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Energy in Irregular Warfare-The “Chess” of Energy

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Summary-Review

This dissertation aims to clarify how and to what extent energy can be found in the center of a war / conflict. This happens due to economic, political, and geostrategic factors; according to the aspirations of the respective states, governments, paramilitary organizations or simply conjunctures. The new era of the war is more affiliated to a possession of unconventional military equipment, strategies and unorthodox attacks. It is obvious that the conflicts between (inter)state and non-state factors are becoming more and more common and frequent, in example conflicts among global (super)powers, -which are being considered as a part of international system-, sovereign states, which try to put a lot of effort on the non-military aspects of power and security escalation. *“In the modern era, conventional methods of warfare are generally complemented with techniques of insurgency, terrorism, sabotage, subversion and information warfare”* (U.S. Department of the Army, 2008).

Chapter 1: Introduction

1.1 Definition of Unorthodox Warfare

“The National Security Strategy (NSS), National Defense Strategy (NDS), and National Military Strategy all note that future confrontations between major powers may most often occur below the level of armed conflict.” (Russian Strategic Intentions, A Strategic Multilayer Assessment (SMA) White Paper, May 2019) The international system’s security is prone to the prevalence of military and non-military threats such as terrorism, proliferation of weapons of mass destruction or nuclear weapons, environmental disruptions, energy security threats, and human insecurity. Energy wars can be developed between states for reasons of political pressure, i.e. Russian-Ukraine crisis or Turkish-Cyprus conflicts, for economic reasons such as the dependence of the EU on Russian hydrocarbons, for religious reasons such as the Islamic State and finally, even a matter of defense and precautionary/preemptive strike like the North Korea and the Iran act. States like Russia use energy as a weapon (weaponization of energy) in order to achieve its goals. Generally, states without the greatest democratic ideals make use of the weaponization of energy as they do have in mind that energy is a part of everyday life and a short break would bring huge problems. At the beginning of World War, I, horses were still the central element in the military planning of the great powers, and coal propelled the world's engines, trains, and steam. But four years later, at the end of the war, an energy revolution happened and changed the face of capitalism and oil redesigned the geo-economic and geopolitical world. Shortly after the conflict, the geometric growth of the automobile industry played a fundamental role in the global spread of the combustion engine and gasoline. There is no doubt that the war accelerated the process of this second great "energy transition" in the history of industrial capitalism. This happened after the war, but the "energy transition" from coal to oil played a decisive role in the very outcome of the war. Of course, after oil, other forms were exploited - renewable or not, more dangerous or not - such as hydrogen, nuclear energy, natural gas and so on. In fact, what is in full swing is a gigantic global geopolitical transformation, caused by the globalization of the transnational capitalist system, the vertical rise of China, and the return of Russia to the state of world military power. All these are

happening, at the same time, as the declining economic participation and military domination of the richest and most industrialized Western powers of the 20th century, especially in the case of Europe, rather than the United States occur. And despite these significant changes, a major "hegemonic war" between the United States and China, or even between the United States and Russia, is likely in the coming decades.

In the progressive process of analysis of the theoretical background of conventional, irregular and unconventional wars, this study will focus on the interpretation of the notion of the balance of power. To begin with, *“Conventional warfare is a form of warfare between states that employ direct military confrontation to defeat an adversary’s armed forces, destroy an adversary’s war-making capacity, or seize or retain territory in order to force a change in an adversary’s government or policies. The focus of conventional military operations is normally an adversary’s armed forces with the objective of influencing the adversary’s government. It generally assumes that the indigenous populations within the operational area are non-belligerents and will accept whatever political outcome the belligerent governments impose, arbitrate, or negotiate. A fundamental military objective in conventional military operations is to minimize civilian interference in those operations.”* (U.S. Defense Department, 2007). On the contrary, *“Irregular warfare (IW) can be defined as a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations. IW favors guerrilla and asymmetric approaches, though it may employ the full range of military and other capabilities, in order to erode an adversary’s power, influence, and will. Activities such as, but not limited to, the following examples can be conducted as part of (IW): insurgency, counterinsurgency, unconventional warfare (UW), terrorism, counterterrorism (CT), foreign internal defense (FID), stabilization, civil military operations (CMO) security, transition, and reconstruction operations (SSTRO), strategic communications, psychological operations (PSYOP), information operations.”* (U.S. Department of the Defense, 2007, & DODD 3600). Last but not least, *“Unconventional Warfare (UW) consists of activities conducted to enable a resistance movement or insurgency to coerce, disrupt or overthrow an occupying power or government by operating through or with an underground, auxiliary and guerrilla force in a denied area”* (U.S. Department of the Army, 2008) and a second meaning of UW could be *“Unconventional Warfare (UW) is a general term used to describe operations conducted for military, political or economic purposes within an area occupied by the enemy*

and making use of the local inhabitants & resources”(NATO NSA, AAP – 6 (2010); pp2-U-1; 1.04.1992).

Nowadays, terrorism, sabotage and cyber-attacks are all under the prism of Irregular warfare. Especially, cyber espionage and sabotage attacks pose an increasing threat to the energy industry as they are new forms of malicious attacks that have been developed through years along with the evolution of technology. The first cyberattack began with good intentions and ended with unexpected consequences in 1988 by Robert Tappan Morris, who developed a program to assess the size of the internet. The program would crawl the web, install itself on other computers, and then count how many copies it made. Once tallied, the results would indicate the number of computers connected to the internet. But the conclusion was that his program damaged approximately 6,000 computers (10% of the entire internet at that time). Because of one mistake a whole new threat has just begun.

1.2 Definition of Geo-economics

Geo-economics are so important that the states are mainly equipped to be ready for a possible irregular energy war. And why is that? Because geo-economics, generally, study the geo-economic data of a geographical area or on an international scale, which are related to economic power (economic activities in relation to the geographical environment), in order to utilize them. The so-called geo-economic networks are the various pipelines of electricity, oil, gas, sea and land trade routes, routes of illegal immigration, etc. Among other things, geo-economics study the role of economic interdependence in conflict resolution or prevention, the limits of economics in conflict prevention or resolution, the relationship between economic development and political and social conditions in different countries, such as corruption, the development of organized crime networks and the development of terrorist groups. *“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) As Dr. Platias has mentioned in the “Honorary Volume of Professor Sotiriou Karvouni” “(...) geopolitics and geo-economics are two sides of the same coin, which is none other than the ubiquitous international competition.”

How is Geo-economics changing the International System? According to 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.”*

Conclusion

Energy, generally, plays a significant role in conflicts. Oil and gas are the most valuable commodities and not only create the country's income but also control their production and distribution. Countries like Iraq, Nigeria, Russia, and Syria obtain a great number of their revenues from oil sales, while the major energy firms (NOCs or IOCs) gain immense power. Indeed, whoever controls these states, or the oil and gas areas within them, also controls the allotment of crucial revenues and can definitely shape the political scene. *“Moreover, we live in an energy-centric world where control over oil and gas resources (and their means of delivery) translates into geopolitical clout for some and economic vulnerability for others.”*(Michael T. Klare,2014) Due to the dependence of so many countries on energy imports, nations with surpluses to export –like Iraq, Nigeria, Russia– often weaponize off energy in order to exercise uneven influence. Let us start to better analyze each and one factor by initiating with Russia's case.

Chapter 2: Russia

European's dependence on Russian gas would give Russia more power to weaponize energy against Europe as well as to exercise its malign influence. The manipulation of the pipelines is an important part of a larger unorthodox foreign policy war, along with cyber-attacks, disinformation, and a variety of other tools that Moscow utilizes to impede in other nations' democratic processes and institutions. In the past, Russia has systematically used its energy sector as a toolbox of foreign policy, manipulating the corridors in response to actions and policies that were against Moscow's interests. Examples of this, happened in 1993, 2006 and 2010, when Russia cut off gas flows to Estonia, Ukraine and Belarus, respectively, concerning, as Gazprom claimed, the unpaid debts to Russia. However, the true reason was a policy or even an event that challenged Russian interests, such as the Orange Revolution in Ukraine. In fact, Ukraine has fallen to this tactic on three different occasions since 2006, each time after stating its need to move closer to the EU and NATO.

2.1 Nord Stream 1-Nord Stream 2 Pipelines

The Nord Stream is an offshore gas pipeline from the Russian Federation to Germany, which is owned and operated by Nord Stream AG. It exports natural gas across the Baltic Sea. The project includes two parallel lines. The first line was completed in 2011, while the second line was completed in 2012. It is 1,222 km long and it is considered as the longest submarine pipeline in the world. At first, it was used to have an annual capacity around at 55 billion cubic meters, but by 2019 that capacity was changing to double to 110 billion cubic meters with the installation of two additional lines. The meaning of the Nord Stream pipeline is even broader as not only connects Russia with Western Europe but also includes the overland supply in Russia. Nord Stream pipelines have been opposed by the United States as well as several Central and Eastern European countries because of worries that it would increase Russia's influence even more in the EU and another reason is that the U.S. want to export more shale gas in the region.

The Nord Stream 2 pipeline is a continuation of Nord Stream 1 as its successful construction and operation showed that a new pipeline, similar to the one it operates, will create a more direct connection between Gazprom and European consumers, ensuring even more reliability in the supply of Russian natural resources in the continent. The reduction in domestic gas production in Europe has increased the demand for imported gas; a fact that is well known in Russia. Nord Stream 2 has brought the US and Germany into a bilateral crisis over Russian influence in Europe through energy. US sanctions were imposed but both Germany and Russia reacted by saying that Europe decides for itself on its own energy issues. Generally, gas from Russian territory covers ¼ of Europe's electricity needs. Russia is keen to maintain and increase Europe's dependence on Russian hydrocarbons, and the European Union and the United States want that reduction to a zero-sum relationship.

Germany has insisted that the project will facilitate the transition from coal and nuclear power. However, the United States has argued that the pipeline undermines European security by making the bloc more dependent on Russian energy. Instead, Washington wants Germany to import liquefied natural gas (LNG), especially from the United States. As a result, three Republican senators, Ted Cruz, Tom Cotton and Ron Johnson, sent a printed dissatisfaction to the Sassnitz port in the Baltic Sea, urged that the United States would impose mandatory legal and financial sanctions on the port's construction. The specific port of Sassnitz is one of the main supply hubs for the almost completed Nord Stream 2 project connecting Germany with Russia, which has been strongly criticized by the US government for allegedly increasing European dependence on Russian fossil fuels. The pipeline has occupied Washington so much that there are concerns that Russia's dominance of energy supplies in Europe could turn into a political impetus for Moscow.

Such concerns are not new, as gas from the former USSR and then from Russia has been crucial to fueling the European economy for decades. On Twitter, US President Donald Trump referred to German energy policy, posting: *“Germany pays Russia billions of dollars a year for Energy, and we are supposed to protect Germany from Russia. What’s that all about? Also, Germany is very delinquent in their 2% fee to NATO. We are therefore moving some troops out of Germany!”* Beyond the United States, Ukraine and Poland, which will be bypassed by the pipeline, have already confirmed that Nord Stream 2 will further encourage Russian President

Vladimir Putin to have more control over critical energy flows. The US government's claims that Nord Stream 2 is a *"serious threat to US and European national security"* and both sides in the US Congress are determined to prevent the project from being completed, so that *"these threats never happen"*.

German officials expressed their complete dissatisfaction, saying that both the tone and the content of the dissatisfaction letter were completely inappropriate and that Germany and consequently Europe should not indulge in extraterrestrial blackmail that would make them vulnerable. The companies ENGIE, OMV, Royal Dutch Shell, Uniper and Wintershall which are involved in the Nord Stream 2 pipeline project, are seeking political support against the possibility of US sanctions. Pompeo has mentioned the possibility that German companies will be penalized for even small investments in the pipeline.

While countries such as Germany and France tend to dispel fears that they are overly dependent on Russian energy, other countries, such as Poland and Lithuania, have built their own liquefied natural gas (LNG) facilities to ensure energy independence from Russia, as they do not consider it a trusted ally due to last events.

At present, the European gas market for which the United States and Russia are competing is not as attractive as it once was. Prices have fallen at around 75% in the last two years as a wave of new supplies from the United States and other countries hit the market. More recently, demand has fallen due to lockdowns - to tackle the pandemic. Growing pressures to reduce carbon emissions also raise questions about future gas demand. As Washington worries about Gazprom in Europe, the Russian company has already turned its attention to faster-growing Asian markets as the European market in a decade will start to decline and they have already adapted their policy to something new.

