is crucial to America's strategic competition with Russia and China.

With restricted resources and different priorities, the U.S. ought to give its attention on strategic areas where any force back against China could have any impact. The Eastern Mediterranean is such an area, where the United States, the European Union, Russia and China are competing each other for resources, for military, technological, economic and political influence. Opposing against Chinese activities in the Eastern Mediterranean will be a vital component in America's strategy.

The Eastern Mediterranean stands as a region of vital significance not only for the United States but also for the West. *“Through Greece and Cyprus, it is a frontier of the European Union. Through Greece and Turkey, it is also a NATO frontier.”* (Novo,2021) America's unique ally, Israel, attaches to the region's geopolitical significance. *“Coupled with the fallout from the conflict in Syria, the rise in political tensions, close encounters between military forces, and overlapping territorial and resource claims among allies and partners in the region, divisions and instability have increased.”* (Novo,2021) All these progresses have produced advantages not only for Russia, but for China to apply its leadership.

The Chinese presence in the area is new, but it is significant. China has exercised influence on vital infrastructure including port facilities through the Belt and Road Initiative (BRI). A €600 million investment in the Greek port of Piraeus in 2006, for example, and China's "success" in bringing Italy on board the BRI in 2019. China's investment in the Eastern Mediterranean allows it to obtain access to intellectual property, capabilities, and supply networks, which it may use to weaken the West's technical and economic advantage. To avert this, the United States must resume

developing a strong and collaborative presence in the Eastern Mediterranean. The United States ought to prompt collaborations on investment, trade, travel and diplomacy with these countries.

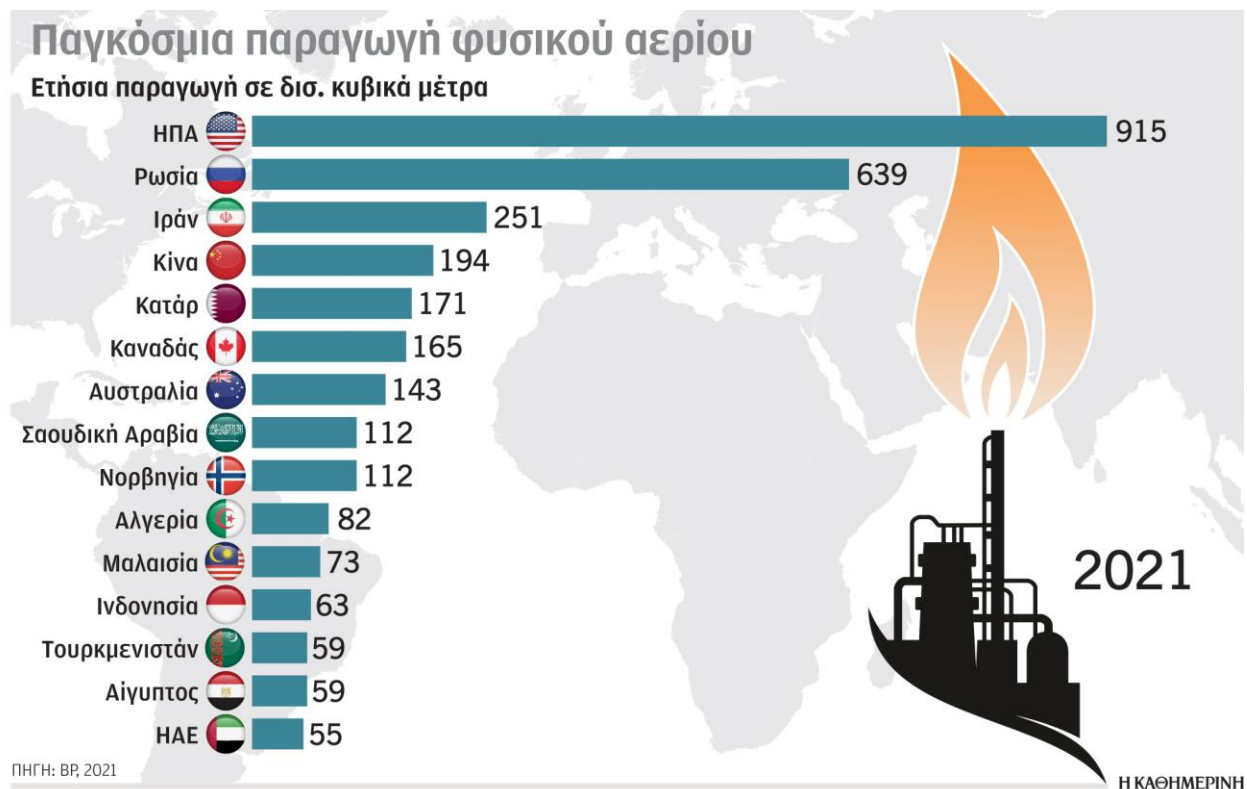
### 6.5.3 Russia-Ukraine War: American Approach

The US is energy independent—at least in the sense that people define independence. Being a net exporter does not protect the United States from the global oil market's shocks. This isn't surprising. However, for those who believe that increasing oil production is the best strategy to minimize oil price spikes, this crisis may serve as a wake-up call. Or at least it should be. Liquefied natural gas (LNG) from the United States has been critical to Europe's energy security. The United States has been Europe's leading LNG supplier for months, and these amounts have helped Europe get through a particularly harsh winter. In a situation like this, though, spare capacity is more important than scale. The United States, on the other hand, has none (nor does anyone else). Because it may export more LNG in a few years, the United States could be a part of the answer to European energy security. This is beneficial to Europe—but only to a certain extent!



Source: The Guardian

About 24%, or around 2.4 bcf/d, of U.S. LNG exports went to Europe in 2021, according to data from Rystad Energy. The United States has already supplied an extra 0.8 bcf/d from January to February, compared to the same period a year ago. Although, in June, 2022 an explosion at one of the biggest U.S. LNG export terminals sent European gas prices skyrocketing once more, highlighting the market's vulnerability and how sensitive it still is to any supply disruption/hiccup. Since Russia invaded Ukraine in February, Europe's gas supply has been in jeopardy. The news of the explosion caused the futures contracts for gas in the USA to fall by about 6%. The damage found seems to be so serious that the time required for the total repairs and the subsequent return to full operation will now be estimated around the end of 2022. Already, US gas prices have literally collapsed by 20%, while in Europe they are rising after Gazprom announced a 40% reduction in gas shipments to Germany.



The Biden administration and the European Commission have undertaken a multi-pronged campaign to boost US LNG exports to the European Union (EU) while also reducing total natural gas consumption in the US and EU through "rapid market deployment" of clean energy initiatives. The measures are part of a joint "Task Force on Energy Security" announced by President Joe Biden and European Commission President Ursula von der Leyen on March 25 as part of strategic

energy cooperation between the US and EU. The joint task force will work to secure energy security for Ukraine and the EU in preparation for next winter and the following one, while supporting the EU's goal of ending its dependence on Russian fossil fuels. However, the fact that the international LNG production capacity is only around 600 bcm / year remains a huge global problem, with minimum room for growth, while the international gasification capacity is almost double.

## 7 COP 26

### 7.1 What is Cop26?

The initials Cop, from the phrase "Conference of Stakeholders", represent the executive body of the United Nations Framework Convention on Climate Change. 197 countries are called upon to take action to stop climate change.

#### 7.1.1 Why is it so important?

Scientists have warned that there is an urgent need to take steps to keep the average global temperature rise below one and a half degrees Celsius. The most important previous Cop was in 2015 in Paris, where the countries signed the agreement of the same name, so that every five years they renew it and set even more ambitious goals to keep the temperature rise below two degrees Celsius compared to the previous industrial levels. The Paris Agreement was implemented in 2016.

#### 7.1.2 Who was there?

More than 120 leaders from around the world attended the COP26, which is the latest one in Glasgow, followed by environment ministers and other officials. But the leaders of some of the most polluting states were not present, like the presidents of Russia, Brazil and Iran.

#### 7.1.3 What happens during the conference?

The conference space is divided into two zones: the blue, where only accredited officials, politicians and organizations meet, and the green, where the public also participates, in a series of seminars, presentations, exhibitions and concerts.

#### 7.1.4 Why is half a degree Celsius so important?

If the temperature rises by 2 degrees Celsius compared to pre-industrial levels, climate change will be catastrophic for humanity. One third of the world's population will suffer from extreme heat and serious health problems, while deaths due to heat will reach new heights. Hundreds of thousands of people will fall below the poverty line and starve, as corn, rice and grain crops will be irreparably affected by the heat and drought. In addition, 99% of the coral will be destroyed. The Arctic ice sheet will drop dramatically or disappear, and sea levels will rise by 87 cm, flooding many coastal areas. By comparison, with an increase of 1.5 degrees Celsius, climate change will be very serious but not so extreme with less risk to humans, less reduction in food and drinking water reserves, lower ocean levels and less exposure to extreme heat, air pollution and diseases.

### 7.1.5 What did actually happen?

The two-week deadline for climate talks at the UN COP26 International Conference in Glasgow expired, but the debate continued a little bit longer as world leaders have so far failed to reach an agreement on courageous anti-disaster action of the environment. The president of the conference called on the countries to make one last effort to agree on the necessary commitments that would curb the rising temperatures, that threaten the planet. A draft of the final deal called on countries to make tighter climate commitments next year, in an attempt to close the gap between present objectives and the far deeper cutbacks that experts estimate is required to avert catastrophic climate change this decade. The meeting's major purpose was to keep the 2015 Paris Agreement's ambitious goal of limiting global warming to 1.5 degrees Celsius over pre-industrial levels, the threshold that experts say will avert the worst impacts.

The new draft is a balancing act - it seeks to meet -on the one hand- the demands of the nations that are most vulnerable to the climate crisis, such as low-lying islands, while -on the other hand- the demands of the world's largest pollutants and countries that fossil fuels are vital to their economies. The new draft retained its sharpest demand that countries make stricter climate pledges next year, but did so in weaker language than the previous draft, failing to secure the yearly review of climate promises. Every five years, states are required to re-evaluate their promises. The current plan contains milder wording than the previous one, pushing states to phase out subsidies for fossil fuels like as coal, oil, and gas, which are the primary source of global warming due to human activity. The roughly 200 nations that signed the Paris Deal have to agree unanimously on a final agreement. Protesters gathered outside COP26 to put pressure on delegates to reach a solid agreement. Activists draped banners with messages imploring delegates to safeguard the planet.

To meet its target of 1.5 degrees Celsius, the current draft admits what scientists have been saying for years: the world must decrease carbon dioxide emissions by 45 percent from 2010 levels by 2030, and to zero by "about the middle of the century." According to the United Nations, global emissions would grow by over 14 percent by 2030 from 2010 levels, based on existing country promises. Subsidies for fossil fuels are still the "apple of discord." The "definition of lunacy" is attempting to combat global warming while governments spend hundreds of billions of euros supporting the fuel that causes it. Financial assistance is also a heated topic, with poor countries asking for stronger measures to ensure that wealthier countries, whose emissions are primarily to blame for global warming, would provide more money to help them deal with the repercussions.

Rich nations have fallen short of their 12-year goal of paying \$100 billion per year in so-called "climate finance" by 2020, weakening trust and making some developing countries more hesitant to reduce emissions. According to the latest proposal, affluent nations should quadruple their existing contribution by 2025. Only a quarter of the \$ 80 billion paid by rich countries on climate finance for poor countries in 2019 was for so-called "adjustment."

#### 7.1.6 One word changed the whole meaning

The final draft came after two nations adhered for the language on coal to change from "phase out" to "phase down". China collaborating with India to dilute the language causes a serious blow to those who anticipated a much more ambitious result at COP26. *“For example, Beijing knows that ultimately the writing is on the wall for coal, but it's the speed of its phase out which matters to the Chinese government.”* (BBC, 2021) From India's side, country's push to alter the language on coal was a "misuse" of the whole procedure. But, anyway, this “misuse” directly served the interests of both states and indirectly the fossil fuel lobby and so on...