The Russian government is urging the country's top energy companies to expand hydrogen production quickly and is considering using the controversial Nord Stream 2 offshore gas pipeline to transport synthetic gas to Germany. State-owned energy companies, Gazprom and ROSATOM, have been instructed by Russia's energy ministry to generate large amounts of hydrogen by 2024. In a first step, Gazprom announces it is adding up to 20% hydrogen to gas flowing through older and may increase its share of up to 70% in newer pipelines.

As it is written in Gazprom's official site: "*Before Nord Stream, no one in the world had ever built a gas pipeline that could transport gas for 1,224 kilometers without using compressor stations.*" The gas pipeline is expected to operate flawlessly for at least 50 years. It is a transnational project, which will have been completed in compliance with international conventions and national legislation of each country whose territorial waters and/or exclusive economic zone the pipeline crossed. Last but not least, it is eco-friendly as the building of Nord Stream is compatible with the most environmental standards and left the Baltic Sea ecosystem unruffled.

Nord Stream 2 is either considered as a sustainable way to ensure European energy security or a proxy for Russian hybrid warfare (weaponization of energy). The main concern is around Germany's dependence on Russian natural gas which could make it susceptible to exploitation and interference. Through this pipeline which bypasses Ukraine, the ex-soviet state, Russia attempts to weaken the country for its strategic advantage as stopping using it as a gas transit country. This could reduce Ukraine's GDP (gross domestic product) by up to 3%, as well as this isolation has on purpose to show Ukraine as an unreliable energy supplier. The pipeline passes through the territorial waters and EEZ (Exclusive Economic Zone) of three other countries: Finland, Sweden and, Denmark. National governments and local authorities have to keep in mind the economic benefit from investment and employment, but politicians and military experts have concerns related to European security. If they allow Nord Stream workers to use Swedish ports, might provide Russia with an opportunity to gain intelligence and plot espionage activities.

Nord Stream 2 is a pipeline that works as a mean for the Russian gas and influence, allowing Russia to manipulate even more the internal European politics for its purposes. Germany is in greater risk of Russian interference as empowers the Kremlin to pursue undisturbedly its political agenda across the entire continent. Berlin is giving Moscow more strain ties between transatlantic allies.

2.2 Burgas-Alexandroupoli Pipeline

In March 2007, Russia signed an agreement with Bulgaria and Greece to construct an oil pipeline with the initial capacity of 35 million metric tons of oil per year, bypassing Bosphorus Straits, which are controlled by Turkey. The Burgas-Alexandroupoli oil pipeline would be the first Russian controlled pipeline on EU territory. 27 Russian companies would control 51 percent of the pipeline, whereas Bulgaria and Greece would control the rest, 49%. Although, it is still unimplemented as from the summer of 2010 (the year in which the project was originally scheduled to be completed), the Bulgarian side began to raise objections, until in December 2011 it officially announced its withdrawal from the project.

2.3 South Stream -Turk Stream Pipelines

The South Stream pipeline was a proposed gas pipeline to transport natural gas through the Black Sea to Hungary, Italy, Austria. The project was designed in part to replace the planned Blue Stream expansion from Turkey via Bulgaria and Serbia to Hungary and Austria and was considered competitive with the Nabucco pipeline. Completion was expected in 2015. Eventually, due to economic and political factors related to the control of the gas supply field, the Shah Deniz field in Azerbaijan, Nabucco and, ITGI was gradually excluded due to the dominance of the Trans-Adriatic Pipeline. The South Stream pipeline project began to be investigated following disputes between Ukraine and the Russian gas company Gazprom (2006) with Gazprom considering ways of crossing and building pipeline networks that would not cross the interior of Ukraine. The project was characterized as one of the largest technical energy projects. In 2013, however, Russia was unable to continue it. Although, it was found an alternative route, Turkey, which is the only country that it is not an EU member and is not dependent on European policy. The Turk Stream pipeline also bypasses Ukraine through Turkey and will supply gas to southeastern Europe. The Turk Stream pipeline symbolizes the reconnection of Russia-Turkey relations with the ultimate goal of leading to the re-dependence of the EU.

Turk Stream is a natural gas pipeline running from Russia to Turkey and replaced the South Stream project that was canceled in 2014. The Turk Stream pipeline is undermining Europe's energy security, the State Department has warned, accusing Moscow of using its "divide and

conquer" tactic. The United States believe that these pipelines enable Moscow to use energy as a lever of political pressure against European states. The Nord Stream 2 and the second line of Turk Stream do not contribute to the promotion of Europe's energy security goals and will offer Russia an additional tool for the political and economic coercion of European countries, especially Ukraine. A number of sanctions have been imposed by the US on both Turk Stream and Nord Stream 2, as part of a package aimed at *"preventing Russian aggression."*

The Turk Stream also emphasizes the further upgrading of Russian-Turkish relations. Through the energy relation, the situation in Libya is also the subject of matter between the two countries. Many countries accuse Russia of using the pipelines for political influence. And the history shows that this assumption is accurate.

The delivery via the Turk Stream started by Gazprom on January 1st with 3 billion cubic meters of natural gas to Bulgaria. In 2019 sent 3 billion sq. m. to Greece and 500 thousand sq. m. to Northern Macedonia via the same route. It is also claimed that it is very likely that the inter-Balkan pipeline lines that were left unused for gas transportation to Romania, Moldova and Ukraine will be used in the future, if there is a demand. Russia is building two Turk Stream lines, each with an annual capacity of 15.75 billion cubic meters. The first line will supply Turkey and the second will pass through Bulgaria, Serbia and Hungary.

Considering Europe's dependence on Russian hydrocarbons, whether Russia would ever think to shut down gas supply to Europe? This appears to be very rare to happen. It would be suicidal for Russia to shut down gas supply to Europe.

2.3 Blue Stream Pipeline

The Blue Stream pipeline project is a gas pipeline carrying natural gas from Russia to Turkey across land and the Black Sea (to diversify Russian gas routes). The pipeline is owned and operated by Blue Stream Pipeline BV, which is a joint venture between Gazprom of Russia and Eni of Italy. Gazprom owns the section of the pipeline on Russian territory and BOTAS owns the section of the pipeline on Turkish territory. Construction started in 2001-02 and the pipeline was completed in November 2005, while a new extension has been already planned. The

construction of the Blue Stream onshore section started in September 2001 and was completed in May 2002; the total length of the section is 396 kilometers. The building cost was at \$3.4bn. The capacity reached at 16 billion cubic meters of gas a year by 2010. By August 2011, it was carrying 62 billion cubic meters of gas.

The EU is undeniably the world's largest importer of energy. It tries to find out alternative routes outside Russia in order to ensure safe and uninterrupted flow of energy to its Member States. In 2002, the construction of a pipeline, known as the Nabucco Consortium was first mentioned for the aim of the energy security policy.

The pipeline was expected to have length of 3,300 km and the route that would follow would be Turkey-Bulgaria-Romania-Hungary-Austria. The involvement of many companies in the construction of the pipeline, the lack of unity between the EU States and many other delays led to the deviation from the pipeline implementation schedules and significant budget overruns resulting in the construction of the pipeline were the main problems to hack the project. Russia took advantage of the serious difficulties among the States in the implementation of the Nabucco consortium pipeline and it recommended instead the Blue Stream pipeline. Blue Stream gave the advantage to occupy a large part of the market in Southeastern Europe and (to) note its dynamic presence in the Balkan region.

Russia, in May 2007, signed an agreement with Kazakhstan and Turkmenistan that combined the production and transmission of energy through Russian territory to Europe through a pipeline passing the Caspian Sea to the Russian port of Novorossiysk, which would supply the Western European market and the Burgas- Alexandroupoli pipeline. Given the fact that the US had been negotiating with Kazakhstan for years to build a pipeline to transport the Caspian submarine-rich oil and gas field in the wider Caspian region between Kazakhstan and Azerbaijan and of Turkey to the countries of Western Europe bypassing Russia, that approach of Russia was a "checkmate" move.

The United States, for several years tries to limit or even stops Russia's energy influence in the EU, Central Asia, and Middle East. More precisely, the United States seeks to keep the EU in its immediate sphere of influence by preventing the policy of emancipation and limiting Russia by removing any possibility of influence in Western Europe, making Turkey an important energy hub.

The geographical location of Turkey is, according to EU and US leaders, a solution to the problem of EU energy dependence. As it is mentioned, Turkey's ambition is to be an energy hub of the current energy transmission system. But Turkey, which does not have significant deposits geographically, is close to Russia, (which has rich deposits) is in competition due to the conflicting interests and different aspirations and priorities in the energy sector of both.

Blue Stream has been down since May 2020. Turkey is trying to reduce its dependence on Russian gas, and for the first time in almost two decades, it may not import any gas from Gazprom in the next period. As it was announced, the pipeline would be out of operation until mid-August due to repair work, although it was shut down for scheduled maintenance even after August, and it remains closed until today. It is noteworthy that Russian gas imports to Turkey have fallen in recent months by about 70% compared to the same period last year, while Gazprom now ranks third among Turkish suppliers with Azerbaijan in first place and Iran in second. Turkey has replaced a significant portion of its pipeline gas imports with LNG, mainly from the United States, taking advantage of low prices.

2.4 Relations between Russia-Ukraine

Ukraine is a country that stands between Russia and Europe. It was part of the Soviet Union until 1991, and since then it has a less-than-perfect democracy with a weak economy (huge debt) and a foreign policy that fluctuates between pro-Russian and pro-European. Crimea is appraised to be a region of Ukraine that is under hostile Russian occupation. Geographically, it is a peninsula in the Black Sea with a location so strategically important that it has been fought over for centuries. Legally, Crimea is part of Ukraine since 1954, when Soviet Premier Nikita Khrushchev transferred it from the Russian Soviet Socialist Republic to the Ukrainian Soviet Socialist Republic but historically, Crimea is part of Russia as most Crimeans are Russians, at least ethnically.

The substandard relation between Russia and Ukraine counts many years as the area "changed hands" several times between the "Red army"(Red Army was fighting for the Bolshevik form of socialism led by Vladimir Lenin) and the "White army"(White Army included diverse interests favoring political monarchism, capitalism and social democracy)and finally, in 1991,

with the collapse of the Soviet Union, the region remained on Ukrainian territory as the Autonomous Republic of Crimea, while Sevastopol, the main port of the peninsula, also acquired a special status of autonomy.

On November 21, 2013, a protest erupted in Ukraine, due to the refusal of pro-Russian President Yanukovych to sign his country's association agreement with the European Union. The daily demonstrations in the central square of Kiev "Maidan" that took place (Ukrainian Revolution), had an explosive character and on February 22, 2014, President Yanukovych resigned from his power and the Prime Minister Mykola Azarov had done the same a month earlier, under the weight of growing popular pressure. The so-called Crimean crisis of 2014 took place in the Crimean province of Ukraine. Crimean-Russians took the opportunity to take full control of the region, despite the reaction of the international community, and with the March 16 referendum to demand their reintegration into mother Russia and the expansion of autonomy or possible independence for Crimea. Other groups, consisting mainly of Crimean Tatars and Ukrainians, protested in favor of the revolution. The Russian parliament had given Russian President Vladimir Putin the power to use military force in Ukraine. On the contrary, the United States and its allies had condemned the Russian invasion of Crimea and called on Moscow to withdraw its forces. Putin involved army in the crisis because he wanted to grab the opportunity to earn territory and influence for geostrategic and even personal purposes, as long as, he wanted to foment nationalism for political issues.

The main cause of the conflict between Russia and Ukraine is historically located in the energy sector. Ukraine, in addition to being the main crossroads for the passage of Russian gas to the rest of Europe, also depended/still does directly on Russian sources. When the flow of gas was stopped - which was a very important economic source for both countries at that point - the country had been frozen. In recent years, Moscow has been looking to bypass Ukraine for direct access to European markets, and while the Nord Stream pipeline was able to cover less than 40% of European needs, as it is mentioned above, they found a solution with the Turk Stream. Although, Ukraine is looking for alternative sources and hopes to manage its domestic deposits, it undoubtedly depends on Moscow. As far as the European Union was concerned, although the exploration that did take place in the Eastern Mediterranean for the development

of deposits, economic and trade dependence on Russia left no room for intervention as history showed.

In short, gas is the connecting link between all the players in the international game. Even the US is involved. Russia has the privilege, but at the same time has the demanding role of supplier, and any move to challenge that role would automatically turn Europeans' eyes on the Americans in the energy field, especially in the LNG. The economic interdependence between Europe and Russia is huge and leaves no room for friction between them (Russian perspective).

The events in Ukraine, not only, did not change Russia's energy strategy, but reinforced it out of necessity. Thus, the Nord Stream and South Stream pipelines became even more necessary to ensure the independence of the gas flow that traditionally passed exclusively through Belarus and Ukraine and could be used as a political tool in the intermediate space. That's why, for more analysts the situation was deemed to be as an expected expression of the evolution of historical data that had nothing to do with the current situation but with the past.

Till 2014, more than 60% of the gas that was consumed by the EU currently passed through Ukraine. Russia had cut the price of gas from \$ 400 to \$ 268 per 1,000 cubic meters as a "gift" to Yanukovich over his decision not to enter into an association agreement with the EU and a rise in price or even the scenario of restoring the original price would be a nightmare for the Ukrainian economy. In addition, the heavy debt for Russia is the Ukrainian debt to Gazprom, which exceeds 2 billion dollars. Any aggressive move towards the European market, would call into question Russia's role as a major supplier of gas and (would) lead to the search for more suppliers. The interdependence between Russia and the EU was-and still is- quite close and that was obvious as more than 1/4 of the total gas consumed in Europe came from Russia. In addition, the EU took seriously the trade and economic agreements that several European countries have concluded with Moscow. Trade between Germany and Russia, for example, exceeded 45 billion euros.

The United States in the events in Ukraine could, under certain conditions, release some of its energy and (could) send it to Europe in the event of a crisis between the EU and Russia. However, that was not just a simple strategic decision - it was not made even when Iran accepted the embargo from the EU.

Russia was Ukraine's largest importer of natural gas and often used this fact to pressure its neighbor politically. Some sectors of Ukrainian industry (metallurgy, fertilizers) were completely dependent on Russian exports. What often makes things worse was that Ukraine did not pay on time. Ukraine owed Gazprom about 4 billion dollars. The country couldn't find them, since they were looking for 35 billion at the same time to finance its debt. In January 2006 and early 2009, Gazprom decided to cut off supplies to Ukraine, at the behest of the Kremlin, and at the same time block the supply to Europe, as pipelines to Europe also pass through Ukraine. At that time, the Russians wanted to pressure Ukraine on its gas debts and unpaid loans, but also to punish it because it "flirted" with the idea of a European approach. As a result, many Central and Eastern European countries had been deprived of gas, reducing consumption by 40% over the last 15 years, following two Russian-Ukrainian gas disputes (2006, 2009). Although, the problems of Russian gas transit began with the collapse of the Soviet Union, as Russia used the gas tap as a "weapon" against Kiev, cutting off supplies in the fall or winter (1992, 1993, 1994). So, it had happened before.

When Russia invaded Crimea in March 2014, it acquired not only land but also a sea area three times the size of the peninsula, which has submarine resources that could be worth trillions of dollars. Russia had described the annexation as a legal recapture of its territory, without drawing attention to the recent rise in oil and gas area in the Black Sea. The move, however, expanded Russia's maritime borders, quietly giving the country dominance over vast oil and gas reserves. Russia had achieved this on the basis of an international treaty which stipulated that a country might have had sovereignty over areas up to 370 kilometers off its coast. Russia had unsuccessfully tried to gain access to these energy reserves in 2012, trying to reach an agreement with Ukraine. However, the prospect of major energy benefits from the Black Sea increased significantly when a giant ship drilling off the coast of Romania discovered a huge gas field about 800 meters deep. Russia moved quickly. In April 2012, Putin oversaw the signing of an agreement with the Italian energy company Eni for research in the Russian economic zone in the Northeast Black Sea. In August 2012, Ukraine announced an agreement with companies led by Exxon to extract oil and gas from the depths of its territorial waters in the Black Sea. Exxon had made a better offer than the Russian Lukoil. When Russia occupied Crimea, it presented an annexation treaty. Article 4 (3) merely states that international law

defines the demarcation of the border between the Black Sea and the associated Azov Sea. Many countries opposed the Russian occupation of Crimea.

Since Crimea reunited with Russia in 2014, the Sea of Azov has become one of the warmest regions in the world. The status of the Sea of Azov is typically governed by an agreement signed in 2003 by Vladimir Putin with Leonid Kuchma, the President of Ukraine. The agreement stipulated that the two countries would share the Azov Sea and would exploit it respectively. In addition, it provided that whenever warships move, there should be prior information from the other country. But in 2003, Crimea was still part of Ukraine, and today it is reunited with Russia. This means that since 2014 both sides of the Kerch Strait, belong to Russia. But at the same time two important Ukrainian ports, Mariupol and Berdyansk are located in the Azov Sea as well as a part of the Ukrainian navy. In fact, in 2016 Russia began construction of a bridge connecting the two sides of the Kerch Strait. The bridge cost \$ 3.7 billion and allowed the road connection between Crimea and the Russian Federation. The bridge was intended to address its problem of land blockade of Crimea. We also recall the problem created in Crimea by the decision of the Ukrainian authorities in 2014 to close one of the main pipelines that supply water to the Crimean Peninsula. The European Union and other international bodies condemned the construction of the bridge and in fact the European Union in July 2018 imposed sanctions on six Russian companies that participated in the construction of the bridge. The bridge itself also offers much more direct navigation control to and from the Azov Sea. Due to the construction of the bridge there was only one opening in the bridge that allowed entry into the Azov Sea.

Ukraine-Russia relations have improved without being able to be described as harmonious and this was made obvious by the 2019 agreement that that the countries came to a decision to resume the transfer of Russian gas to Europe without bypassing Ukraine for a period of 5 years. The agreement was signed between Russia's Gazprom and Ukraine's Naftogaz and entered into force on January 1. Gazprom, which supplies more than a third of Europe's gas needs, will transport 225 billion cubic meters of fuel through Ukraine over the next five years. The deal also includes the payment of \$ 2.9 billion from Moscow to Kiev to end the legal dispute between them. The agreement implies energy security for both Ukrainians and Europeans, avoiding a possible war for gas, with Russia being the main supplier. But is Russia a reliable

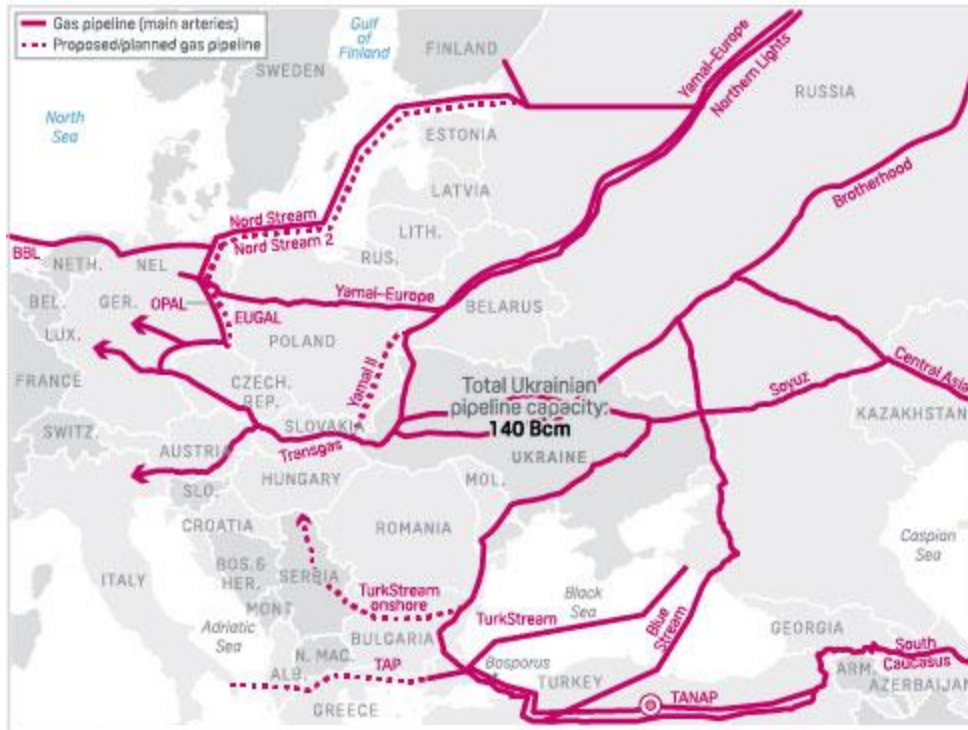
supplier for Ukraine, which in the past has fought and is still struggling to re-establish itself? According to the aforementioned pipelines and Russia-Ukraine relations, it is understandable that Russia is becoming an increasingly dangerous player in the Eastern Mediterranean region, seeking to increase the EU's dependence on Russian energy procurement (weaponization of energy). Russia's policy is aimed at blackmailing energy and energy security.

Energy also played a key role in Russia's determination to take the Crimea by military means. By annexing that region, Russia virtually doubled the offshore territory that controls the Black Sea, which is thought to house billions of barrels of oil and vast reserves of natural gas. Prior to the crisis, several Western oil firms, including ExxonMobil, were negotiating with Ukraine for access to those reserves. Now, they will be negotiating with Moscow. *"It's a big deal,"* said Carol Saivetz, a Eurasian expert at MIT. *"It deprives Ukraine of the possibility of developing these resources and gives them to Russia."*

Conclusion

All in all, Russia is the greatest example of a country or, let us say a state factor, that makes weaponization of energy successfully, through the years. We witnessed some of the most known cases in energy infrastructure and sector like pipelines, hubs, even a crisis. For Russia, energy can be an armed warfare -Crimean crisis. To Europeans energy dependence on Russia is unsettling. *"The Kremlin through its two state monopolies, Gazprom (for natural gas production and gas pipelines) and Transneft (for oil pipeline transit), has demonstrated its readiness to use hydrocarbon muscle and newfound wealth as a political tool in its relations with neighboring states, while reaching out to bolster anti-status quo energy exporters, such as Venezuela and Iran, endangering international security."* (Dr. Ariel Cohen, 2009).

EUROPE'S GAS PIPELINE TIES TO RUSSIA

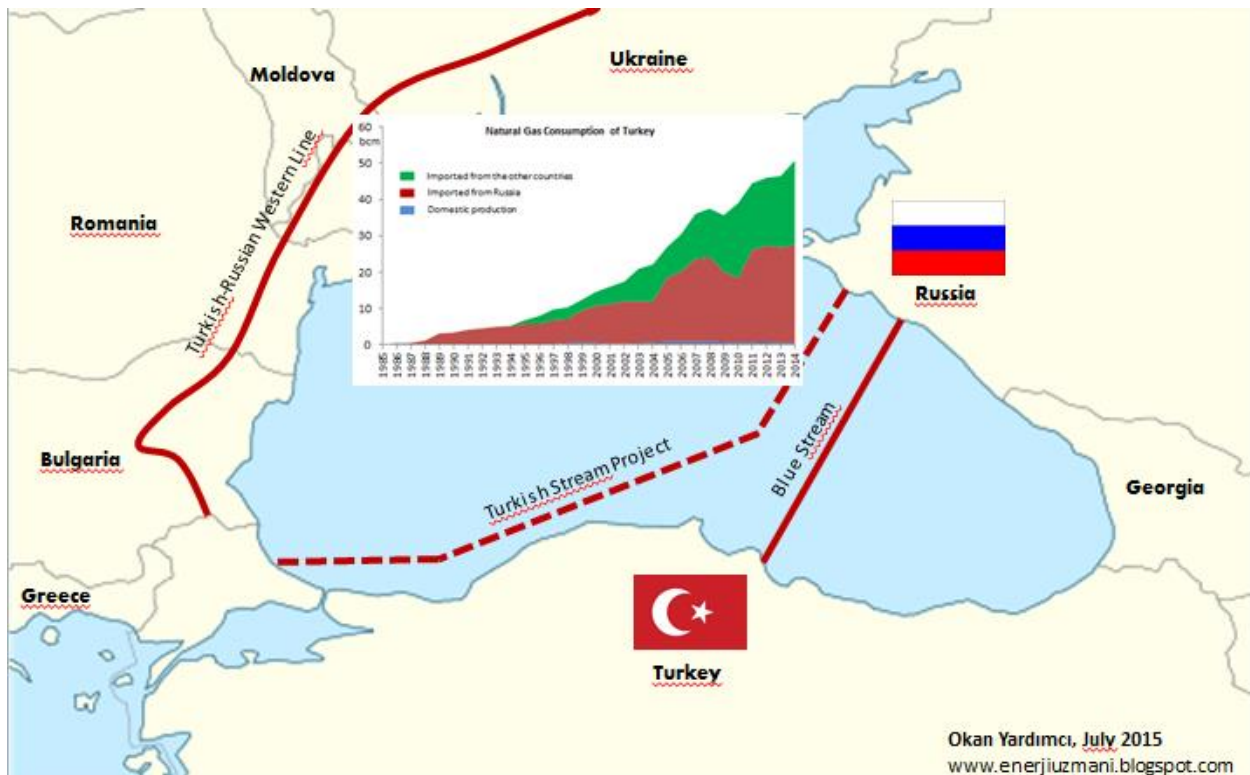


It would be interesting to also note Russia's concerns about: What is modern war? What should the army be prepared for? How should it be armed? Gerasimov claimed that the Russian military needs to be tooled accordingly. For fighting Western hybrid war is needed a massive and accurate conventional firepower.