## 8 Taxonomy

A 60-page draft taxonomy text landed in inboxes of member states minutes before 2022 struck. A "consultation" process - which does not involve MEPs - will run until mid-Jan. Some highlights on what's included Commission stresses that on nuclear energy and fossil gas there are "rapid technological" developments occurring. Draft paves the way for awarding the green label as long as MS can provide plans for safe waste management and a 100g per KW of CO<sub>2</sub> is not exceeded. A boon for France: New nuclear investment will be taxonomy compliant for permits granted by 2045 for electricity generation and the EU's green silver bullet: low-carbon hydrogen production. Conditions for including fossil gas are more onerous as this is the trickiest circle the Commission has to square. Fossil gas will be a "transitional" taxonomy compliant investment for new installations permits granted by December 31st 2030, if the following thresholds are met. Member states & an expert group who have advised on the taxonomy will give feedback in ~2 weeks. Overwhelmingly likelihood that pro-gas and pro-nuclear countries will approve the text. MEPs need to a majority to reject - but odds stacked against them. France and Germany support the draft. Late night writes up of the taxonomy draft which gives almost carte blanche greening of nuclear power for decades in the EU and fossil gas well beyond 2030. Voices in German green party urging Berlin & European Parliament to reject taxonomy draft. Even if Green German economics ministry has been actively involved in the draft but the position on nuclear shows little signs of much German influence. Taxonomy has consequences beyond financial markets. Defining what is green is huge element in debate on reforming EU budget rules. Italy wants a golden rule to exclude public spending on green projects from debt ratio. This draft would allow billions spent on gas & radioactive waste to be excluded.



## 9 Energy Crisis and Green Transition

### 9.1 The causes of the crisis

The energy crisis we are experiencing is a completely expected phenomenon. The significant increase in growth and the consequent demand for significant amounts of energy is expected, after the pandemic of 2020. The 7% global recession and the equivalent reduction of greenhouse gas emissions in 2020, from the beginning of 2021 they seemed to surpass the pre-crisis data and the pollutants to jump to the historically second highest level. LNG stations in Russia, Australia, Norway were closed due to fires or maintenance. Gulf of Mexico due to Hurricane Ida reduced its production by 80% -90%. The international supply chain has been blocking the extreme cold in Asia for many months with Europe's mild summer, which reduced wind energy combined with droughts in major G20 economies. To the above is added the artificial surge of carbon dioxide emission prices in Europe from € 25 / ton (2020), to € 60 / ton today. The anticipation of the Europeans was completed with the approximately 50 underground gas storage tanks being only 60% full, when in previous years such a season was 90% full. Due to reduced production in Norway, Trinidad, Nigeria, international LNG supply increased by only 5% in 2021, while in previous years it increased by 10% per year.

Analysts are attempting to make unprecedentedly tough assessments of the energy industry in light of Russia's invasion of Ukraine. The importance of new interconnections will be even more important. The latest geopolitical tensions have heightened the spotlight on Europe's gas and energy infrastructure. In the aftermath of Russia's invasion of Ukraine, there has been a surge in interest in alternatives to Russian gas. Solutions to alleviate the energy situation were being discussed by EU energy ministers. In recent months, the European Union has completed or modified a number of projects. Sonatrach, Algeria's main state-owned energy firm, is expected to complete work on expanding the transmission capacity of the Medgaz underwater gas pipeline between Algeria and Spain soon. Two additional EU-funded projects, the upgrade of existing gas infrastructure in Bulgaria to connect Romania and Serbia and the Poland-Denmark gas interconnection, are expected to be completed by the end of 2022. The Bulgarian government is also pushing for the gas pipeline between Greece and Bulgaria to be completed as soon as possible

(IGB). Spanish interest in Midcat, the Catalan-to-Sud-French gas pipeline, is growing as well. The connectivity would allow the Iberian Peninsula's LNG capacity to be utilized in other European locations in the future. The geopolitical jigsaw is incomplete without interconnections.

They will design tomorrow's energy systems, determine future trading patterns in this highly geopolitical sector, and, in conjunction with new renewable energy projects, reduce the repercussions of Europe's impending energy crisis. Will it be enough to alleviate the European Union's fears about energy security and affordability for the next winter, especially if Russia entirely suspends gas supply to the EU? One of the few short-term alternatives for enhancing energy affordability, is to maximize current nuclear capacity while increasing coal power output. Although coal, gas, oil, and nuclear power are not ideal alternatives. The Trans-Adriatic Pipeline (TAP), the final section of the Southern Gas Corridor that connects Azerbaijan to the European Union via Turkey, is being expanded to quadruple its present capacity. TAP will be able to execute gas transportation agreements in October if there is adequate interest. In the near future, even LNG will not be a viable option. The gas would offer greater certainty in the energy markets if there were additional LNG import ports. However, new LNG terminal investments would take over a year to materialize, and current facilities have limited spare capacity. In the event of a shortage, the EU executive has requested large LNG purchasers to exchange contracts and have their supply transferred to the EU.

The European Union can manage without Russian gas next winter, but must be united in taking difficult decisions, accepting that in many cases it won't have enough time for perfect solutions. According to surveys, the message that comes out, is that if the EU is obliged or willing to bear the cost, it should be able to replace Russian gas by next winter without destroying economic activity, causing people to freeze, or disrupting energy supplies. On the ground, however, hundreds of regulations will have to be rewritten/revised, usual procedures and operations will have to be reassessed, a lot of money will have to be spent swiftly, and hard decisions will have to be taken. In many cases, there will be insufficient time to provide excellent answers.

To reduce the EU's vulnerability to a prolonged escalation, it is critical to ensure that as much gas as possible is transported to the EU and distributed equally among country storage facilities. This presents three difficulties: 1) Getting as much gas to Europe as feasible and not drastically overpaying for it; 2) distributing the gas in Europe; and 3) distributing the expense of this

operation. The uncertainty over which scenario Europe will find itself in, as well as Europe's aspirations to dramatically reduce gas imports in the next decades, make this monumental task even more challenging. As a result, Europe would be taking a significant risk if it would blindly go all-in, signing every gas contract available.

In order to assure sufficient imports in the next months, government/public involvement will be required. This may take the form of a task force to coordinate purchases and prevent companies outbidding each other. Policymakers should encourage the activation of prospective LNG supply and make political concessions in order to achieve more LNG volumes. Private companies are likely to hold back from buying gas at the current high prices that they might only sell with a substantial loss if Russia floods the market. As a result, the EU should give financial protection to enterprises that store gas, particularly in the most vulnerable EU nations. These efforts are important, but not sufficient. There is nothing that can be done in the next 12 months to address hard physical impediments. There will be a gap between supplies and demand in a 'normal' year if Russian gas is not available. Demand can be reduced by extraordinary means.

## 9.2 The new doctrine of energy security

These events have highlighted the need for the EU to formulate a new, modern Energy Security Doctrine for today's world, which is very different from the world of the 2000s. In short, the energy transition alone is not enough as an energy strategy. Green energy creates new geopolitical challenges. The search for security of supply of mineral raw materials and rare earths is an area where the world economy will need 7 times more critical minerals, such as lithium, graphite, copper, cobalt, nickel, etc., but about 70% their export and processing to depend on China.

Global annual investments in clean energy are currently \$ 1 trillion, while in 2030 they should jump to \$ 4 trillion. To exploit them, governments need to set up a Joint Energy Research Center, similar to CERN, to raise investment in cutting-edge technological innovations in "difficult" areas such as shipping, aviation, steel and cement. In the panic of the crisis, the governments are proposing piecemeal solutions, while the Commission is content to simply record in a "Toolbox" the measures that the governments have already taken. Nowadays, following recent facts, fossil fuel independence is a matter of national security!

## 10 Conclusion

If the bloody wars in the former Yugoslavia in the 1990s served as a "baptism by fire" for EU security and defense policy, Russia's barbaric invasion of Ukraine serves as something even more cruel. The events of February 24, 2022 have significantly altered the European Union's perceptions of Russia, as well as its own role to European security. Indeed, the EU's extensive support for Ukraine, including military equipment and unprecedented sanctions against the aggressor, implies that it is finally establishing itself as a genuine security player.

The EU's security and defense policy after the 1990s was designed to deal with foreign crises. Since 2016, the union has worked harder to improve its defense capabilities. The notion of European strategic autonomy has played a central but divisive/controversial role in this process. For eastern EU member states, the controversy mainly arises from suspicions about the implications of 'autonomy' for the transatlantic relationship: they want to ensure that the United States has a strong presence in Europe. Keen observers of realpolitik and energy affairs with an understanding of basic economics such as President Putin are under no illusions. While Europe was busily deconstructing its contemporary energy infrastructure in the vain hope that the capricious forces of the wind and sun would be adequate to power modern civilization, Russia's fossil fuel resources were being developed.

The new European strategy is to diversify gas supplies in order to reduce reliance on Russia in the short term, but ultimately to boost renewables and energy efficiency as fast as technically possible, in the spirit of the European Union's commitment to become carbon-neutral by 2050. Increased capability for importing liquefied natural gas is part of the approach. The commission has been in contact with a number of gas producers, including the United States, Qatar, Azerbaijan, Nigeria, and Egypt, as well as Japan and South Korea, to see whether any of their imported supply may be diverted to Europe. In January, the EU established a new record for liquefied natural gas imports. The Commission also proposes a mechanism for voluntary reduction of consumption, but with no further explanation on how to succeed this reduction or/and to what extent. Separately, in response to Russia's invasion, the EU accelerated work on synchronizing Moldova's and Ukraine's power systems with the European one "as soon as feasible."

The European Union has imposed three waves of harsh sanctions against Russia's banking system, high-tech industries, and corrupt elite at the speed of light. This is the biggest sanctions package in the history of the Union. The Russian economy and the Kremlin will bear the brunt of these sanctions. The SWIFT network is being disconnected from critical Russian banks. EU also prohibited transactions by Russia's central bank, which is the country's single most significant financial institution. Second, Union is concentrating their efforts on key areas of the Russian economy. This means that they are preventing Russia from upgrading its oil refineries, repairing and modernizing its air fleet, and gaining access to numerous critical technology it requires to construct a thriving future. They have banned Russian aircraft, especially oligarchs' private planes, from flying over our territory. Thirdly, in another unprecedented step, the EU is suspending the licenses of the Kremlin's propaganda machine. All these sanctions mean that they are going to hurt the cost the European economy, as well.

However, European investments now will help the EU become more self-sufficient tomorrow. First and foremost, concerning the energy security. Europe can't put its faith in a provider that openly threatens them. This is why it sought out additional international vendors, which they answered in kind. Norway is taking action. EU had a record supply of LNG gas in January. New LNG terminals are being built, as well as interconnectors. In the long term, though, it will be the EU's conversion to renewables and hydrogen that will truly make them self-sufficient. The green transition must be accelerated. Because every kilowatt-hour of electricity generated by solar, wind, hydropower, or biomass in Europe lessens the reliance on Russian gas and other energy sources. This is a long-term commitment. This is a strategic investment because, on top of that, reduced reliance on Russian gas and other fossil fuel sources means less money in the Kremlin's coffers. This is also the case. These are some of the words from the speech by President von der Leyen at the European Parliament Plenary on the Russian aggression against Ukraine.

The Commission proposes to develop a REPowerEU plan that will increase the resilience of the EU-wide energy system based on two pillars: **Diversifying gas supplies, via higher Liquefied Natural Gas (LNG) and pipeline imports from non-Russian suppliers, and larger volumes of biomethane and renewable hydrogen production and imports; and, reducing faster the use of fossil fuels in our homes, buildings, industry, and power system, by boosting energy**

**efficiency, increasing renewables and electrification, and addressing infrastructure bottlenecks.**

Commission President, Ursula von der Leyen said that the EU must get rid of Russia's oil, coal and gas because the Union simply cannot rely on a supplier who explicitly threatens it. Immediate action will mitigate the effects of rising energy prices. There is a need to diversify the EU's gas supply for next winter and speed up the transition to clean energy. Faster switching between renewable energy and hydrogen, combined with increased energy efficiency, will make Europe faster independent with control of the energy system in its hands.

Executive Vice-President for the European Green Deal, Frans Timmermans, said that the Union must work together to address its vulnerabilities and become more independent in its energy choices. In fact, he emphasized the importance of RES. Renewable energy sources are a cheap, clean and potentially inexhaustible source of energy and, instead of financing the fossil fuel industry elsewhere, create jobs within Europe. Putin's war in Ukraine demonstrates the urgent need to accelerate our transition to clean energy.