Chapter 3: Turkey

Turkey's energy autonomy is one of Erdogan's most strategic long-term goals. With a time horizon of 2023, the Turkish president desires his country to be the strongest in the Eastern Mediterranean region, while he seeks to reduce dependence on the other countries. The most basic of these is located in the energy sector. Turkey is not a major energy producer but importer. On the contrary, though it has significant lignite reserves (10 billion tons) and hydroelectric potential (180 billion kilowatt-hours), but concerning oil and gas Turkey is heavily dependent; imports meet 92 percent of its oil demand and 98 percent of its gas demand. “Yet, Turkey’s strategic location, which makes it a natural energy bridge between major energy producing areas in the Middle East and Caspian Sea regions in the East and big consumer markets in Europe and further West, assigns it a place among the countries most important to global energy security.” (Necdet Pamir,2009).

3.1 Turk Stream Pipeline



Turk Stream is a 910 km long gas pipeline that runs under the Black Sea and energetically connects Russia with Turkey. In total, the two "twin pipelines" that make up Turk Stream have a maximum capacity of 31.5 billion cubic meters of gas per year. The first section of the pipeline will supply Russian gas to Turkey, while the second to southern Europe. When it officially launched in late 2019, Russian energy giant Gazprom supplied gas to Turkey, which is Russia's second largest "client" country after Germany.

Turkey is heavily dependent on gas imports from Russia, Azerbaijan and Iran, as domestic production covers only 2% of needs. Currently, the Blue Stream pipeline is the one that transports most of the natural gas from Russia to Turkey, while the rest reaches Turkey via another pipeline, which passes through Ukraine and other Eastern European countries. Imported gas covers almost a third of Turkey's total energy needs. Turkey is the only country in the wider region that has such an increased demand for gas since the outbreak of the international financial crisis in 2009. In 2018, the gas consumption reached a record of 53.5 billion cubic meters, an increase of 20% over the previous year. Many analysts even predict that gas demand from Russia in Turkey will increase in the upcoming years.

Turk Stream, as it has been mentioned, is a tool with which Ankara is trying to make the most of its advantageous geographical position and to function as a key energy hub in the wider region. Russia's energetically connection to Turkey under Turk Stream, symbolizes the reconnection of Russia-Turkey relations with the ultimate goal of re-depending on the EU. The Turk Stream pipeline is the alternative route for transporting natural gas from a country like Turkey which is the only one that is not in the EU and is not dependent on its policy but is a node of it. The Turk Stream pipeline also bypasses Ukraine through Turkey and will supply gas to southeastern Europe. The project, not only helps to improve the Russian-Turkish relations but also contributes to the future cooperation between the countries. Turk Stream, -and generally every bond that is created with a pipeline-, can strengthen the cooperation and ensure economic benefits.

Bypassing Ukraine increases Turkey's energy security as there is no need of intermediate countries which may cause potential interruption. Any interruption would pose a significant risk for the Turkish economy and reliability. Also, the transition of the annual 14 billion cubic meters of gas

through the first line of Turk Stream, without changing terms and conditions of the existing agreements, means reducing this risk.

Turkey, as it has already been mentioned, wants to be an energy hub that's why it increases its presence as a regional actor by getting involved in international energy projects. This move may decrease Turkey's dependency on Russia, but it increases Russia's dependency on Turkey, concerning the Turk Stream pipeline. Russia's goal is the West Natural Gas Pipeline start becoming dysfunctional due to Turk Stream, so that more countries, like Hungary, Bulgaria and Serbia, will become dependent after being tempted by the latter. Turkey has agreed to build the pipeline by crossing its territory as it wants to become the cheapest hub, attracting more investment needed by the country. However, Turkey is extremely precarious by highly dependent relations. On the other hand, this cooperation can be transferred to the level of geostrategy in Syria, something that does not seem to be possible at the moment.

3.2 Nabucco pipeline



(The planned route of the Nabucco pipeline. Source: Wikimedia Commons - <http://bit.ly/2x0SnRJ>)

In Ankara, a framework agreement was signed for the rights of co-exploitation of natural gas, flowing through the territory of 5 countries, Turkey, Bulgaria, Romania, Hungary and Austria. The

Nabucco pipeline was fully supported by the EU and the US, for the decoupling of the old continent from the Russian energy. Its construction began in 2011 and the course of the pipeline led through Romania, Bulgaria, Hungary and Turkey. The total length would be 3,300 kilometers, the number of pipelines would reach 20,000 and the cost would exceed 8 billion euros. The gas would originally come from Azerbaijan, a country of the former Soviet Union that is considered to have one of the richest oil and gas fields in the world. Turkmenistan had also expressed interest in participating, while Turkey, through which most of the pipeline would pass, had abandoned its bid to buy 15% of the passing gas, which was the main obstacle to signing the current agreement. Ankara's position would be significantly upgraded but after an announcement of the construction of TANAP, the consortium submitted the Nabucco-West project. Construction of Nabucco-West depended on the gas export route decision by the Shah Deniz consortium. After Shah Deniz consortium decision to prefer the Trans-Adriatic Pipeline over Nabucco, the Nabucco pipeline plan was finally aborted in June 2013.

3.3 Turkey vs Hellenism

“Except for Nile Delta Basin (possess 6.3 tcm of gas and 1.8 barrels of oil), the rest of Eastern Mediterranean was not perceived as a prosperous area.” (Liakouras,2019) This changed dramatically after the discovery of huge offshore fields in Israel and Cyprus, recovering trillions of cubic meters of natural gas. Also, ENI, the Italian drilling company had announced on August 30,2015 the discovery of the supergiant deposit within the EEZ of Egypt (approximate to 30 trillion cubic feet of natural gas). Zohr borders with the already existing fields of Leviathan and Aphrodite and is the largest deposit ever discovered in the Mediterranean. The most recent discoveries are Calypso (2018) and Glaucus-1 (2019).

The stakes were high! The Levantine Basin contained undiscovered technically recoverable reserves of 3,5 trillion cubic meters of natural gas and 1,7 billion barrels of oil. *“According to Noble report of 2010 the Leviathan discovery amounted approximately to a prospect of estimated recoverable reserves of 481bcm, while Tamar discovery amounted to 225bcm of natural gas with a bit more than 14bcm of gas reserves.” (Liakouras,2019)* The Leviathan gas deal is the first ever major agreement between Israel and Egypt since the historic 1979 Peace Treaty. In 2010 Israel and

Cyprus agreed on an EEZ delimitation agreement because they found it as a necessary move as Leviathan is close to the agreed maritime borders. Due to new Basins the geopolitical landscape altered in the region and Cyprus and Israel found in the foreground as they became energy independent countries which they do not need to import hydrocarbons anymore.

In Eastern Mediterranean, there are two of the most important Basins, Herodotus and Levantine. The Herodotus Basin is bordered by Greece, specifically by the south-eastern coasts of islands of Rhodes, Karpathos and Crete and the eastern and southern coasts of the Meis Kastellorizo complex, Turkey and Cyprus. On the other hand, the Levantine Basin is between Egypt, Israel, Lebanon, Syria, Turkey and the eastern and southwards of Cyprus. Cyprus benefits from its geography as the island's coasts are approached by both Basins.

Turkey always wanted to be a transit country/hub , but T/C and therefore Turkey did not gain any profit from Levantine Basin deposits, that is why they tried to sabotage the Egypt-RoC agreement of 2003. Turkey imposed to the validity of the 2003 RoC-Egypt EEZ delimitation agreement , claiming that the absence of the T/C community lacks legitimacy of the agreement. Concerning a BP statistical Review, natural gas consumption in Turkey increased from 14.6bcm in 2000 to 3bcm in 2010. Most of the imported gas was going through pipelines from Russia and Azerbaijan. *“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)

“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)

Turkey is recognized that territorial sea is the only zone that an island can claim, concluding Cyprus; an island, neither enjoys nor can 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)

Turkey has agreed on median line method of delimitation of continental shelf with Egypt, not recognizing the rights of Kastellorizo complex and the RoC's western coasts. Turkey's propose could be considered as an ideal offer for Egypt from a space that not within its jurisdiction. *“Thus, Turkey challenged the quarters of the nos 1,4,5,6,7 blocks creating an overlap with Turkish claims of almost 7000km² in the Eastern Mediterranean.”*(Liakouras,2019)

In 2011 Turkey made an agreement with the self-proclaimed TRNC (Northern Cyprus), in order to delimitate the continental shelf between Turkey and Northern Cyprus on the basis of light equity. Northern Cyprus is an illegal entity (self-proclaimed) and not a state that has any right to do so, according to international law.

Turkey lined up the oceanographic vessel, – Barbaros -, to explore hydrocarbons. However, they did not ask the permission of the RoC as required according to UNCLOS. So, their exploratory activity that consisted of seismic surveys was illegal (UNCLOS Art.77). Turkey challenged Nos 1,2,3,9,13 blocks that belong to Cyprus. *“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)

In March 2019 to UN/SG Turkey claimed that has exclusive sovereign rights in an *“area that covers overlapping entitlements of Turkey, Greece, and Cyprus with regard to continental shelf /EEZ.”* (Liakouras,2019) In 2019, Turkey deployed the drilling vessel with the name “Yavuz” to conduct seismic surveys in Karpass peninsula, the territorial seas of Cyprus. These surveys were illegal once again as the coastal state had not given its consent. The same drilling vessel then moved to plot No 7, a block that is licensed by RoC law to the ENI and the TOTAL Italian and French companies for extraction activities.

In fact, Turkey's ambitions are to stop any attempt/effort of RoC from any sovereign rights regarding hydrocarbons to either delimited or un-delimited maritime areas.

Turkey until May 2019 evoked that it has sovereign rights in Eastern Mediterranean across Rhodes island. During the mid-70s's Greece and Turkey had started a dialogue towards settling the dispute over delimitation; a dialogue, which ended up to nowhere. Greece is in favor of median line method of delimitation (between eastern islands and opposite Turkish continental coasts and judicial method of settlement), while Turkey of equity (between opposite continental coasts leaving aside

from delimitation close to Turkey Greek islands). There was no sign of compromise and Greece is still claiming the same things.

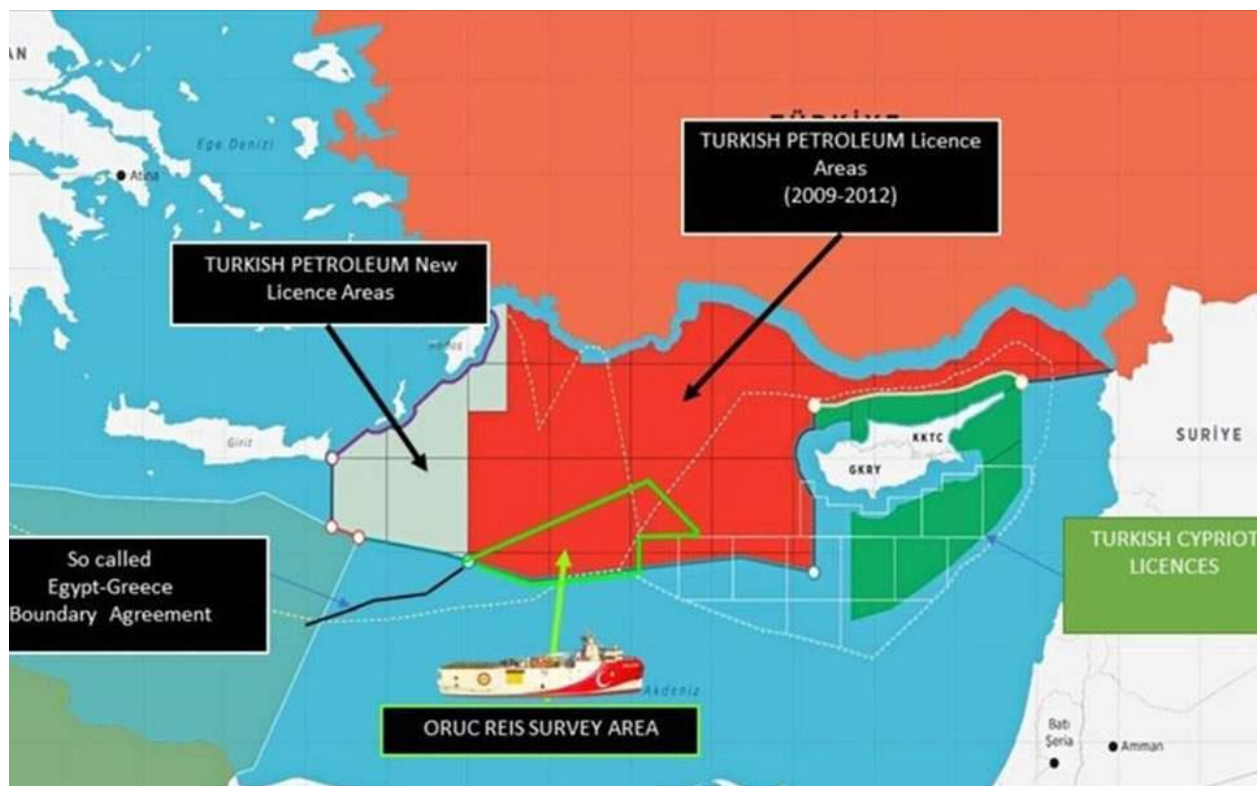
Lately, there is a scenery of escalating crisis, turmoil and diplomatic moves composing the Greek-Turkish relations, after the first NAVTEX that was issued by Turkey, according to which it conducted research in the sea area, south of Rhodes and Kastellorizo and southeast of Crete. *“The prolonged period of tension in the region has turned into a crisis scene, with analysts considering the possibility of a hot episode visible, since Turkey announced that it will sail the Oruc Reis research ship in a sea area located within the Greek and Cypriot continental shelf.”* (ERT, Greek Channel,2020)

According to the scientific publications of the Hellenic Hydrocarbon Management Company, the reserves in the south of Crete exceed 5 trillion M3 of natural gas, as a result of which they can cover 50% of the EU energy needs for 50 years. This would bring Greece to the fore and could further reduce the European need for Russian hydrocarbons. In fact, a couple of more NAVTEX followed in the area of the Greek continental shelf for a month. However, Greek diplomacy remains cautious about the next moves of the Turks.

“The Mediterranean is becoming one of the world’s most militarized zones, as littoral states and outside powers boost their naval presence” (Macron,2020) The last two events pushed Ankara’s sense of encirclement to reinforce. The first had to do with 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 supported it. The second was the signing 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)

“Ankara’s heightened threat perception is reflected in the prevalence of the notion of Mavi Vatan, or blue homeland, in the Turkish security discourse.” (Tolga Demiryol,2020) Coined by a high-ranking Navy officer in 2006, the term “blue homeland” originally signified Ankara’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 Defence Doctrine,” 2020)

Drawing on deep-seated historical imagery, such as the Treaty of Sèvres and anti-imperialism, the blue homeland doctrine now seeks to chart an independent course for Turkey in an increasingly multipolar order. “Relying on hard power instruments supplied by the burgeoning national defense industry, this policy contrasts sharply with the rhetoric of soft power which previously marked Turkey’s foreign and security policy.” ((Tolga Demiryol,2020)



(Anadolu Agency)

3.4 Turkey and Russia cooperation/rapprochement on nuclear energy issues

The Akkuyu Nuclear Power Plant is a nuclear power plant in Turkey. It will be the country's first nuclear power plant. In May 2010, Russia and Turkey signed an agreement in which a ROSATOM subsidiary, Akkuyu NGS Elektrik Üretim Corp. would build, own and operate a power plant in Akkuyu that would include four 1,200 MW VVER units. The agreement was ratified by the Turkish Parliament in July 2010. The main construction began in March 2018 while the first unit is expected to be operational in 2023. The other three units are expected to be completed by 2025. The financing is provided by Russian investors, with 93% coming from a ROSATOM subsidiary. Up to 49% of the shares can be sold later to other investors. Potential investors are the Turkish companies Park Teknik and Elektrik Üretim. In practice, the Akkuyu nuclear power plant will not simply be built by Russia, but will be operated by Moscow for at least 49 years.

It is not known at this point whether Russia will export know-how to Turkey, at least at this stage, but beyond this co-operation, Ankara attempts to become a nuclear power in various ways for several years. There are two aspects of concerns. The first aspect concerns the construction of a nuclear reactor in an area that is quite seismic. Anyone can easily understand what the risk of a nuclear accident means in a closed ecosystem, such as the Eastern Mediterranean. The second aspect has to do with Turkey's nuclear ambitions (nuclear weapons vs energy).

Russian-Turkish co-operation on the construction of Turkey's first nuclear power plant in Akkuyu is progressing rapidly, despite warnings from experts about the enormous environmental threat that it is posed to the entire Mediterranean. The Russian companies that have undertaken the construction of the Akkuyu Station under the supervision of the Russian Atomic Energy Company (ROSATOM) made the first big test for the strength of the hydraulic system of the nuclear reactor. The results as announced were satisfactory as the facilities withstood the pressure they were subjected to and was 1.4 times higher than the pressure to which they will be exposed during the operation of the station. Russian manufacturers believe that this system can last for a period of 60 years.

Turkey's access to nuclear energy, even in the first phase for peaceful purposes, worries not only neighboring countries, like Greece, but also the scientific community as many experts do not hold back their concern, believing that Ankara's real goal is to acquire nuclear weapons. Erdogan's statement to members of his party confirmed these concerns as he claimed that it was unacceptable that Turkey could not have its own nuclear weapons. *"Some countries have nuclear warheads, not*

just one or two. "But they tell us that we do not have the right to have nuclear weapons. This is something I cannot accept."

Turkey insists that the construction of the nuclear power plant is to reduce its dependence on imported gas, but there are objections to the sincerity of the Turkish arguments, as Akkuyu does not make Turkey less energy dependent on foreign forces as Russia will have the ownership and responsibility for the operation of the Station.

Last but not least, this power plant would invigorate Turkey's relation with Pakistan, which is a nuclear power, and the alliance and ideological-religious coexistence that has been forged with Pakistani leader Imran Khan. Erdogan's current influence in Islamabad exceeds that of North Korea, Iran and Libya, which have already received assistance from Pakistan. Estimations of real nuclear capabilities vary, and the most troubling ones are based on the very close relations that Ankara has developed with Pakistan in recent years. It is known that Pakistan has exported know-how to several countries, although such a relationship with Turkey is not confirmed. Turkey's nuclear energy concerns the geostrategic balances in the wider region and poses an additional permanent threat to the environmental security of the entire Mediterranean and the Middle East.

3.5 Turkish-Russian special relations in South Caucasus, Libya and Syria



Via ghetty images

Turkey has shown its willingness to take advantage in Syria, Libya and the Black, Aegean and Mediterranean seas. About Syria, the relation between Turkey and Russia should be further investigated/analyzed. Relations between the two countries have limits and these limits are always dictated by Russia, as it is the strongest pole/country in this case. Moscow showed its interests and power in Syria, when the Turks tried to go beyond the limits dictated by the Russian-Turkish agreement. Syria and the Assad-Putin relationship are Russia's great strategic advantage over Turkey, as Russia's simultaneous good relations with the Kurdish population make Turkey vulnerable in the event of a Russian-Turkish rift. Putin chose Turkey because he definitely needs to disorganize and discourage NATO from any action it takes in Libya.

Finally, there was another front in Russia-Turkey relations. This is the rift in the Caucasus and it concerns the Azerbaijan-Armenia conflict. Armenia is obviously an important country for Russian interests as was a part of it, once. Armenia is the bridge that connects the Caucasus with Central Asia and the Middle East. Turkey's positions in Libya are incompatible with Moscow and between Azerbaijan-Armenia war, Turkey has taken an open position in favor of Azerbaijan.

In Libya, Turkey was trying to use Russia. Knowing that its dependence on Russian geostrategy is growing, Turkish policy in Libya seems harsh in balancing Russia's primacy in economic relations and in Syria.

Russia wants to use Turkey as a Trojan horse to deepen its penetration into North Africa, the Middle East and the Mediterranean, and to block all energy projects that are competitive with their Russian counterparts. On the other hand, Turkey is trying to take advantage of the powerful Russian policy and influence. Turkey, therefore, wants to use Russia as a Trojan horse of its interests and when these interests diverge, (Turkey wants) to return to the NATO line.

The regions that Russia wants to have under its control, -Central Asia, Middle East, Balkans and Eastern Mediterranean- are, in fact, the same as Turkey wants to control.

The operation in Libya, where a no-fly zone was created, a sea blockade imposed, private military contractors were widely used in close interaction with armed formations of the opposition. Yes, these were all used in Libya, but whether they were that new is open to question. The key point for Gerasimov, I believe, is that actions such as the no-fly zone that were presented as (and have traditionally been) the preserve of humanitarian interventions were really used to favor one side in the conflict, the rebels. *“Combined with the use of mercenaries to support them, this makes Libya a convenient synecdoche for the kinds of operations the Russians are really contemplating, whether their own or the West’s, in which the mask of humanitarian intervention and peacekeeping can shield aggressive actions.”* (The ‘Gerasimov Doctrine’ and Russian Non-Linear War, Stephen Franke,2019)

Armenia-Azerbaijan

Americans created the Southern Corridor, the TANAP pipeline that carries Azeri gas to Turkey, and its expansion, the TAP, to Europe. To date, this project has been a complete success. The first results in energy detoxification in Europe were obvious in Bulgaria through the IGB. Another

pipeline that starts from the Caspian Sea, and reaches to the port of Ceyhan, is the Baku-Tbilisi-Ceyhan (BTC) pipeline, which has been in operation for more than 14 years. According to Petroleum Pipeline Corporation (BOTAS), the pipeline has carried 3.4 billion barrels of crude oil since 2006.

These pipelines, that have been mentioned above, are Russia's new target through the crisis that erupted between Armenia and Azerbaijan. The crisis in the region started right after the US sanctions on the Turk Stream pipeline and Moscow would never remain inactive in this region. The TANAP and BTC pipelines start from Azerbaijan, enter Georgia and end up in Turkey, bypassing Armenia. During the negotiations of both pipelines, both Turkey and Azerbaijan demanded that Armenia stay out of the path, mostly for economic reasons. In fact, Azerbaijani President Ilham Aliyev wanted the complete isolation of Armenia that would create an additional problem for their future.