The Commission provided additional guidelines to Member States, confirming the potential of price regulation in exceptional situations and laying out how Member States might redistribute revenue from high energy sector profits and carbon trading to consumers. EU State Aid regulations also allow Member States to aid companies suffering by high energy costs with short-term assistance while also reducing their vulnerability to energy price volatility in the medium to long term.

Concerning the REPowerEU Plan consists essentially of three main pillars, which aim to reduce and ultimately end the EU's dependence on Russian fossil fuels: Saving energy, Diversifying supplies and supporting our international partners, Accelerating the rollout of renewables while Reducing fossil fuel consumption in industry and transport.

In particular, it is proposed to increase from 9% to 13% the energy efficiency target, in the context of the "Fit for 55" for the European Green Deal legislation. States to start specific communication campaigns targeting households and industry. Member States are also encouraged to use fiscal measures to encourage energy savings, such as reduced VAT rates on energy efficient heating

systems, building insulation and appliances and products. In addition, according to the Commission, short-term behavioral changes to save energy could have a significant impact.

In addition, the EU aims to increase imports of liquefied natural gas (LNG) and natural gas through pipelines from international partners to record levels. As a next step, the Commission is setting up a "joint purchasing mechanism", which will negotiate and contract gas purchases on behalf of participating Member States. In the same vein, the Commission will facilitate energy diversification and the establishment of long-term partnerships with suppliers, including cooperation on hydrogen and / or other green technologies. In fact, the reference to hydrogen in the Mediterranean is of particular interest.

On the third, and perhaps most important aspect, a massive escalation and acceleration of renewable energy sources in electricity generation, industry, buildings and transport will boost EU's independence, as well as the green transition and reduce prices by over time. That is why it is proposed to increase the main target of 2030 for RES from 40% to 45% under the "Fit for 55" package. At the same time, it presents a European strategy for solar energy from photovoltaics, by doubling the power by 2025 and installation of 600 GW by 2030, as well as the "Solar Rooftop Initiative" with a phased-in legal obligation to install solar panels on new public and commercial buildings and new residential buildings. Measures are proposed to integrate geothermal and solar thermal energy into heating systems, as well as a Commission Recommendation to tackle slow and complex permitting for major renewable projects, and a targeted amendment to the Renewable Energy Directive to recognize renewable energy as an overriding public interest. Finally, new tools are being identified, such as a Biomethane Action Plan, and financial incentives to increase biomethane production to 35 bcm by 2030, including through the Common Agricultural Policy.

## 10.1 Global climate crisis

We are in the midst of the climate crisis! We are at the most crucial point in the international effort to tackle the Climate Crisis. As countries commit to reach zero emissions by the middle of the century, at the same time, global greenhouse gas emissions are rising.

The UN Intergovernmental Panel on Climate Crisis (IPCC - September 2021) is sending an immediate alarm signal: in the next 10 years, gas emissions will increase by 16%, while for an increase to 1.5oC, by 2030 they should have decreased by 45% compared to 2010. This means a move towards the frightening scenario of a global temperature increase of 2.7oC.

Today's gaseous emissions are only one side of the coin when we study the problem of global warming. Although China is currently the largest producer of carbon dioxide, over time it is responsible for only 13% of total emissions from the pre-industrial era to date, while the US together account for more than 25% and Europe for 22%. Interesting conclusions also emerge from the current annual production of carbon dioxide per capita, where the leaders are Saudi Arabia with 18.1 tons / inhabitant and the USA with 16.6 tons / inhabitant, while China has only 7 tons / inhabitant and India 2 tons / inhabitant, while the world average is 4.8 tons / inhabitant.

The global distribution of emissions by sector is analyzed at 73.2% in the Energy sector (industry, transport, buildings), 18.4% in Agriculture, Livestock, Forestry and Land Use (in other measurements it is 26%, in each case, the second largest source of emissions), 5.2% in Industry (cement, chemicals) and 3.2% Waste. An important element of the Climate Crisis are the emissions of methane, as methane contributes more than 80 times than carbon to the increase of the temperature on the planet.

The EU and the US, aspire to have a neutral carbon balance in 2050, while China, the world's largest polluter, has committed to it by 2060. The zero-emission scenario binds countries with about 70% of world GDP and carbon dioxide emissions. However, less than 25% of these commitments have been transposed into the relevant legal framework and far fewer are supported by specific measures and policies to implement them fully and in a timely manner. At the same time, none of the G20 developed countries is consistent with its commitments under the Paris Agreement. The most consistent in commitments are Germany and France (70%) and the least consistent are Russia and Saudi Arabia (20%), with China and the US in the 40-50% range.



The Mediterranean, and obviously Greece, is one of the areas that will bear the brunt of more and more intense heat waves and at the same time by more and more intense floods. Phenomena that we will have expected for the next 30 years, are now appearing in the country today. The Climate Crisis is sure to hit the poorest countries as well as the poorer social strata of developed societies, thus shaping the tragic "triple injustice": the worst will be the most vulnerable, the least responsible for creation and those whose already lifeless conditions will become even worse. According to the World Bank (2021), by 2050, due to Climate Change, migration from Latin America, Southeast Asia and Sub-Saharan Africa (Sahel region) will exceed 216,000,000 climate refugees. The consequences for Greece, Italy, Spain are apparent.

## 10.2 The energy transition alone is not enough as a strategy

The double international transformation towards green economies and digital production models, also depends on a factor of extremely important geopolitical importance: the existence, extraction, processing and distribution of the necessary critical Mineral Raw Materials. In the coming years it is estimated that 6-fold increase will be required in the mining of these, such as: copper, silicon, cobalt, nickel, rare earths, etc.

Europe's current 40% dependence on Russian oil and gas should in no way be transformed into a corresponding dependence on China or some other countries, which have the corresponding deposits. The raw materials must be available internationally under strict environmental conditions, with adequacy, recycling utilization and of course at affordable prices, otherwise the additional cost will be paid by the final consumer. In addition, 70% of photovoltaic panels are manufactured in China and another additional 15% in Southeast Asian countries, by Chinese companies. As a result, 85% of world photovoltaic production is in Chinese hands.

Consequently, it is an existential priority of all the development plans of the liberal democracies, a) the formulation, coordination and exercise of supply and processing strategies, b) the critical for the transfer of mineral raw materials, always within the framework of the World Trade Organization (WTO). A relatively successful example of trans-European cooperation is the extremely successful cooperation of French - German - Spanish - British and other European aeronautical companies, in the creation of Airbus, which is one of the two major global players.

A recent study by the Commission on the number of employees in the industry is a typical example of the parallel course of high energy goals, with an increase in employment. In the field of wind energy, Germany has 1.5 million jobs, followed by Great Britain with 700,000, Spain with 400,000 and Denmark with 350,000. Countries the size of Greece (Belgium, Ireland), have over 50,000.

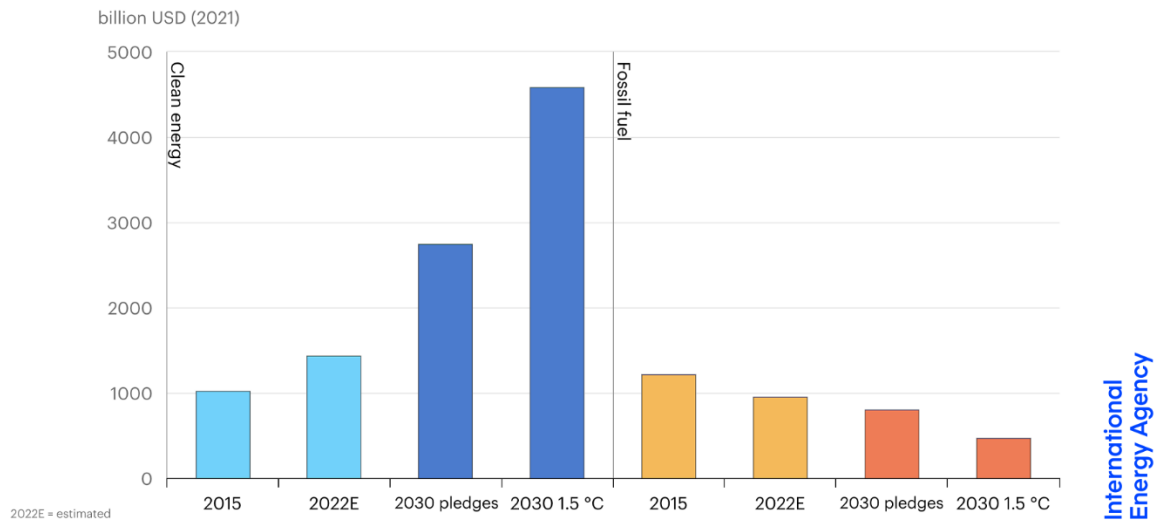
Energy Saving is the major factor in the implementation of national and European climate targets, with a contribution of 44% to the total of all greenhouse gas reduction actions. Given the significant difficulties in achieving green energy goals in a world with significantly increased energy needs, Energy Saving / Energy Efficiency is a top energy strategy. According to the IEA, in 2020, the planet needed 412 EJ of energy, while in 2050, needs will have skyrocketed to 600 EJ. To achieve the target of 1.5oC, we must consume only 344 EJ.

At EU level, in line with the pan-European achievement of climate and development goals, all European countries have protected and promoted their national interests through corresponding actions to support their energy balance, ensure significant revenues of their budget, from the exploitation of their national deposits in (polluting) fossil fuels. For example, Italy intervenes in the wider energy and geopolitics of the Mediterranean with the energy giant ENI, which controls 45% of Libyan gas and oil, the giant Egyptian gas field ZOHR, several deposits of the Cypriot natural gas station and 50% of the Cypriot EEZ LNG gas in Damietta, Egypt. In a 100% oil and gas dependent country like Greece, the benefits of exploiting national gas fields that are expected to replace the much more polluting oil are obvious. This would be the creation of thousands of well-paid new jobs and a significant reduction of energy costs (in electricity).

### 10.3 Clean Energy

A massive investment surge in clean energy is the only lasting solution to tackle both the energy crisis and the climate crisis. As things stand, today's trends show a world falling short on achieving its climate goals and on providing reliable and affordable energy for its people. Global energy investment is set to rise 8% to a record \$2.4 trillion in 2022 amid the global energy crisis. Clean energy spending is driving this rise, but so are higher costs. And coal investment is rebounding.