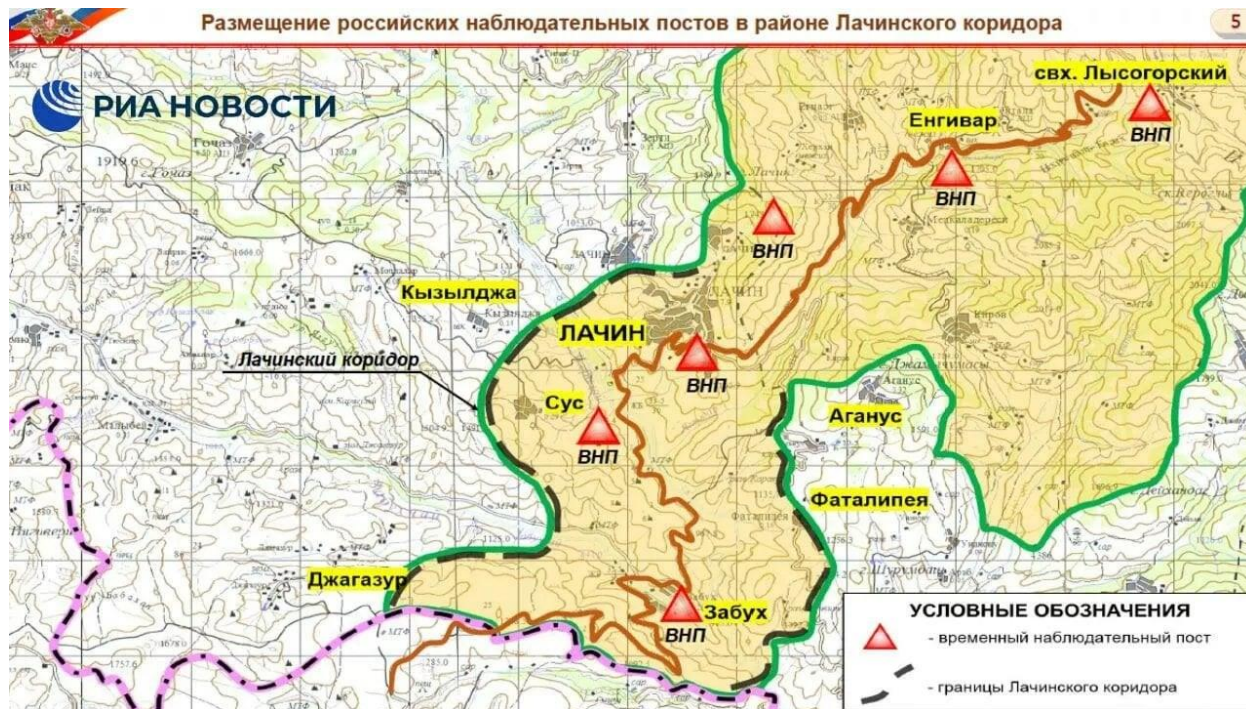
The recent clashes between the two countries have caused the pipelines to bypass Armenia and enter Georgia, Tovuz. Nagorno – Karabakh is also the reason why the Azerbaijani forces did not retaliate with large-scale operations. A total war in the Tovuz region would force Baku to cut off the flow of pipelines.

The latest war between Armenia and Azerbaijan shows that Russia sells military equipment to both countries. Moscow maintains a base in Armenia. On the other hand, Turkey traditionally is Azerbaijan's ally and it seems that Nagorno, which is rich in natural gas fields, is Turkey's shelter to enforce TPAO. In general, Russia has intervened vigorously whenever its vital interests in the region have been jeopardized. Of great importance was the fact that Turkey allegedly sent Syrian jihadists to Azerbaijan to fight the Armenians.



Via SPUTNIK. The current map of Armenia/Artsakh/Azerbaijan. Green areas under Azerbaijani control or to be annexed to Azerbaijan. A clear defeat for the Armenian side.

On November 10, 2020, Armenia, Azerbaijan, and Russia signed an agreement to pause the military conflict over the disputed enclave of Nagorno-Karabakh. Nikol Pashinyan, the Armenian Prime Minister, referred to this deal as an *"incredibly painful both for me and both for our people"*. A few weeks have passed through the conflict between Azerbaijan and ethnic Armenians. *"Although both sides took steps to reduce tensions last year, fighting erupted at the end of September and several attempts to end the conflict failed."* (BBC News, 2020) The terms of the new ceasefire agreement include: A) the return of 5 out of 7 occupied territories (outside the borders of Artsakh / Karabakh) to Azerbaijan with a tight timetable, B) the presence of peacekeepers from Russia to the region, C) the construction of two corridors - one between Armenia and Artsakh and one between Azerbaijan and Nakhchivan. All in all, the big winners are the Russians. The Turks who wanted to send their own army to Azerbaijan were sidelined by this move of the Russians. It is rumored that the Turks fired on a Russian helicopter to accuse the Azeris and prevent the agreement from being implemented. The Turks may be "brothers" with the Azeris but the political interests are above "kinship".





Russian mainstream media released four maps from the Russian military that show the location of peacekeeping forces in Nagorno-Karabakh conflict zone. No surprises here. Russian peacekeepers will be positioned along the Line of Contact and Lachin Corridor.

Libya

"Turkey is in talks for oil and gas exploration in Libya as the government of President Tayyip Erdogan seeks business opportunities in the conflict-torn North African country," Bloomberg recently reported.

MUSIAD is one of the two major federations of Turkish industry, founded in 1990 by businessmen who are loyal to Islam. MUSIAD competed with the traditional TUSIAD, which is secular and clearly pro-European. MUSIAD is loyal to Erdogan and his goals. What Erdogan really wants in Libya is to exchange the military and political "protection" he sold to the government of Tripoli and Fayeze al-Saraj with a dominant role in the exploitation of the vast natural resources. The country has the largest oil reserves in Africa.

Recently, Libya had been experiencing a large wave of spontaneous popular demonstrations sparked by shortages of basic goods, primarily electricity and medicines. Both governments in western Libya (Saraj) and eastern Libya (Saleh-Haftar) were really trying to bridle protesters. The first scapegoat was the government of Benghazi, which is close to Haftar and (which) resigned on 14th of September. However, the legitimate prime minister of the country, Fayeze al-Saraj, head of the government of Western Libya, is also ready to resign. Al-Saraj aims to send a message of goodwill to the international community that he wants peaceful talks under the auspices of Morocco with the ultimate goal of holding elections in March 2021. Apart from Turkey, which continues the flyover to Al Watiya Air Base in northwestern Libya, East Libya continues to be supplied by Russia and Egypt, fortifying the Sirte-Jufra line, the gateway to the Petroleum Crescent. This "mess" is a very familiar situation in Libya, as after the fall of Gaddafi, the country was ruled more by a number of alliances, such as the Tuareg and Tubu in the south or the tribes of Gaddafi in Sirte, than by governments in the sense we define them in the West.

The impossibility of an agreement on the sharing of power was the main problem in Libya. East Libya outweighs in wealth resources and is supported by Russia, Egypt and France while West Libya excels in population while is supported by Turkey and Qatar.

The involvement of so many external actors shows that, initially, all of them have different aspirations, and, then, some of whom do not want peace but the consolidation of their dominant position.

In general, Ankara continues its framework of a long-term military presence in Libya (creating airspace and naval bases). The balance of power shifted in the Eastern Mediterranean in favor of Turkey and there is a tense increase on its capabilities for the expansive definition of maritime borders and offshore exploitation. Possessing oil fields and terminals in the Cyrenaica, Ankara could set up bases closer to the border with its eastern neighbors, securing military control over the main oil terminals and Libya's oil exports.

On 29th of June, the Turkish company "Karadeniz" announced that it was preparing to produce 1000 megawatts of electricity in Libya that amounts to 16 billion dollars. However, the works have been stopped due to the conflicts, while the contractors could not travel due to the coronavirus pandemic.

Turkey, as well as the main foreign supporters of the LNA (Libyan National Army) - which are Russia, the United Arab Emirates and Egypt - had sent weapons and fighters to Libya, despite the UN military embargo. A new agreement was reached on October 23, 2020, after the internationally recognized Government of National Unity (GNA) in June repulsed the forces of the Libyan National Army (LNA) of eastern Libya, Khalifa Haftar, who had been attacking the capital for 14 months. Precisely, the two parties have signed a permanent ceasefire agreement. According to Reuters, key details on the implementation of the ceasefire, including monitoring the departure of foreign fighters and the merger of armed groups, have been assigned to subcommittees. Libya's envoy to the UN, Stephanie Williams, said the ceasefire would take effect immediately and all foreign fighters must leave Libya within three months.

Turkey and personally Recep Tayyip Erdogan is the biggest loser after this agreement as he had invested in the conflict in Libya because this war served to consolidate the Turkish presence in the Eastern Mediterranean. Turkey was a regional superpower that had a strong saying in North Africa. Due to Libyan oil industry, Turkey served its interests and at the same time it could blackmail both EU and Russia. Last but not least, it strengthened the Muslim Brotherhood, which was Turkey's closest ally in the wider Middle East.

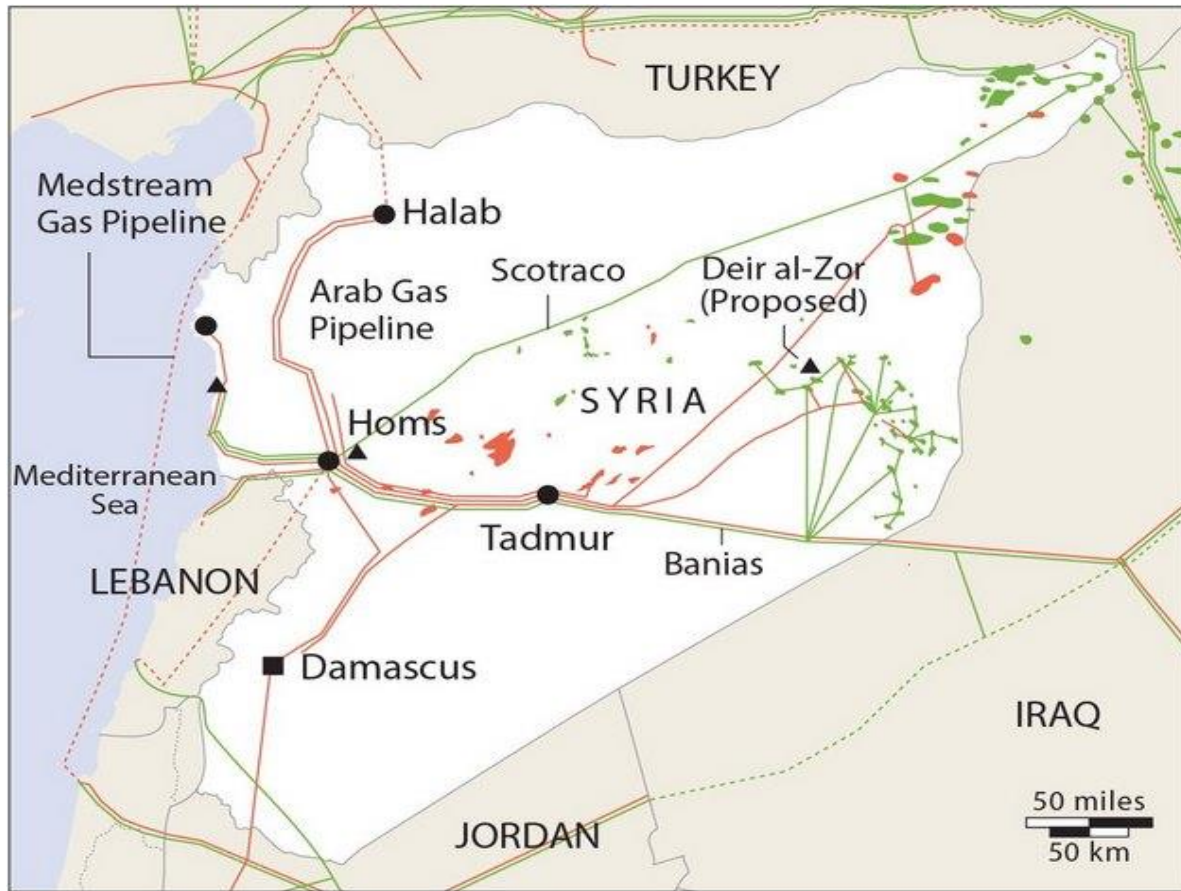
Syria

Turkey has been active in Syria since 2017, when the Astana Agreement established twelve military observatories in northwestern Syria (Idlib, Aleppo and Hama provinces) as part of a ceasefire. Turkey used its military presence in the area to encircle the Kurds before Operation Olive Branch; a cross-border military operation was conducted by the Turkish Armed Forces and Turkish-backed Free Syrian Army (TFSA) in the majority-Kurdish Afrin District of northwest Syria.

In August 2019, forces launched a large-scale operation to retake Idlib from Islamist terrorists. The operation culminated in February 2020, resulting in a brief war between Turkey and Syria. Ankara reinforced the jihadists with weapons and set up dozens of military observatories in the area. Today, there are 60 Turkish observatories in the area, 11 of which have been surrounded by Assad forces. Turkey evacuated the Morek military observatory at the southern Idlib province in northwestern Syria due to Assad's forces who surrounded it since the summer of 2019. Turkey has decided to evacuate three more outposts which are surrounded by regime forces.

Turkey remains active but stagnant in the region. Turkey continues to transport military vehicles and equipment, to set up new bases, to carry out military patrols, while it continues to be in some collusion with the armed Islamist organizations - and especially with the HTS (Hayat Tahrir al-Sham). Although, the evacuation of the observatory shows that Turkey accepts de facto the regime's domination over these territories as well as the M5 motorway which is of strategic importance as it connects the Aleppo with the capital Damascus.

But why Syria is so important?



Map of oil pipelines (in green) and gas pipeline (in red). The planned pipelines with dashed lines. The deposits are marked with a corresponding color and the refineries with a black triangle. (Courtesy Reuters)

The Oil & Gas Journal had estimated that Syria's proven reserves were at 2.5 billion barrels, while gas reserves were at 8.5 trillion cubic feet (TCF) at the end of 2012. Gas consumption in Syria increased by 33% between 2000 and 2011, while gross production increased by 40%. Syria also provides areas for hydrocarbon exploration. Syria is not one of the major producers, despite its reserves.

American-owned Aramco built the TAP (Trans-Arabian Pipeline) with a capacity of 500,000 bbl / d, from the Al Zahran region of Saudi Arabia to the Mediterranean, via Jordan, Syria and Lebanon, in 1950. The negotiations for TAP played a key role in US-Syrian relations and British-American relations. TAP's competitive pipeline in the region was the planned MEPL (Middle East Pipe Line).

MEPL was a joint venture of the Iranian-British oil company with US groups, which would start from Iran and through Iraq and Syria would reach to the Mediterranean's oil transportation. Today, the pipeline cannot transport oil. However, the pipeline's route remains a potential transit route for oil exports from the Persian Gulf to the West. Economic analysis showed that the cost of transporting oil via TAP to Europe would cost 40% less than by tanker via the Suez Canal.

A memorandum of co-operation was signed with Turkey in 2009, according to which Ankara would build a 56-mile pipeline. The pipeline would be linked to the AGP (Arab Gas-Pipeline) extension that Syria was installing from Aleppo to Killis and was expected to be completed in 2012. However, this contract was annulled at the beginning of 2009. In June 2010, Syria and Azerbaijan signed a protocol, the latter of which could supply Damascus with natural gas through Turkey. Supply was depended on the completion of the AGP pipeline.

In 2011, Syria agreed with Iran, Iraq and Lebanon to construct the Islamic Gas Pipeline (IGP), targeting the European market, providing an alternative route for Iranian gas to European markets. The pipeline was planned to be 2,000-kilometers long and cost \$2.5 billion. If had been completed, it would have the capacity to transport 110 million cubic meters of gas a day from Iran, including 20 million cubic meters that would be sold to Syria and 25 million to Iraq. This pipeline would bypass Turkey. This pipeline would drastically reduce the EU's dependence on Russian gas. In addition, the reopening of the pipeline from Kirkuk, Iraq, to the Syrian port of Baniyas, in agreement with Iraq was another important energy factor, to the detriment of Turkish interests and profits. *"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."* ('Islamic pipeline' seeks Euro gas markets, 25 July 2011) *"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 construction plans were delayed by the Syrian Civil War.(Wall Street Journal, 25 July 2011)

The aforementioned pipelines could dismantle Turkey's interests and visions as an energy hub in the region and, consequently, its regional power. The complicated energy game and the rivalries were the main reason why Turkey finally decided to turn decisively against Assad.

Conclusion

Turkey's aspirations are to be the cheapest energy hub in order Europe considers that it is a necessary route for gas to get through. But Turkey does not want to be dependent on Russian hydrocarbons, that is why is trying to find out alternatives like LNG. Although, Turkish do know that Russia -at least for now -is the only vent to have nuclear energy and need to have a "good" relation for Syria and Libya and Azerbaijan issues. Russia and Turkey are frenemies and this is evident from the history as they need each other for the same reason-energy. Both of them use energy from the same aspect, which is to influence the political and economic scenes for their interests.

Turkey's geography offers a very advantageous position to grow into an energy transit country, but energy policy errors over the last decades have limited this potential to a certain extent.

"Turkey's energy policy has suffered from the lack of a comprehensive strategic plan, and with limited integration of energy considerations into Ankara's overall foreign and economic policies."

(Necdet Pamir,2009) Turkey's strong dependence on Russian hydrocarbons has also limited its ability to become an effective countermeasure to Russia as a provider of energy security to Europe. Turkey is full of indigenous resources like hydro, lignite, wind, geothermal and solar, so that it can redesign its energy policy and decrease its overdependence on imported sources in the mid- and long-term.

Chapter 4: Nuclear Energy



Nuclear energy is the form of energy released when atomic nuclei are transformed and broken down. Nuclear energy is released in two ways: fission or fusion of nuclei. The most common way is fission as fusion has not been fully developed scientifically. Nuclear energy has changed not only the way of wars are being held but also the whole history. Nuclear power begins as an idea in the 1930s with the remarkable efforts of many scientists to bombard the uranium with neutrons and continues into the 1940s with the Manhattan Project (a defense program during World War II that produced the first nuclear weapons. It was led by the United States with the support of the United Kingdom). *“Within the confines of the current electricity production and distribution system, for the next few decades and even longer term, nuclear energy offers the capability to generate a tremendous amount of electricity.”* (Charles de Ferguson,2009)

Nuclear power was first invented for military issues which would give countries a strategic advantage. But the truth was different! The catastrophic consequences- total destruction of cities, excessive radioactivity, diseases, Hiroshima and Nagasaki bombs, Chernobyl-made the international community realizing that there was an urgent need of limiting the military use of nuclear weapons.

The 1963 Nuclear Test Ban Treaty and the Treaty on the Non-Proliferation of Nuclear Weapons in 1970 were the milestones for the nuclear history. The Non-Proliferation Treaty focused on the non-proliferation of nuclear weapons, the disarmament of various states and the promotion of peaceful uses of this form of energy, like the generation of power, the power supply of submarines and aircraft carriers, the facilitation of agriculture, for medical purposes and every day activities- under the auspices and control of the International Atomic Energy Agency (IAEA), an autonomous international organization inextricably linked to the UN(United Nations).

The most common use of nuclear energy-even nowadays- is related to the production of electricity through the nuclear reactor. How does this happen? Well, nuclear reactor stations operate in a similar way to other power station with the only difference that nuclear power plants do not use coal or gas to generate heat. They use nuclear fission reactions. Heat from nuclear reactions converts water into steam, which leads to turbines that generate electricity. Inside a nuclear reactor, uranium rods are bundled and immersed in a giant tank of pressurized water. The entire reactor is housed in a very durable concrete structure, which prevents radiation from escaping into the environment.

Nevertheless, beyond the peaceful uses of nuclear energy, it can still have bad results in the wrong hands, given that states that have nuclear reactors and nuclear weapons sometimes use them as an excuse of defense against an "invisible enemy" ;without testifying that the real reason is to intimidate smaller states or/and to influence them by threatening to use this particular form of energy.

4.1 Russia

In the field of nuclear power, Russia can be considered as the superpower, with an ever-increasing presence around the world purchasing the relevant know-how. The biggest nuclear company is called ROSATOM (Russian State Atomic Energy Corporation).

ROSATOM is a huge organization, which operates a whole complex of 300 technological institutes, uranium mines and industrial facilities, for both peaceful and military uses. It is the largest producer of uranium worldwide-3,000 tons/year in Russia,5,000 tons/year abroad. Also, Atomstroyexport is a well-known company, which deals with international project on behalf of ROSATOM as it is one of its subsidiaries.

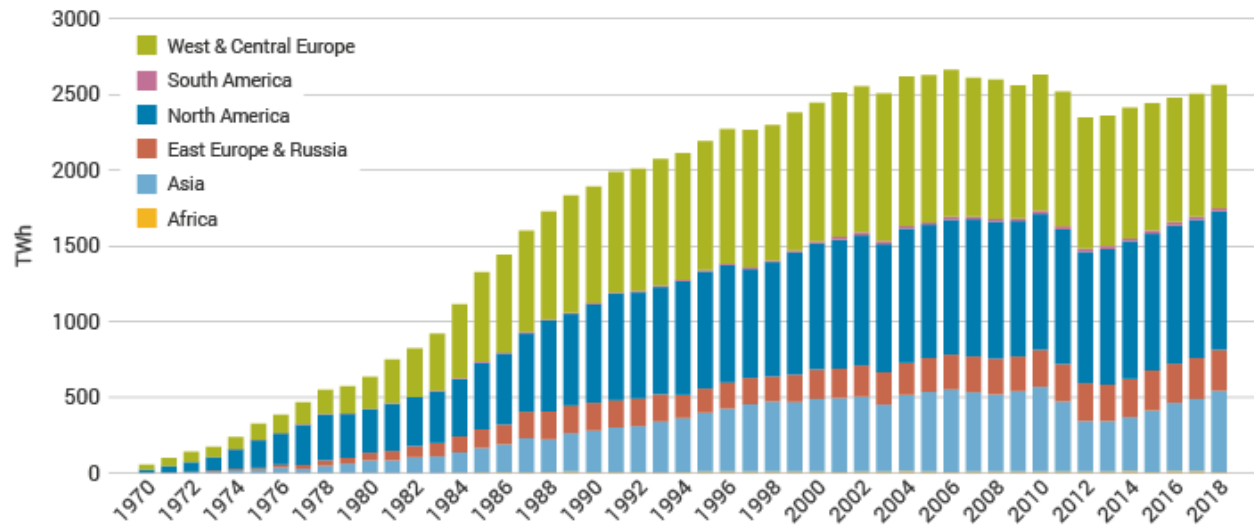
Atomstroyexport's mission is to promote the strategic competitiveness of Russian nuclear engineering in the international market. The company offers good quality and security in compliance with the highest international requirements for nuclear radiation and ecological safety.

A significant share of Atomstroyexport company specifically at around 49% belongs to Gazprom bank. So, here is where the two Russian titans, ROSATOM and Gazprom meet.

The Soviet Union, tested its first atomic bomb in 1949 by the Ministry of Atomic Energy. The Ministry of Atomic Energy was responsible for the military uses of atomic energy, like the development of nuclear weapons, and (for) the peaceful uses, like the development of engines for ships and the production of electricity. On May 26 ,1954, the Kaluga nuclear reactor, became the first in the world to be connected to a power grid, while it stopped its operation in 2002. The USSR was one of the new countries that generated electricity from nuclear reactors as well as heating, albeit on a limited scale. Energy production - reactors were built in 1958, in many "satellite countries" or even in third countries, like People's Republic of China, East Germany, Bulgaria, Czechoslovakia, Hungary, Yugoslavia, etc. It is quite impressive the fact that in Finland there were two commercial reactors which combined Soviet and American technology. (Eastinghouse).

Nuclear energy has a really dark past; the tragic accident at the 4 station in Ukraine in the spring of 1986 revealed the Soviets' serious weaknesses in safety in this area. In 1986, there was by far the worst accident taking place in Chernobyl, Ukraine, which was till then part of the Soviet Union. This accident was due to a steam explosion at one of the reactors with the simultaneous release of radioactive material, twenty-eight deaths, and radiation exposure to thousands more. After that incident and the collapse of the USSR, the existing nuclear power plants became useless in Russia throughout the 1990s.

“Given that these concerns did not show up immediately in the nuclear power developments as being identified in figure 1 is not surprising. Nuclear power plants are long-term development and construction projects, but, as figure 1 demonstrates, investment in nuclear power tapered off just as popular opinion was souring on the technology.” (Nicola de Blasio and Richard Nephew, March 2017)



Source: World Nuclear Association and IAEA Power Reactor Information Service (PRIS)

In the middle of 2010, the country counted 35 reactors in operation, with an installed capacity of almost 27,000 MW. Their share in the national electricity production amounted to 18.3% of the "energy mix" in 2016. The initial ambitious goal of ROSATOM was the share of nuclear energy reached at 23% of the "energy mix" by 2020. That goal was way too good to be true, because in the coming years 10 Russian reactors were withdrawn and the coronavirus did not help, as well, including the tense situation in the Middle East and Caucasus.

The strategic advantage of ROSATOM is the return of RAW (radioactive waste) to Russia itself for storage. No other company has taken care of it. This storage can alleviate the environmental concerns in the target countries. In addition, ROSATOM enjoys the full political and diplomatic support of the Russian government and uses very attractive financial tools, such as e.g. low-interest export credits from Russian state-owned bank in order to attract more "clients".