**Annual global energy investment benchmarked against the needs in 2030 in IEA scenarios, 2015-2030**  
World Energy Investment 2022



Source: IEA

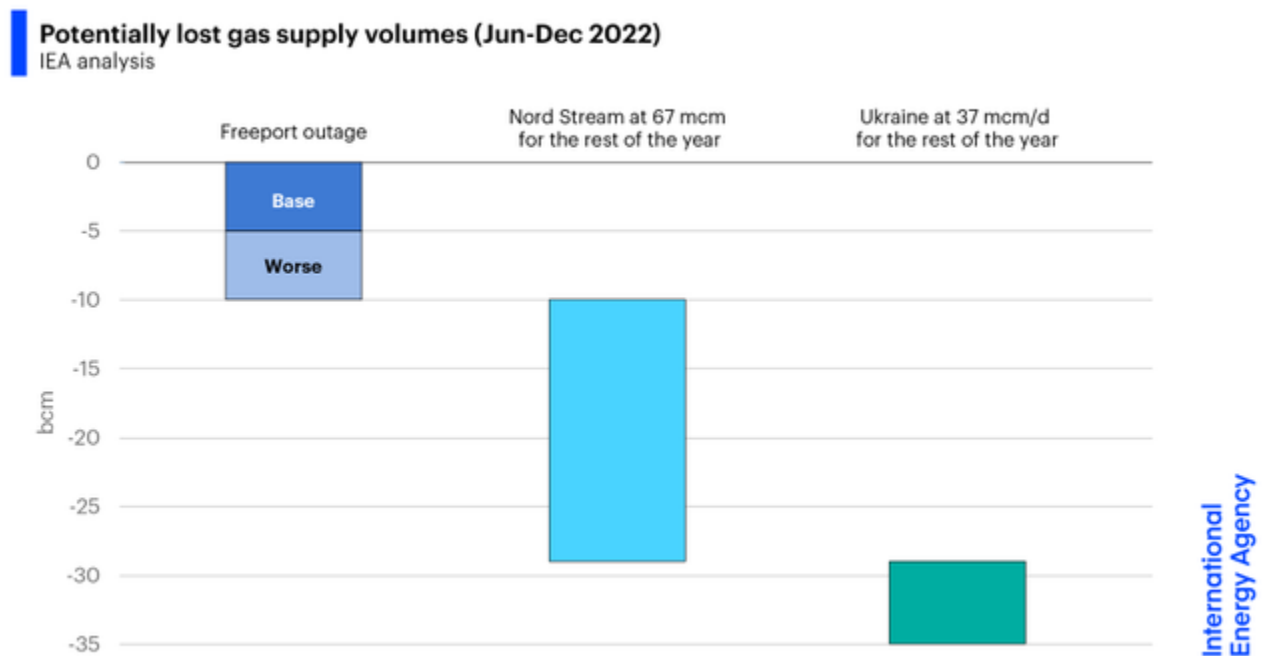
In the five years following the signing of the Paris Agreement in 2015, clean energy investment expanded by barely 2% annually. The rate of growth has, however, dramatically accelerated to 12 percent after 2020. Government fiscal support and the emergence of sustainable finance, particularly in industrialized nations, have underpinned spending. More than 80% of all investments in the electricity sector are being made in renewables, grids, and storage. At current growth rates, investments in solar PV, batteries, and electric cars will allow the world to achieve net zero emissions by 2050.

Energy prices have increased for many consumers and businesses globally as a result of Russia's invasion of Ukraine, harming homes, industries, and entire economies—most noticeably in the poor world where people can least afford it. Some of the immediate shortfalls in exports from Russia need to be met by production elsewhere, notably for natural gas, and new LNG infrastructure may also be needed to support the diversification of supply away from Russia. Despite an increase of 10% from the previous year, oil and gas investment is still well below estimates for 2019.

Overall, current oil and gas spending is unable to meet rising demand in a scenario where governments maintain current policy frameworks and fail to uphold their climate commitments. It

is too expensive for a trajectory that is linked with keeping global warming to 1.5 °C. While today's high prices for fossil fuels hurt many economies, they are also generating an unprecedented windfall for oil and gas producers.

Last but not least, recent disruptions to natural gas supplies, notably Russia steeply cutting flows to EU countries, is set to remove around 35 billion cubic metres of gas from the market this year, posing big challenges to efforts to refill storage. This is a red alert for the EU for next winter!



### 10.3.1 EU's attempts for diversification



*An interactive map under the European Union’s PCI Transparency Platform shows natural gas projects of common interest. The gray lines indicate existing gas pipelines while the orange lines show planned pipelines. Source: European Commission*

The EU, notably, has in recent years attempted to diversify its gas supplies through increased gas interconnection capacity (including reverse flow capabilities), and engaging with a range of partners, including the U.S., Norway, Qatar, Azerbaijan, Algeria, Egypt, Korea, Japan, Nigeria, Turkey, and Israel. In February, the EU said new supply agreements resulted in “record volumes”

of LNG imports in January and February, though it has the potential to import a further 50 billion cubic meters (bcm) of LNG on a yearly basis.

Worth mentioning, the German Example. The embargo to Russian fossil fuels has become manageable for Germany, said Mr Habeck. He clarified that the share of Russian oil in the country has been reduced to 12%. Germany seeks to an alternative! The numerous efforts to find alternative suppliers and with the support of the Polish government, Germany is really close to getting rid of Russian oil - in practice it is a matter of day. In 2021, oil imports from Russia accounted for 35% of Germany's total imports.

Russian gas supply to Europe via the Nord Stream 1 pipeline fell further in June 2022. The decreased flows came as the leaders of Germany, Italy and France visited Ukraine. For the second time in as many days, Germany's Nord Stream 1 pipeline, which crosses the Baltic Sea, will receive less gas, according to state-owned Gazprom in Russia. The most recent action reduces supplies to only 40% of the pipeline's capacity. In response to prior claims that Russia was unable to obtain the return of equipment transferred to Canada for repairs, Kremlin spokesperson Dmitry Peskov stated limitations in supply were not intentional and linked to maintenance concerns. Russia's justification, according to Germany, was technically "unfounded" and was instead intended to raise gas prices. Moscow might use the matter to apply political pressure, according to Italy. [View More](#)

The European Union, which last year received approximately 140 bcm of gas via pipelines from Russia, has the capacity to pump about 55 billion cubic meters (bcm) of gas per year through Nord Stream 1. Similar to other European nations, Germany is rushing to restock its gas storage tanks so that they are 90% full by November and 80% full by October before winter sets in. Currently, 52% of stores are full. According to the director of Germany's energy regulator, reducing flows through Nord Stream 1 would make that task more difficult.

## Bibliography

- (1) Masson-Delmotte, et.all, (2018) “*Summary for Policymakers. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels*” ,IPCC, <https://www.ipcc.ch/sr15/>
- (2) ECPR Panel (August 30,2021-September 3,2021),“*The Eastern Mediterranean: Critical Views on Region-making and the New Geopolitics of Energy*” , <https://ecpr.eu/Events/Event/PanelDetails/10844>
- (3) European Commission, “*2050 long-term strategy*”, [https://ec.europa.eu/clima/policies/strategies/2050\\_en](https://ec.europa.eu/clima/policies/strategies/2050_en)
- (4) James Kneebone (July 14,2021), “*Fit for 55: EU rolls out largest ever legislative package in pursuit of climate goals*”, FSR, <https://fsr.eui.eu/fit-for-55-eu-rolls-out-largest-ever-legislative-package-in-pursuit-of-climate-goals/>
- (5) ekathimerini.com (May 26,2021) “*IGB pipeline delayed until June 2022*”, <https://www.ekathimerini.com/economy/1161860/igb-pipeline-delayed-until-june-2022/>
- (6) Murat Temizer and Huseyin Erdogan, “*Turkey:Historic TANAP gas pipeline project goes live*”,Anadolu Agency and TANAP official website, <https://www.tanap.com/tanap-project/why-tanap/>
- (7) bp.com(2021), “*2021 first quarter results*” [https://www.bp.com/en\\_az/azerbaijan/home/news/business-updates/2021-first-quarter-results.html](https://www.bp.com/en_az/azerbaijan/home/news/business-updates/2021-first-quarter-results.html)
- (8) ANADOLU AGENCY(June 07, 2021) “*Danish energy firms eye Turkey as pandemic disrupts supply chains*”,Daily Sabah, <https://www.dailysabah.com/business/energy/danish-energy-firms-eye-turkey-as-pandemic-disrupts-supply-chains>
- (9) DelekDrilling, “*Leviathan Gas Field*” , <https://www.delekdrilling.com/natural-gas/gas-fields/leviathan>
- (10)Tolga Demiryol (7 September 2020), “*Natural gas and geopolitics in the Eastern Mediterranean Nuclear*”, HEINRICH-BÖLL-STIFTUNG ,<https://tr.boell.org/en>
- (11)İlhan Uzgel (June 25,2020) “*The “Blue Homeland” and Turkey’s new forward defence doctrine*”, duvaR.english, <https://www.duvarenglish.com/columns/2020/06/25/the-blue-homeland-and-turkeys-new-forward-defence-doctrine>
- (12)Liakouras (2020), ENERGY NETWORKS IN SOUTH EAST EUROPE, MEDITERRANEAN AND CAUCASUS: INTERNATIONAL LAW AND INTERNATIONAL RELATIONS, course slides concerning the MSc in Energy:Strategy,Law and Economics
- (13)EuroAsia Interconnector official site, <https://euroasia-interconnector.com/at-glance/the-big-picture/>
- (14)EuroAfrica Interconnector official site, <https://www.euroafrica-interconnector.com/>
- (15)BankWatch Network, “*Southern Gas Corridor*” [https://bankwatch.org/project/southern-gas-corridor-euro-caspian-mega-pipeline?gclid=Cj0KCQjwm9yJBhDTARIsABKicGZN7SEgeBF-L3yW\\_H5IOW1AruTPUmR\\_vx74YXjv2Mw7uckwcdJXpt8aAuX-EALw\\_wcB](https://bankwatch.org/project/southern-gas-corridor-euro-caspian-mega-pipeline?gclid=Cj0KCQjwm9yJBhDTARIsABKicGZN7SEgeBF-L3yW_H5IOW1AruTPUmR_vx74YXjv2Mw7uckwcdJXpt8aAuX-EALw_wcB)
- (16)Agneska Bloch, Israa Saber Monday (January 25, 2021), “*What’s Driving the Conflict in the Eastern Mediterranean?*”,LAWFARE, <https://www.lawfareblog.com/whats-driving-conflict-eastern-mediterranean>

- (17) Aura Sabadus (February 20, 2021), "Ukraine can play key role in Europe's energy Green Deal", Atlantic Council, <https://www.atlanticcouncil.org/blogs/ukrainealert/ukraine-can-play-key-role-in-europes-energy-green-deal/>
- (18) Georgy Savanof (March 1, 2021), "Back to the Future? Russia's Climate Policy Evolution", CSIS, <https://www.csis.org/analysis/back-future-russias-climate-policy-evolution>
- (19) Marcus Power & Giles Mohan (2010), "Towards a Critical Geopolitics of China's Engagement with African Development", *Geopolitics*, 15:3, 462-495, DOI:10.1080/14650040903501021.
- (20) Napang, Marthen & Nurhasanah, Siti & Rohman, Syaiful. (2019). "ONE BELT ONE ROAD (OBOR) AND THE INCREASE OF CHINA'S GLOBAL INFLUENCE."
- (21) Schwerbrock, Julia. (2017). "Two Belts, One Road? The Role of Africa in China's Belt & Road initiative."
- (22) Ige Ayokunle. (2018), "Belt and Road Initiative: Analysis of Possible Effects on Nigeria's Economy", *International Journal of Contemporary Research and Review*. 9. 10.15520/ijcrr/2018/9/06/536.
- (23) Ian Taylor (2007), "China's relations with Nigeria", *The Round Table*, 96:392, 631-645, DOI: 10.1080/00358530701626073.
- (24) Kafilah, Gold and Devadason, Evelyn Shyamala, "Chinese Engagement in Nigeria's Oil and Mining: Positive Transformation?", (August 24, 2015). Available at SSRN: <https://ssrn.com/abstract=2649762> or <http://dx.doi.org/10.2139/ssrn.264976>
- (25) Umejei, Emeka. (2015), "China's Engagement with Nigeria: Opportunity or Opportunist?", *African East-Asian Affairs*. 10.7552/0-3-4-165.
- (26) Michaël Tanchum (January 21, 2021) "Italy's Mediterranean Belt and Road", *Foreign Policy*, <https://foreignpolicy.com/2021/01/21/italys-mediterranean-belt-and-road/>
- (27) Kemal Inat (August 21, 2020), "ANALYSIS - Making sense of Eastern Mediterranean policy of France", *Anadolu Agency*, <https://www.aa.com.tr/en/analysis/analysis-making-sense-of-eastern-mediterranean-policy-of-france/1948848>
- (28) Nikos Tsafos (November 4, 2019), "The United States in the East Med: A Case Study in Energy Diplomacy", CSIS, <https://www.csis.org/analysis/united-states-east-med-case-study-energy-diplomacy>
- (29) Maria Pastukhova, Jacopo Maria Pepe, Kirsten Westphal (June 22, 2020) "Beyond the Green Deal: Upgrading the EU's Energy Diplomacy for a New Era", SWP, <https://www.swp-berlin.org/10.18449/2020C31/>
- (30) Gonzalo Escribano and Lara Lazaro Touza (July 15, 2020) "Balancing geopolitics with Green Deal recovery: in search of a comprehensive Euro-Mediterranean energy script", *Real Instituto Elcano Royal Institute*, <https://www.realinstitutoelcano.org/en/analyses/ari95-2020-escribano-lazaro-balancing-geopolitics-with-green-deal-recovery/>
- (31) Chika Oduah, (August 28, 2019), "China Invests \$16 Billion in Nigeria's Oil Sector", *VOAnews* <https://www.voanews.com/africa/china-invests-16-billion-nigerias-oil-sector>
- (32) Geoffrey Smith (December 7, 2019), "Russia and China Have Built a New Gas Pipeline That Has Everything", *Fortune*, <https://fortune.com/2019/12/07/russia-china-gas-pipeline/>
- (33) World Energy Council, "World Energy Trilemma", <https://www.worldenergy.org/transition-toolkit/world-energy-trilemma-index>
- (34) Michaël Tanchum (February 28, 2021), "Η Ελλάδα ως ανερχόμενη Διαμεσογειακή Δύναμη", *ELIAMEP*, <https://www.eliamep.gr/media/%ce%b7-%ce%b5%ce%bb%ce%bb%ce%b1%ce%b4%ce%b1->



- <https://www.eliamep.gr/publication/%ce%b7-%ce%b5%ce%bb%ce%bb%ce%ac%ce%b4%ce%b1-%cf%89%cf%82-%ce%b1%ce%bd%ce%b5%cf%81%cf%87%cf%8c%ce%bc%ce%b5%ce%bd%ce%b7-%ce%b4%ce%b9%ce%b1%ce%bc%ce%b5%cf%83%ce%bf%ce%b3%ce%b5%ce%b9%ce%b1%ce%ba%ce%ae/>
- (35) Michaël Tanchum (February 25, 2021) “ Η Ελλάδα ως ανερχόμενη Διαμεσογειακή Δύναμη: η στρατηγική στροφή της Ελλάδας στη διασύνδεση Ευρώπης με Αφρική και Μέση Ανατολή”, ELIAMEP, <https://www.eliamep.gr/publication/%ce%b7-%ce%b5%ce%bb%ce%bb%ce%ac%ce%b4%ce%b1-%cf%89%cf%82-%ce%b1%ce%bd%ce%b5%cf%81%cf%87%cf%8c%ce%bc%ce%b5%ce%bd%ce%b7-%ce%b4%ce%b9%ce%b1%ce%bc%ce%b5%cf%83%ce%bf%ce%b3%ce%b5%ce%b9%ce%b1%ce%ba%ce%ae/>
- (36) Παναγιώτα Μανώλη (January 27, 2021), “Οικονομικοί δεσμοί των Μεσογειακών χωρών: Τάσεις στο εμπόριο, τις επενδύσεις και την ενέργεια”, ELIAMEP, <https://www.eliamep.gr/publication/%ce%bf%ce%b9%ce%ba%ce%bf%ce%bd%ce%bf%ce%bc%ce%b9%ce%ba%ce%bf%ce%af-%ce%b4%ce%b5%cf%83%ce%bc%ce%bf%ce%af-%cf%84%cf%89%ce%bd-%ce%bc%ce%b5%cf%83%ce%bf%ce%b3%ce%b5%ce%b9%ce%b1%ce%ba%cf%8e%ce%bd-%cf%87/>
- (37) Δημήτρης Τριανταφύλλου (October, 2017), “ΕΠΑΝΕΞΕΤΑΖΟΝΤΑΣ ΤΗΝ ΑΝΑΤΟΛΙΚΗ ΜΕΣΟΓΕΙΟ”, ELIAMEP, <https://www.eliamep.gr/%CE%B5%CF%80%CE%B1%CE%BD%CE%B5%CE%BE%CE%B5%CF%84%CE%AC%CE%B6%CE%BF%CE%BD%CF%84%CE%B1%CF%82-%CF%84%CE%B7%CE%BD-%CE%B1%CE%BD%CE%B1%CF%84%CE%BF%CE%BB%CE%B9%CE%BA%CE%AE-%CE%BC%CE%B5%CF%83%CF%8C%CE%B3/>
- (38) Andrei Semenov (January 14, 2021), “Who Is Responsible for Mitigating the Effects of Climate Change in Russia?”, CSIS, <https://www.csis.org/analysis/who-responsible-mitigating-effects-climate-change-russia>
- (39) Rachel Ellehuus, Heather A. Conley, (July 17, 2020), “How NATO Can Avoid a Strategic Decoupling in the Eastern Mediterranean”, CSIS, <https://www.csis.org/analysis/how-nato-can-avoid-strategic-decoupling-eastern-mediterranean>
- (40) George Tzogopoulos, (January 20, 2020) “The “Democratic Bloc” of the Eastern Med Cements Its Friendship”, BESA, <https://besacenter.org/democratic-bloc-eastern-med/>
- (41) Col. (res.) Dr. Dan Gottlieb and Lt. Col. (res.) Dr. Mordechai Kedar May (4, 2020) “Turkey and the Libyan and Syrian Civil Wars”, BESA, <https://besacenter.org/turkey-libya-syria-civil-wars/>
- (42) Dr. George N. Tzogopoulos (September 23, 2020), “The Dangerous Waters of the Mediterranean”, BESA, <https://besacenter.org/turkey-greece-mediterranean-danger/>
- (43) TOI STAFF (February 22, 2021) “Israel to build new natural gas pipeline from its offshore rig direct to Egypt”, THE TIMES OF ISRAEL, <https://www.timesofisrael.com/israel-to-build-new-natural-gas-pipeline-from-its-offshore-rig-direct-to-egypt/>
- (44) Giuseppe Dentice (July 17, 2020), “Power Competition Without Solution: Libya and Syria’s Common Dilemma”, ISPI, <https://www.ispionline.it/en/pubblicazione/power-competition-without-solution-libya-and-syrias-common-dilemma-26980>
- (45) Matteo Colombo, Valerio Vignoli (September 10, 2020) “Italy in the Eastern Mediterranean: Between Continuity and New Challenges”, ISPI, <https://www.ispionline.it/it/pubblicazione/italy-eastern-mediterranean-between-continuity-and-new-challenges-27357>
- (46) Zenonas Tziarras, Jalel Harchaoui (January 19, 2021) “What Erdogan Really Wants in the Eastern Mediterranean”, Foreign Policy, <https://foreignpolicy.com/2021/01/19/turkey-greece-what-erdogan-wants-eastern-mediterranean-sovereignty-natural-gas/>

- (47) Paul Hockenros (September 10, 2020), "No Gas, No War in the Mediterranean", Foreign Policy, <https://foreignpolicy.com/2020/09/10/turkey-greece-cyprus-no-gas-no-war-in-the-mediterranean/>
- (48) Keith Johnson (July 25, 2019), "Turkey's Big Energy Grab", Foreign Policy, <https://foreignpolicy.com/2019/07/25/turkeys-big-energy-grab-cyprus-gas-aphrodite-calypto-eni-exxon/>
- (49) Michaël Tanchum (May 28, 2019), "Gas for Peace", Foreign Policy, <https://foreignpolicy.com/2019/05/28/gas-for-peace/>
- (50) Michaël Tanchum (August 18, 2020) "How Did the Eastern Mediterranean Become the Eye of a Geopolitical Storm?", Foreign Policy, <https://foreignpolicy.com/2020/08/18/eastern-mediterranean-greece-turkey-warship-geopolitical-showdown/>
- (51) Robert ("RJ") Johnston, Reed Blakemore, and Randolph Bell (January 9, 2020) "The role of oil and gas companies in the energy transition", Atlantic Council, <https://www.atlanticcouncil.org/in-depth-research-reports/report/the-role-of-oil-and-gas-companies-in-the-energy-transition/>
- (52) Richard L. Morningstar, András Simonyi, Olga Khakova, and Jennifer T. Gordon (May 26, 2020) "European energy security and the critical role of transatlantic energy cooperation", Atlantic Council, <https://www.atlanticcouncil.org/in-depth-research-reports/report/european-energy-security-and-the-critical-role-of-transatlantic-energy-cooperation/>
- (53) SCIENCE BUSINESS (November 2, 2020) "EU draws on Israeli innovation to advance Green Deal", <https://sciencebusiness.net/eu-draws-israeli-innovation-advance-green-deal>
- (54) CM Guest Columnist, (September 2, 2020) "The European Green Deal is coming", Cyprus Mail, <https://cyprus-mail.com/2020/09/02/the-european-green-deal-is-coming/>
- (55) CM Guest Columnist (February 28, 2021) "Cyprus and the Green Deal: is it now or never?", Cyprus Mail, <https://cyprus-mail.com/2021/02/28/cyprus-and-the-green-deal-is-it-now-or-never/>
- (56) Mark Iden (March 2, 2021), "Qatari Diplomatic Breakthrough In Underwriting Gas Pipeline From Israel Into Gaza", Pipeline-Journal, <https://www.pipeline-journal.net/news/qatari-diplomatic-breakthrough-underwriting-gas-pipeline-israel-gaza>
- (57) energyworld.gr (December 10, 2020) "Το ανανεώσιμο υδρογόνο προϋπόθεση για την επίτευξη του Green Deal", <https://energy-world.gr/to-ananeosimo-ydrogono-proypothesi-gia-tin-epiteuxi-tou-green-deal/>
- (58) Αθανασόπουλος Άγγελος (March 8, 2021) "Ελλάδα και Αίγυπτος ήλθαν σε συνεννόηση για το επίμαχο οικόπεδο στον 28ο μισημβρινό", ΤΟ ΒΗΜΑ, <https://www.tovima.gr/2021/03/08/politics/athina-kai-kairo-ilthan-se-synennoisi-gia-to-epimaxo-oikopedo-ston-28o-mesimvrino/>
- (59) Insider.gr (February 17, 2021) "Διλήμματα ή ενεργειακή συνεργασία στην Ανατολική Μεσόγειο", <https://www.insider.gr/epiheiriseis/156658/dilimmata-i-energeiaki-synergasia-stin-anatoliki-mesogeio>
- (60) EURACTIV (March 4, 2021) "Athens and Cairo mull changing the route of EastMed pipeline" <https://www.euractiv.com/section/energy/news/athens-and-cairo-mull-changing-the-route-of-eastmed-pipeline/>
- (61) Galip Dalay (January 28, 2021) "Turkey, Europe, and the Eastern Mediterranean: Charting a way out of the current deadlock", Brookings.edu, <https://www.brookings.edu/research/turkey-europe-and-the-eastern-mediterranean-charting-a-way-out-of-the-current-deadlock/>
- (62) Costis Stambolis (27/2-5/3/2021), "Electric arc across the eastern Med", IENE, <https://www.iene.eu/electric-arc-across-the-eastern-med-p6166.html>

- (63)Theodoros Kariotis (December 30,2020) "*The Ordeal of the Greek EEZ*", IENE, <https://www.iene.eu/the-ordeal-of-the-greek-eez-p6076.html>
- (64)Danila Bochkarev (July 9,2020) "*The European Green Deal: Saving the Planet or Protecting the Markets?*", IAI, <https://www.iai.it/en/pubblicazioni/european-green-deal-saving-planet-or-protecting-markets>
- (65)Andrew Raven and Mohamed Essa,(April 2018), "*A Lebanese Library Tells an Eco-Friendly Story*", IFC, [https://www.ifc.org/wps/wcm/connect/news\\_ext\\_content/ifc\\_external\\_corporate\\_site/news+and+events/news/cm-stories/lebanon\\_green\\_bonds](https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/lebanon_green_bonds)
- (66)Μυριάνθης(March 15,2021) "*Αεριογωγός EastMed, ένας νέος Nabucco;*" Η Καθημερινή, [https://www.ifc.org/wps/wcm/connect/news\\_ext\\_content/ifc\\_external\\_corporate\\_site/news+and+events/news/cm-stories/lebanon\\_green\\_bonds](https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/cm-stories/lebanon_green_bonds)
- (67)Naftemporiki (March 8,2021) "*ΜοU Ελλάδας-Κύπρου-Ισραήλ για την ηλεκτρική διασύνδεση EuroAsia Interconnector*", <https://www.naftemporiki.gr/story/1700556/mou-elladas-kyprou-israil-gia-tin-ilektriki-diasundes-euroasia-interconnector>
- (68)Γιάννης Παπαδημητρίου (March 18,2021) "*Νάρκη*" στον *EuroAsia Interconnector* προσπαθεί να βάλει η Τουρκία - Θεωρεί ότι το σχέδιο περνάει από "δικά" της ύδατα", <https://energypress.gr/news/narki-ston-euroasia-interconnector-prospathe-i-na-valei-i-toyrkia-theorei-oti-shedio-pernaei-apo>
- (69)Energypress.gr (October 22,2020) "*EuroAsia project moving again, Egypt present with EuroAfrica*" <https://energypress.eu/euroasia-project-moving-again-egypt-enters-picture-with-euroafrica/>
- (70)Fehim Tastekin, (March 11,2021) "*Is Turkey-Egypt maritime agreement dead in the water?*", AL-Monitor, <https://www.al-monitor.com/originals/2021/03/turkey-egypt-eastern-mediterranean-maritime-claims-greece.html#ixzz6pYUrLVL>
- (71)Liberal.gr(March 17,2021)"*Ο Σταθμός LNG Αλεξανδρούπολης αντίβαρο στην ενεργειακή επιρροή της Τουρκίας στα Βαλκάνια*", <https://www.liberal.gr/kosmogonikes-allages-stin-agera-energeias/o-stathmos-ling-alexandroupolis-antibaros-stin-energeiaki-epirroi-tis-tourkias-sta-balkania/363793>
- (72)Ναυτικά Χρονικά (November 10,2020) "*Ισραήλ:Στροφή 180 μοιρών στις ανανεώσιμες πηγές ενέργειας*", <https://www.naftikachronika.gr/2020/11/10/israil-strofi-180-moiron-stis-ananeosimes-piges-energeias/>
- (73)Mark Leonard, Jean Pisani-Ferry,Jeremy Shapiro, Simone Tagliapietra, Guntram Wolff (February 3,2021) "*The geopolitics of the European Green Deal*", European Council of Foreign Relations, [https://ecfr.eu/publication/the-geopolitics-of-the-european-green-deal/?\\_cf\\_chl\\_f\\_tk=uyP9BGMqL.rclXhuejMKRvLuYAa9ppL4nfXZ1UPR58Q-1642437498-0-gaNycGzNCWU](https://ecfr.eu/publication/the-geopolitics-of-the-european-green-deal/?_cf_chl_f_tk=uyP9BGMqL.rclXhuejMKRvLuYAa9ppL4nfXZ1UPR58Q-1642437498-0-gaNycGzNCWU)
- (74)Anadolu Agency (January 5,2020) "*Turkey's president hails benefits of TANAP pipeline*", <https://www.aa.com.tr/en/economy/turkey-s-president-hails-benefits-of-tanap-pipeline/1825175>
- (75)ΔΕΠΑ-press releases (June 18,2010) "*ITGI PIPELINE: EDISON, DEPA AND BOTAS SIGN AGREEMENT FOR THE TRANSIT IN TURKEY*", <https://www.depa.gr/itgi-pipeline-edison-depa-and-botas-sign-agreement-for-the-transit-in-turkey/?lang=en>
- (76) Robert Lansing Institute(September 4, 2020) "*China in Latin America: Raw Materials and Unachieved Ambitions*", <https://lansinginstitute.org/2020/09/04/china-in-latin-america-raw-materials-and-unachieved-ambitions/>

- (77) Maria Marta di Paola (February 11, 2020), "Opinion: China and Argentina's marriage of convenience", Dialogo Chino, <https://dialogochino.net/en/trade-investment/33453-opinion-china-and-argentinas-marriage-of-convenience/>
- (78) JULIANA GONZÁLEZ JÁUREGUI (DECEMBER 22, 2021), "How Argentina Pushed Chinese Investors to Help Revitalize Its Energy Grid", Carnegie, <https://carnegieendowment.org/2021/12/22/how-argentina-pushed-chinese-investors-to-help-revitalize-its-energy-grid-pub-86062>
- (79) Bashar Malkawi (January 24, 2020) "China's raw materials strategy-The next chapter in the US-China rivalry?", Asia and the Pacific Policy Society, <https://www.policyforum.net/chinas-raw-materials-strategy/>
- (80) Σωτήρης Παναγιώτης (December 12, 2021) "Η οικονομική αποσύνδεση Κίνας και ΗΠΑ και οι πραγματικές δυσκολίες της", Το ΒΗΜΑ, <https://www.tovima.gr/2021/12/16/world/i-oikonomiki-aposyndesi-kinas-kai-ipa-kai-oi-pragmatikes-dyskolies-tis/>
- (81) Oil & Companies News (January 15, 2021), "U.S. oil and natural gas production to fall in 2021, then rise in 2022", <https://www.hellenicshippingnews.com/u-s-oil-and-natural-gas-production-to-fall-in-2021-then-rise-in-2022/>
- (82) TAP official site, <https://www.tap-ag.gr/schetikha-me-emhas>
- (83) Statista official site about nuclear reactors and nuclear energy, <https://www.statista.com/statistics/267158/number-of-nuclear-reactors-in-operation-by-country/>
- (84) Sam Doo (July 29, 2015), "Is Power of Siberia a pipeline of the future?", Global Risk Insights, <https://globalriskinsights.com/2015/07/is-power-of-siberia-a-pipeline-of-the-future/>
- (85) Andrew Roth (December 12, 2021) "Russia edges closer to war as new arms arrive on Ukraine's border", The Guardian, <https://www.theguardian.com/world/2021/dec/12/russia-closer-to-war-ukraine-border-putin-buk-missiles>
- (86) Malu Cursino & Doug Faulkner (November 14, 2021) "COP26: China and India must explain themselves, says Sharma", BBC News, <https://www.bbc.com/news/uk-59280241>
- (87) Nuran Erkul Kaya (November 16, 2021), "Germany suspends certification process for Nord Stream 2 gas pipeline", AA.com, <https://www.aa.com.tr/en/economy/germany-suspends-certification-process-for-nord-stream-2-gas-pipeline/2422275>
- (88) Nwachukwu Egbunike (August 20, 2021), "Chinese investments in Nigeria flourish on a Silk Road of corruption", Global Voices, <https://globalvoices.org/2021/08/20/chinese-investments-in-nigeria-flourish-on-a-silk-road-of-corruption/>
- (89) Michel Penke (April 13, 2021), "How China's mines rule the market of critical raw materials", Deutsche Welle, <https://www.dw.com/en/how-chinas-mines-rule-the-market-of-critical-raw-materials/a-57148375>
- (90) European Commission (October 1, 2020), "In focus: Towards a just and clean energy transition", [https://ec.europa.eu/info/news/focus-towards-just-and-clean-energy-transition-2020-oct-1\\_en](https://ec.europa.eu/info/news/focus-towards-just-and-clean-energy-transition-2020-oct-1_en)
- (91) Richard L. Morningstar, András Simonyi, Olga Khakova, and Irina Markina (January 9, 2020) "European energy diversification: How alternative sources, routes, and clean technologies can bolster energy security and decarbonization", Atlantic Council, <https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/european-energy-diversification-how-alternative-sources-and-routes-can-bolster-energy-security-and-decarbonization/>
- (92) Οικονομικός Ταχυδρόμος, (September 2, 2021) "Υπερθέρμανση πλανήτη – Γιατί η Κίνα δυσκολεύεται να απαλλαγεί από τον άνθρακα", <https://www.ot.gr/2021/09/02/green/klimatiki-allagi/yperthermansi-planiti-giati-i-kina-dyskoleyetai-na-apallagei-apo-ton-anthraka/>

- (93) Η ΚΑΘΗΜΕΡΙΝΗ (July 12,2021), “Κλιματική αλλαγή: Η ευθύνη της Κίνας για την υπερθέρμανση της Γης”, <https://www.kathimerini.gr/life/environment/561430546/klimatiki-allagi-i-eythyni-tis-kinas-gia-tin-yperthermansi-tis-gis/>
- (94) ΤΟ ΒΗΜΑ (August 21,2021 ) “Η Κίνα δεν θα κάνει το ίδιο λάθος – Δεν θα εισβάλει στο Αφγανιστάν, θα το «αγοράσει»”, <https://www.tovima.gr/2021/08/21/finance/i-kina-den-tha-kanei-to-idio-lathos-den-tha-eisvalei-sto-afganistan-tha-to-agorasei/>
- (95) Shuli Ren (August 20,2021), “Η Κίνα, η παγίδα των 282 δισ. δολ. και το Αφγανιστάν”, Capital.gr, <https://www.capital.gr/bloomberg-view/3576773/i-kina-i-pagida-ton-282-dis-dol-kai-to-afganistan>
- (96) Liberal.gr (July 16,2021) “Κίνα - Κλιματική αλλαγή: Τέθηκε σε λειτουργία η κινεζική αγορά άνθρακα”, <https://www.liberal.gr/world/kina-klimatiki-allagi-tethike-se-leitourgia-i-kineziki-agora-anthraka/391210>
- (97) Η ΚΑΘΗΜΕΡΙΝΗ (March 13,2021) “EastMed pipeline viability under scrutiny”, <https://www.ekathimerini.com/news/1157014/eastmed-pipeline-viability-under-scrutiny/>
- (98) Nadja Skopljak (May 14,2021) “IGI Poseidon reveals EastMed pipeline trifecta”, Offshore Energy, <https://www.offshore-energy.biz/igi-poseidon-reveals-eastmed-pipeline-trifecta/>
- (99) Sophie Marineau (August 4,2021) “What the lifting of US sanctions means for the Nord Stream 2 pipeline”, The Conversation, <https://theconversation.com/what-the-lifting-of-us-sanctions-means-for-the-nord-stream-2-pipeline-165275>
- (100) Timothy Gardner (August 20,2021) “U.S. imposes Nord Stream 2 sanctions; opponents say they won't halt project”, REUTERS, <https://www.reuters.com/world/us-issues-nord-stream-2-related-sanctions-russians-blinken-2021-08-20/>
- (101) Peter Cholakov (February 28,2019) “Russia's proposed TurkStream 2 pipeline sparks Bulgaria, EU energy worries”, Deutsche Welle, <https://www.dw.com/en/russias-proposed-turkstream-2-pipeline-sparks-bulgaria-eu-energy-worries/a-47726458>
- (102) Capital.gr (July 4,2021) “Λιβύη: Μνημόνιο συνεργασίας μεταξύ Libyan Investment Authority και Enterprise Greece”, <https://www.capital.gr/epikairota/3557282/libui-mnimonio-sunergasias-metaxu-libyan-investment-authority-kai-enterprise-greece>
- (103) energypress.gr (June 25,2021) “Συρία: Πώς ο πόλεμος έφερε επανάσταση στην ηλιακή ενέργεια”, <https://energypress.gr/news/syria-pos-o-polemos-efere-epanastasi-stin-iliaki-energeia>
- (104) Heinz-Jürgen Axt (April 16,2021) “Troubled Water in the Eastern Mediterranean. Turkey Challenges Greece and Cyprus Regarding Energy Resources”, From the journal Comparative Southeast European Studies, <https://doi.org/10.1515/soeu-2021-2006>
- (105) ΤΟ ΠΡΩΤΟ ΘΕΜΑ (August 25,2021) “ΗΠΑ - Κίνα: Δεσμεύονται να συνεργαστούν για την αντιμετώπιση της κλιματικής αλλαγής”, <https://www.protothema.gr/environment/article/1154820/ipa-kina-desmeuodai-na-sunergastoun-gia-tin-adimetopisi-tis-klimatikis-allagis/>
- (106) ΚΑΘΗΜΕΡΙΝΗ (September 4,2021 ) “Η Δαμασκός «έτοιμη» να βοηθήσει το Λίβανο στις εισαγωγές ενέργειας”, <https://www.kathimerini.gr/world/561487126/i-damaskos-etoimi-na-voithisei-to-livano-stis-eisagoges-energeias/>
- (107) Liberal.gr (August 19,2021) “Λίβανος: Οι ΗΠΑ θα προμηθεύσουν ηλεκτρική ενέργεια τη χώρα”, <https://www.liberal.gr/world/libanos-oi-ipa-tha-promitheusoun-ilektriki-energeia-ti-chora/397564>
- (108) energypress.gr (April 13,2021) “Ο Λίβανος επεκτείνει μονομερώς την ΑΟΖ του - Παγώνουν οι διαπραγματεύσεις με Ισραήλ”, <https://energypress.gr/news/o-livanos-epekteinει-monomerws-tin-aoz-tou-pagoun-oi-diapragmateyseis-me-israil>

- (109) energypress.gr (September 4,2020) “Καταγγέλλουν την «κλοπή» συριακού πετρελαίου από ΗΠΑ – Κούρδους”, <https://energypress.gr/news/kataggelloyn-tin-klopi-syriakoy-petrelaiou-apo-ipa-kourdoys>
- (110) Col.Steve Norton, “U.S. Interests and Priorities in the Eastern Mediterranean”,Wilson Center, <https://www.wilsoncenter.org/publication/us-interests-and-priorities-the-eastern-mediterranean>
- (111) Samuel Ramani(June 1,2021) “The US in the Eastern Mediterranean Region”,RUSI, <https://rusi.org/explore-our-research/publications/commentary/us-eastern-mediterranean-region>
- (112) Ευρωπαϊκό Συμβούλιο official site ,” Δέσμη Fit for 55”, <https://www.consilium.europa.eu/el/policies/green-deal/eu-plan-for-a-green-transition/>
- (113) Alex Clark (July 19,2021), “The Fit for 55 package: A diplomatic tightrope”,European Council on Foreign Relations, [https://ecfr.eu/article/the-fit-for-55-package-a-diplomatic-tightrope/?\\_cf\\_chl\\_f\\_tk=mh0ilMkBtn3PUlrU9ZrT4v0h4GYoR6zTgijXQXjnNZI-1642441994-0-gaNycGzNCuU](https://ecfr.eu/article/the-fit-for-55-package-a-diplomatic-tightrope/?_cf_chl_f_tk=mh0ilMkBtn3PUlrU9ZrT4v0h4GYoR6zTgijXQXjnNZI-1642441994-0-gaNycGzNCuU)
- (114) Άγγελος Κρητικόπουλος (January 20,2021), “Τα PCIs ηλεκτρισμού που μπορούν να εκτοξεύσουν την Ελλάδα”,energyfeed.gr, <https://energyfeed.gr/viosimes-metafores/ta-pcis-ilektrismou-pou-boroun-na-ektoxfoun-tin-ellada/>
- (115) Amin Bagheri (April 2,2021) “The triangle of France, Turkey and Greece and its influence in Eastern Mediterranean”,CGTN, <https://news.cgtn.com/news/2021-04-02/How-France-Turkey-and-Greece-are-influencing-Eastern-Mediterranean-Z7VwqF7rZS/index.html>
- (116) Angelos Athanasopoulos (October 30, 2020) “The Paris-Athens-Ankara triangle: A game for influence in the Eastern Mediterranean”,ELIAMEP, <https://www.eliamep.gr/en/publication/%CF%84%CE%BF-%CF%84%CF%81%CE%AF%CE%B3%CF%89%CE%BD%CE%BF-%CF%80%CE%B1%CF%81%CE%AF%CF%83%CE%B9-%CE%B1%CE%B8%CE%AE%CE%BD%CE%B1-%CE%AC%CE%B3%CE%BA%CF%85%CF%81%CE%B1-%CE%AD%CE%BD%CE%B1-%CF%80%CE%B1%CE%B9/>
- (117) TAP official site, <https://www.tap-ag.com/about-tap/the-big-picture/the-southern-gas-corridor>
- (118) Daniel D. Stein(July 26,2021) “TAP and the Southern Gas Corridor: Challenges to expansion”,Atlantic Council, <https://www.atlanticcouncil.org/blogs/energysource/tap-and-the-southern-gas-corridor-challenges-to-expansion/>
- (119) Business Review (March 1,2021) “Ξεκινούν τα έργα αποθήκευσης ενέργειας σε Πτολεμαΐδα και Μεγαλόπολη” <https://www.euro2day.gr/news/enterprises/article/2067505/xekinoun-ta-erga-apothhkeyshs-energeias-se-ptolema.html>
- (120) TERNA ΕΝΕΡΓΕΙΑΚΗ,” ΤΟ ΜΕΓΑΛΟ ΕΡΓΟ ΑΝΤΛΗΣΙΟΤΑΜΙΕΥΣΗΣ ΣΤΗΝ ΑΜΦΙΛΟΧΙΑ ΜΠΑΙΝΕΙ ΣΤΗΝ ΤΕΛΙΚΗ ΕΥΘΕΙΑ”, <https://www.terna-energy.com/restories/to-megalo-ergo-antlisiotamieyssi-sti/>
- (121) Insider, gr (April 28,2020) “Η Ελλάδα στο επίκεντρο των ευρωπαϊκών ηλεκτρικών διασυνδέσεων”, <https://www.insider.gr/eidiseis/135686/i-ellada-sto-epikentro-ton-eyropaikon-ilektrikon-diasyndeseon>
- (122) Jana Puglierin, José Ignacio Torreblanca, George Tzogopoulos, Tara Varma ,Arturo Varvelli (September 16,2020) “Views from the capitals: Gas conflict in the eastern Mediterranean” ,European Council on Foreign Relations, [https://ecfr.eu/article/vfc\\_views\\_from\\_the\\_capitals\\_gas\\_conflict\\_in\\_the\\_eastern\\_mediterranean/](https://ecfr.eu/article/vfc_views_from_the_capitals_gas_conflict_in_the_eastern_mediterranean/)

- (123) Insider.gr (April 28,2020), “Η Ελλάδα στο επίκεντρο των ευρωπαϊκών ηλεκτρικών διασυνδέσεων”, <https://www.insider.gr/eidiseis/135686/i-ellada-sto-epikentro-ton-eyropaikon-ilektrikon-diasyndeseon>
- (124) Naftemporiki.gr (March 13,2021) “ΥΠΕΝ: Δρομολογείται η ηλεκτρική διασύνδεση Ελλάδας-Αιγύπτου”, <https://www.naftemporiki.gr/story/1708678/ypen-dromologeitai-i-ilektriki-diasundes-elladas-aiguptou>
- (125) Desfa.gr official website, <https://www.desfa.gr/national-natural-gas-system/transmission>
- (126) Newmoney.gr (June 14, 2021) “Αγωγός Αγ. Θεόδωροι – Μεγαλόπολη: Απόφαση για εγκατάσταση νέου μετρητικού σταθμού”,<https://www.newmoney.gr/roh/palmos-oikonomias/energeia/agogos-ag-theodori-megalopoli-apofasi-gia-egkatastasi-neou-metritikou-stathmou/>
- (127) ΧRONOS.gr (February 10,2018), “Στον σταθμό συμπίεσης του αγωγού TAP στους Κήπους Έβρου”, <https://www.xronos.gr/reportaz/ston-stathmo-sympiesis-toy-agogoy-tar-stoys-kiroys-evroy>
- (128) Ypodomes (April 8,2020) “Προκηρύχθηκε ο διαγωνισμός για την αναβάθμιση του σταθμού συμπίεσης στη Νέα Μεσημβία από τον ΔΕΣΦΑ” , <https://ypodomes.com/prokirychthike-o-diagonismos-gia-tin-anavathmisi-toy-stathmoy-sympiesis-sti-nea-mesimvia-apo-ton-desfa/>
- (129) Depa.gr official website, <https://www.depa.gr/>
- (130) Gastrade.gr, “Μετρητικός / Ρυθμιστικός Σταθμός”, <http://www.gastrade.gr/%CE%B1%CF%83%CF%86%CE%B1-%CE%B1%CE%BB%CE%B5%CE%BE%CE%B1%CE%BD%CE%B4%CF%81%CE%BF%CF%85%CF%80%CE%BF%CE%BB%CE%B7%CF%83/%CE%BC%CE%B5%CF%84%CF%81%CE%B7%CF%84%CE%B9%CE%BA%CF%8C%CF%82-%CF%81%CF%85%CE%B8%CE%BC%CE%B9%CF%83%CF%84%CE%B9%CE%BA%CF%8C%CF%82-%CF%83%CF%84%CE%B1%CE%B8%CE%BC%CF%8C%CF%82.aspx>
- (131) Υπουργείο Περιβάλλοντος και Ενέργειας, “Τριμερείς συνεργασίες Ελλάδας στον τομέα της Ενέργειας” , <https://ypen.gov.gr/trimereis-synergasies-elladas-ston-tomea-tis-energeias/>
- (132) Delek Drilling, “Natural gas and oil in the Levant Basin” , <https://www.delekdrilling.com/geology/natural-gas-and-oil-levant-basin>
- (133) Nermina Kulovic (May 13,2021) “Chevron shuts in Tamar gas field amid unrest in Israel”,Offshore Energy, <https://www.offshore-energy.biz/chevron-shuts-in-tamar-gas-field-amid-unrest-in-israel/>
- (134) Offshore Technology (November 7,2013) “Tamar Natural Gas Field” , <https://www.offshore-technology.com/projects/tamar-field/>
- (135) NS Energy, “Leviathan Gas Field, Mediterranean Sea” , <https://www.nsenergybusiness.com/projects/leviathan-gas-field-mediterranean-sea/>
- (136) Ευάγγελος Μάξιμος Α.Σκοπελίτης (August 24,2021) “ ΕΥ: Ιστορικά υψηλή επίδοση της Ελλάδας στον δείκτη ανανεώσιμων πηγών ενέργειας” ,ΕΥ.com, [https://www.ey.com/el\\_gr/news/2021-press-releases/08/ey-istorika-ipsili-epidosi-tis-elladas-ston-deikti-ananeosimon-pigon-energeias](https://www.ey.com/el_gr/news/2021-press-releases/08/ey-istorika-ipsili-epidosi-tis-elladas-ston-deikti-ananeosimon-pigon-energeias)
- (137) Χάρης Δούκας (December 12,2020),”Η Νέα Γεωπολιτική της Ενέργειας” ,ΒΗΜΑ, <https://dhsym.gr/articles-ekloges-tee/charis-doykas-i-nea-geopolitiki-tis-energeias/>
- (138) ERRA Webinar (May 11,2021) “EgeGaz Aliaga LNG Terminal” , <https://erranet.org/wp-content/uploads/2021/03/5.-A.Camci-TR-case-study-2-pre-recorded.pdf>

- (139) Alan Riley(March 7, 2019),” *Nord Stream 2: Myth vs. Fact*”, CEPA, <https://cepa.org/nord-stream-2-myth-vs-fact/>
- (140) Christopher Kernan Schmidt(July 6 2020), “*Evaluating Russia’s Grand Strategy in Ukraine*”, e-INTERNATIONAL RELATIONS, <https://www.e-ir.info/2020/07/06/evaluating-russias-grand-strategy-in-ukraine/>
- (141) Gal Luft and Anne Korin,(2009), “*Energy Security Challenges for the 21st Century*”, Ariel Cohen, Russia: The Flawed Energy Superpower,p.91
- (142) Hydrocarbons Technology, <https://www.hydrocarbons-technology.com/projects/bluestream-pipeline/>
- (143) Jasmin Bauomy(08/01/2020), “*TurkStream: Europe needs gas and Russia has it - the story behind that new pipeline*”,euronews, <https://www.euronews.com/2020/01/08/turkstream-europe-needs-gas-and-russia-has-it-the-story-behind-that-new-pipeline>
- (144) Jonathan Masters (February 5,2020), “*Ukraine: Conflict at the Crossroads of Europe and Russia*”, Council on Foreign Affairs, <https://www.cfr.org/backgrounder/ukraine-conflict-crossroads-europe-and-russia>
- (145) Jordan Stevens (May 21,2019), “*Nord Stream 2 explained: What it is and why it’s proving controversial*”, CNBC, <https://www.cnbc.com/2019/05/21/nord-stream-2-explained-what-it-is-and-why-its-proving-controversial.html>
- (146) Turkstream Official site, <https://www.gazprom.com/projects/turk-stream/>
- (147) Offshore Technology, “*Blue Stream Natural Gas Pipeline*”, [https://www.offshore-technology.com/projects/blue\\_stream/](https://www.offshore-technology.com/projects/blue_stream/)
- (148) Ioannis Giagkinis,(21/12/2019), “*Συμφωνία Ρωσίας-Ουκρανίας για τη μεταφορά φυσικού αερίου στην Ευρώπη*”, euronews, <https://gr.euronews.com/2019/12/21/symfonia-roias-oukranias-gia-ti-metafora-fysikou-aeriou>
- (149) Ariel Cohen (January 8,2020), “*Turkey-Libya Maritime Deal Upsets Mediterranean Energy Plan*”, FORBES <https://www.forbes.com/sites/arielcohen/2020/01/08/turkey-libya-maritime-deal-upsets-mediterranean-energy-plan/#45cb1a646bee>
- (150) Aristotelis Tziampiris,(7/22/2017), “*Greece After Turkey’s Coup D’état*”, HuffPost, [https://www.huffpost.com/entry/greece-after-turkeys-coup\\_b\\_11110934](https://www.huffpost.com/entry/greece-after-turkeys-coup_b_11110934)
- (151) Kathimerini, (11.08.2020), “*Turkey accuses Greece of ‘maximalist claims’ in East Med*”, e-kathimerini.com, <https://www.ekathimerini.com/255710/article/ekathimerini/news/turkey-accuses-greece-of-maximalist-claims-in-east-med>
- (152) Reuters (August 12, 2020),” *France to Bolster Mediterranean Military Presence over Turkish Prospecting: Macron,*”, <https://www.reuters.com/article/us-france-turkey-idUSKCN2582QM>
- (153) ) Tim Marshall (August 4 ,2020), “*Geopolitical hotspot: trouble in the eastern Mediterranean, geographical*”, <https://geographical.co.uk/geopolitics/hotspot/item/3779-geopolitical-hotspot-trouble-in-the-eastern-med?fbclid=IwAR06ASgQ3hYNN9P5c5SdVJ0T21IYAjjlfsFSraE3kaSYgQo0UkfSOUinhI0>
- (154) New Economy, (30 Ιουνίου 2020), “*Έτοιμη για την παραγωγή ηλεκτρικής ενέργειας στη Λιβύη δηλώνει η τουρκική εταιρεία Karadeniz*”, <https://new-economy.gr/2020/06/30/etimi-gia-tin-paragogi-ilektrikis-energias/>



- (155) Νίκος Μελέτης,(17 Ιουλίου 2020), “Η πυρηνική απειλή της Τουρκίας: Τα μηνύματα και οι δοκιμές στο Ακούγιου”,liberal.gr, <https://www.liberal.gr/diplomacy/i-puriniki-apeili%C2%A0tis-tourkias-ta-minumata-kai-oi-dokimes-sto-akougiou/313285>
- (156) A. Masi, “Moving in on Libya's Oil Fields”, Recruiting Engineers to Boost Revenue International Business Times (1 July 2016), [goo.gl/Hc6hff](http://goo.gl/Hc6hff)
- (157) A.M. Koknar, “The epidemic of energy terrorism”, L. Gal, A. Korin (Eds.), Energy Security Challenges for the 21st Century, ABC-CLIO, LLC, California (2009), pp. 18-30
- (158) BBC News (March 23,2019), “IS 'caliphate' defeated but jihadist group remains a threat”, BBC, <https://www.bbc.com/news/world-middle-east-45547595>
- (159) British Petrol, BP Statistical Review of World Energy, British Petrol (June, 2017), [goo.gl/948r6i](http://goo.gl/948r6i)
- (160) CNN Editorial Research, “ISIS Fast Facts”, CNN, Updated 1508 GMT (2308 HKT) September 6, 2020, <https://edition.cnn.com/2014/08/08/world/isis-fast-facts/index.html>
- (161) Daniel R.Coats, (January 29, 2019), “WORLDWIDE THREAT ASSESSMENT of the US INTELLIGENCE COMMUNITY”
- (162) DW.COM (17.02.2018), “Hezbollah: Lebanon must be firm in Israel energy dispute”, <https://www.dw.com/en/hezbollah-lebanon-must-be-firm-in-israel-energy-dispute/a-42621186>
- (163) Farah Najjar (22 Jan 2020), “Hezbollah a ‘major architect’ of Lebanon’s new government”, Aljazeera, <https://www.aljazeera.com/economy/2020/1/22/hezbollah-a-major-architect-of-lebanons-new-government>
- (164) Luay Al-Khatteeb and Eline Gordts, (September 27, 2014), “How ISIS Uses Oil to Fund Terror”, Brookings, <https://www.brookings.edu/on-the-record/how-isis-uses-oil-to-fund-terror/>
- (165) Lukáš Tichý, “The Islamic State oil and gas strategy in North Africa”, Energy Strategy Reviews,Volume 24, April 2019, Pages 254-260
- (166) Tim Whewell (13 December 2020), “Lebanon electricity crisis: Stealing power to survive”, BBC News, <https://www.bbc.com/news/world-middle-east-50760043>
- (167) In.gr, (Δεκεμβρίου 2,2019), “Ρωσία: Τρεις σημαντικοί αγωγοί φυσικού αερίου θα τη συνδέουν με Κίνα, ΕΕ και Τουρκία”,website, <https://www.in.gr/2019/12/02/world/rosia-treis-simantikoi-agogoi-fysikou-aeriou-tha-ti-syndeoun-kina-ee-kai-tourkia/>
- (168) Μπόση, Μ. (2018), “Οι Όψεις Της Διεθνούς Ασφάλειας”, Εκδ. Ποιότητα, Βάρη Αττικής
- (169) Reporting by Vladimir Soldatkin and Robert Muller (January 1, 2022); editing by Jason Neely, “Eastbound gas flows rise along Yamal pipeline but westbound requests emerge”, REUTERS, [https://www.reuters.com/markets/commodities/eastward-gas-supplies-jump-via-russian-yamal-europe-pipeline-2022-01-01/?fbclid=IwAR3hOeqW\\_YXVpx6P\\_633I7BAEp-X3FKrICxkK4kNaQZ0truekMz1D9bZgl0](https://www.reuters.com/markets/commodities/eastward-gas-supplies-jump-via-russian-yamal-europe-pipeline-2022-01-01/?fbclid=IwAR3hOeqW_YXVpx6P_633I7BAEp-X3FKrICxkK4kNaQZ0truekMz1D9bZgl0)
- (170) Matthew Chance and Laura Smith-Spark (January 22,2022), “Tensions are high on Ukraine's border with Russia. Here's what you need to know”, CNN, <https://edition.cnn.com/2022/01/20/europe/ukraine-russia-tensions-explainer-cmd-intl/index.html>
- (171) Παναγιώτης Σαββίδης (February 28,2022),“Βουλγαρία: «Συζητάμε με την Ελλάδα για την κατασκευή σταθμού παραγωγής πυρηνικής ενέργειας” ,Πρώτο Θέμα, <https://www.protothema.gr/greece/article/1216916/voulgaria-suzitame-me-tin-ellada-gia-tin-kataskeui-stathmou-paragogis-purinikis-energeias/>
- (172) Phillip Inman, Rob Davies and Julia Kollwe (February 24, 2022), “Ukraine crisis: commodities prices surge as stock markets slump”,The Guardian,

<https://www.theguardian.com/business/2022/feb/24/gas-and-oil-prices-surge-amid-fears-of-global-energy-shortage-russia-ukraine>

- (173) Jaro Bilocerkowycz (February 25,2022), “A new Cold War emerging as Russia launches full-scale invasion of Ukraine”,The Conversation, <https://theconversation.com/a-new-cold-war-emerging-as-russia-launches-full-scale-invasion-of-ukraine-175872>
- (174) Sergio Matalucci (March 1,2022) “EU moves to speed up energy investments amid Ukraine war, rising gas prices”, Deutsche Welle, <https://www.dw.com/en/eu-moves-to-speed-up-energy-investments-amid-ukraine-war-rising-gas-prices/a-60957223>
- (175) BEN MCWILLIAMS, GIOVANNI SGARAVATTI, SIMONE TAGLIAPIETRA AND GEORG ZACHMANN ( FEBRUARY 28, 2022) , “Preparing for the first winter without Russian gas”,Bruegel, <https://www.bruegel.org/2022/02/preparing-for-the-first-winter-without-russian-gas/>
- (176) Kristi Raik (March 2, 2022), “EU defence facing Russia: Eastern European security after the invasion of Ukraine”,European Council on Foreign Affairs, <https://ecfr.eu/article/democratic-defence-eastern-european-security-after-the-invasion-of-ukraine/>
- (177) Tilak Doshi (March 2,2022), “After The Ukraine Invasion: Energy Realism Emerges In Germany While The US Doubles Down”,Forbes, <https://www.forbes.com/sites/tilakdoshi/2022/03/02/after-the-ukraine-invasion-energy-realism-emerges-in-germany-while-the-us-doubles-down/?sh=5f1910b75afc>
- (178) Monica Pronczuk(February 28,2022)“E.U. sees adequate winter energy, but seeks longer-term independence. ”, The New York Times, <https://www.nytimes.com/2022/02/28/business/energy-environment/russia-eu-energy.html>
- (179) Ursula Von Der Leyen (March 1,2022) “Speech by President von der Leyen at the European Parliament Plenary on the Russian aggression against Ukraine”, Commission, [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_22\\_1483](https://ec.europa.eu/commission/presscorner/detail/en/speech_22_1483)
- (180) Sebastián Seibt (March 1,2022) “Ukraine conflict: Is Putin’s nuclear escalation hot air or a genuine threat?”,France24, <https://www.france24.com/en/europe/20220301-ukraine-conflict-is-putin-s-nuclear-escalation-hot-air-or-a-genuine-threat>
- (181) Maniatis Giannis (March 4,2022), “Μπορεί η Ελλάδα να αντικαταστήσει το 20% του ρωσικού φυσικού αερίου που εισάγει η ΕΕ”; Liberal.gr, <https://www.liberal.gr/economy/mporei-i-ellada-na-antikatastisei-to-20-tou-rosikou-fusikou-aeriou-pou-eisagei-i-ee/435778>
- (182) Newsroom (March 3,2022), “Δεκάλογος” ΙΕΑ: Μείωση των εισαγωγών ρωσικού αερίου κατά 30-50% φέτος στην Ε.Ε. – Αύξηση LNG, επιτάχυνση ΑΠΕ, φορολόγηση κερδών στην ηλεκτροπαραγωγή”,Energypress, <https://energypress.gr/news/dekalogos-iea-meiosi-ton-eisagogon-rosikoy-aerioy-kata-30-50-fetos-stin-ee-ayxisi-ling?fbclid=IwAR3qR0TOwil0JNuQHRWj-OlluxLMwep8HPxHejaeUuJFvikgx9j-OV3TF1M>
- (183) Europa (March 8,2022), “REPowerEU: Joint European action for more affordable, secure and sustainable energy”, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_1511?fbclid=IwAR3L2Z13zeS TBpKt5nksU1c0iRHcxwgSZXF51 Jx-Z8hW8OkMba\\_sAbFf4](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_1511?fbclid=IwAR3L2Z13zeS TBpKt5nksU1c0iRHcxwgSZXF51 Jx-Z8hW8OkMba_sAbFf4)

- (184) Tsafos Nikos (March 18,2022), “*The Energy Weapon—Revisited*”, CSIS, <https://www.csis.org/analysis/energy-weapon%E2%80%94revisited>
- (185) European Commission (May 18,2022), “*REPowerEU*”, [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_3131](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3131)
- (186) Nina Chestney (June 16,2022), “*Russian gas flows to Europe fall, hindering bid to refill stores*” ,REUTERS, <https://www.reuters.com/markets/europe/russian-gas-flows-europe-fall-further-amid-diplomatic-tussle-2022-06-16/>
- (187) IEA (June 22,2022), “*Record clean energy spending is set to help global energy investment grow by 8% in 2022*”, <https://www.iea.org/news/record-clean-energy-spending-is-set-to-help-global-energy-investment-grow-by-8-in-2022>
- (188) Nikos Tsafos ( January 21, 2022), “*Can European Energy Cope with a Conflict in Ukraine?*”, CSIS, <https://www.csis.org/analysis/can-european-energy-cope-conflict-ukraine>