ROSATOM's orders from abroad amounted to \$133 billion in 2016 and this number exceeds each year. ROSATOM offers to its customers an alternative and economic model that is called BOO (build-own-operate). The capital and the ownership and the operation belong to Russia. The Turkish nuclear power plant, Akkuyu, will follow this model. The Russian-Turkish interstate agreement was signed in May 2010. The very first time a NATO member had agreed to cooperate in nuclear sector with the Kremlin and concerning the fluctuations in their relations. In 2011, the joint stock company "Akkuyu Nukleer Santral", including the Russian funds, was set up to

implement and manage the mega-project that is worth more than 22 billion dollars. Three more reactors of similar power are expected to be completed by ROSATOM (Atomstroyexport Division) in the exact same place by the end of 2025. However, the second Turkish nuclear power plant, also of 4,800 MW in total (four reactors of 1,200 MW), was assigned to an international consortium led by the Japanese company MIH (Mitsubishi Heavy Industries) and not by Russians. Obviously, Turkey has chosen to play with all nuclear players, keeping in mind that dependence on Russia would be excessive.

South Africa's nuclear program is a fundamental project, aiming at the coveted "energy independence". In 1984 and 1985, respectively, two reactors were completed by France. These two reactors today produce 5% of South Africa's power needs, while at the same time the apartheid regime suggested the creation of six nuclear warheads, but this thought was abandoned in 1990. Officially, Russian interest in the Cape Reactors was expressed in 2013. The Russian interest was a crucial issue as they wanted to gain more influence across the "Black Continent". The total capital and operating costs, are estimated at over one trillion. That is why this project is the most expensive one in the history of the Republic of South Africa. At the end of 2013, the state-owned company, NECSA (Nuclear Energy Corporation of South Africa), signed a "strategic cooperation" agreement with Atomstroyexport, leaving behind previous years' talks with the French Areva and the American Westinghouse.

Today, ROSATOM's fields have to do with nuclear energy, R&D, nuclear medicine, the nuclear icebreaker, wind energy, metallurgy and digitalization. On September 2020, ROSATOM and Syrian Atomic Energy Commission signed a Memorandum of Understanding on cooperation in the peaceful non-energy application of nuclear technologies. On October 7, 2020, ROSATOM joined the United Nations Global Compact. ROSATOM Director, General Alexey Likhachev, stated about this meeting: *“The highest social standards, as well as ecological responsibility and safety principles have historically been a part of the nuclear industry paradigm. Support of the UN's 17 Sustainable Development Goals is a crucial aspect of ROSATOM's corporate strategy. This summer ROSATOM approved a Unified Industry Policy on Sustainable Development. Through its work, ROSATOM strives to create favorable conditions for human living, all while ensuring that environment and natural resources are treated respectfully and sustainably. I am pleased that the UN Global Compact experts has approved ROSATOM's application. For us, this*

is yet another signal that our efforts in the Russian and international markets are welcomed by the global community.”

Today, ROSATOM has 3 units and the floating NPP in Russia and 36 nuclear units abroad at various implementation stages. Specifically, the company possesses units in Bangladesh, Belarus, China, Egypt, Finland, Hungary, India and Turkey.



By ROSATOM (official site)

Let us analyze the construction of Xudapu NPP in China. Project. On June 8, 2018 the intergovernmental agreement was agreed between China and Russia for the construction of Xudapu nuclear power units in China. The contracts were signed in March 2019 and June 2019 by Joint Stock Company Atomstroyexport and by enterprises of CNNC (Suneng Nuclear Power Corporation (CNSC), Liaoning Nuclear Power Corporation (CNLNPC) and China Nuclear Energy Industry Corporation (CNEIC)). JSC ATOMPROEKT is the architect of the “nuclear island”.

“According to the contracts, the Russian Party will design the nuclear island of the plant, supply equipment for nuclear islands of both units as well as render services of designer’s supervision, contract supervision and adjustment of the supplied equipment.” (ROSATOM ,official site)

In conclusion, Russia is trying to be active in Africa as well, putting pressure on the political development of the region in its favor, stepping on the misery of the people.

4.2 Iran

“Iran's nuclear program actually began with the “blessings” of the United States. As part of the "Atoms for Peace" program, the United States supplied the country with a small 5MW test reactor (TRR) that delivered to Tehran in 1967, under the leadership of Shah Mohammad Reza Pahlavi. *“In 1973, the Shah unveiled ambitious plans to install 23,000MWe of nuclear power in Iran by the end of the century, charging the newly founded Atomic Energy Organization of Iran (AEOI) with oversight of this task.”* (Joseph Cirincione, Jon Wolfsthal and Miriam Rajkumar, 2005) By the time of the Iranian revolution, the country had already developed an impressive baseline capability in nuclear technologies. *“This aid ended when the so-called Islamic Revolution of Iran in 1979 overthrew the Shah. Iran signed long-term nuclear cooperation agreements with Pakistan and China, in 1987 and 1990 respectively.”* (Joseph Cirincione, Jon Wolfsthal and Miriam Rajkumar, 2005) At that time, U.S. secret agencies suspected that Iran utilizing its nuclear program as a cover for clandestine weapons creation, so they pressured the suppliers like China and Argentina to stop any cooperation with Iran. However, Russia and Iran signed a bilateral nuclear cooperation agreement in 1992, despite American concerns.

Indeed, in the 1990s, Iran expanded its program, including equipment from the AK. Han. Among its activities, Iran *“may have received design information”* of bombs and explosive detonators, according to the International Atomic Energy Agency. *“On 14 August 2002, the National Council of Resistance of Iran (NCRI) revealed the existence of undeclared nuclear facilities in Iran, including Natanz Enrichment Complex, the address of the Kalaye Electric Company, a heavy water production plant under construction at Arak, and the names of various individuals and front companies involved with the nuclear program”* (Yaghoubian,2008) By August 2002, Western

intelligence services and an Iranian opposition group had uncovered a covert nuclear site in Natanz.

Iran still denies that its nuclear program had a military dimension. Tehran stopped enriching in 2003, but resumed it three years later, under hardline President Mahmoud Ahmadinejad. In response, world powers had imposed heavy sanctions. The Stuxnet computer virus, believed to be a joint creation of the United States and Israel, soon shut down thousands of Iranian centrifuges. *“More specifically, Iran entered into negotiations with the EU-3 (France, Germany, and the United Kingdom), and agreed in October 2003 to cooperate with the IAEA, sign the Additional Protocol, and temporarily suspend conversion and enrichment activities.”* (Statement by the Iranian Government and Visiting EU Foreign Ministers," The International Atomic Energy Agency, 21 October 2003) *“However, Iran exploited ambiguities in the definition of "suspension" to continue to produce centrifuge components and carry out small-scale conversion experiments.”* (Routledge, September 29, 2005) *“On November 2004, Tehran agreed to continue the temporary suspension of enrichment and conversion activities, including the manufacture, installation, testing, and operation of centrifuges, and committed to working with the EU-3 to find a mutually beneficial long-term diplomatic solution.”* (Permanent Representatives of France, Germany, the Islamic Republic of Iran, and the United Kingdom concerning the agreement signed in Paris on 15 November 2004) *“On 5 August 2005, Iran rejected the EU-3's Long Term Agreement, because Tehran felt that the proposal was heavy on demands, light on incentives, did not incorporate Iran's proposals, and violated the Paris Agreement.”* (Response of the Islamic Republic of Iran to the Framework Agreement Proposed by the EU3/EU, 1 August 2005)

On 14 July 2015 the P5+1 States and Iran signed the Joint Comprehensive Plan of Action (JCPOA). It was signed between the United States, China, Russia, the major European powers and the European Union, as well as Iran, concerning the economic sanctions against Tehran, which had been imposed by the UN and had caused great damage to the Iranian economy, due to the suspension of its nuclear program.

In fact, Iran was committed to destroying its stockpile of enriched uranium, which is the raw material for nuclear weapons, to enrich for peaceful uses only, and to shut down most of its nuclear reactors. *“Precisely, the JCPOA requires Iran to reduce operational centrifuges at the Natanz enrichment facility from 19,000 to 5,060 until 2025.”* (Verification and Monitoring in the Islamic

Republic of Iran in light of United Nations Security Council Resolution 2231 ,2015) The deal prevented Iran from acquiring nuclear weapons. It also enabled it to acquire modern and long-range ballistic missiles. Critics of the deal, had focused on the fact that it lasted only 10 years and that no one could guarantee that Tehran would not continue uranium enrichment after the deal expires. Having meanwhile acquired very powerful missiles that could turn them into nuclear warheads. Iran threatened to continue uranium enrichment if the deal was canceled by the United States, while European powers used to say that the deal was valid, even if the United States withdrew. And the truth is that the latter is what that just happened as President Trump “blew it up”.

Iran, would never commit any national suicide by using nuclear power and weapons to attack a country with a significant and even better nuclear stockpile, like the USA and Israel. Then, which is the reason why so many people from the United States and Israel want desperately to block Iranian proliferation? The Senator Lindsey Graham answered this question, *"They have two goals: one, regime survival. The best way for the regime surviving, in their mind, is having a nuclear weapon, because when you have a nuclear weapon, nobody attacks you. The other regime has to do with 'influence' as people tend to 'listen to you' when you possess nuclear power. The true threat of nuclear proliferation is that it can discourage American aggression."*

Thomas Donnelly of the American Enterprise Institute and the New American Century Project has long been crystal clear that this is the real reason for opposing Iranian nuclear capability:

"When their missiles are tipped with warheads carrying nuclear, biological, or chemical weapons, even weak regional powers have a credible deterrent regardless of the balance of conventional forces ... In the post-cold war era, America and its allies, rather than the Soviet Union, have become the primary objects of deterrence and it is states like Iraq, Iran and North Korea who most wish to develop deterrent capabilities. US grand strategy in the Middle East would be threaten. In case of Tehran there was always a fear that this kind of weapons could pass on terrorist groups, as well. The real danger is that Iran will impose its deterrence to a variety of state factors and non-state throughout the region. However, Iran can be considered as a rational nation that acquire nuclear weapons learning from the past of Iraq and Libya."

Iran does not abide by the agreement on its nuclear program and withdrew from the international commitments that had agreed in 2015 with the Vienna agreement, after the assassination of Qassem

Soleimani by the Americans in Baghdad. Iran's government made clear that there will no longer be under any restrictions on uranium enrichment, as Tehran will now act *"according to its technical needs."* Tehran also claimed it would not back down from its promise not to acquire nuclear weapons.

President Hassan Rohani, stated that Tehran will no longer meet the limits, that had been set by the agreement regarding uranium enrichment, quantities of stored enriched uranium, and research and the development of its nuclear activities. Iran will, however, continue to cooperate with the International Atomic Energy Agency (IAEA).

On 3 July 2020, a fire broke out at a nuclear plant in Tehran. Iranian officials have spoken out against a cyber-attack while the country threatened with retaliation. The uranium enrichment plant in Natanz was attacked, according to the Internal Security Service. Initially, the country's atomic energy service spoke of an "incident" without giving any further details concerning security issues. Natanz is at the heart of Iran's uranium enrichment program, with Tehran insisting that nuclear power is being developed for peaceful purposes. However, Western countries and the International Atomic Energy Agency claim that an illegal nuclear weapons program has been under way in the country since 2003. Iran's nuclear program, after all, has been at the heart of world diplomacy for several years with sanctions, bans and ongoing consultations to be imposed, especially from the U.S.

Last but not least, Kenneth Waltz has written an article, "Why Iran Should Get the Bomb", claiming that nuclear balancing would mean stability among the nuclear powers. *"A nuclear-armed Iran would...most likely restore stability to the Middle East"*. Waltz ("More may be better") argues that *"Nations that have nuclear weapons have strong incentives to use them responsibly. Because they do, the measured spread of nuclear weapons is more to be welcomed than feared."* Waltz continues by confirming that *"Israel's regional nuclear monopoly has long fueled instability in the Middle East. It is Israel's nuclear arsenal, not Iran's desire for one, that has contributed most to the current crisis. He made a suggestion, "Current tensions are best viewed not as the early stages of a relatively recent Iranian nuclear crisis but rather as the final stages of a decades-long Middle East nuclear crisis that will only end when a balance of military power is restored."*

4.3 North Korea

North Korea (formally, the Democratic People's Republic of Korea or DPRK), has nuclear weapons and ballistic missile programs, and is believed to possess the know-how of chemical and biological weapons. This is the main fear of the rest countries but nobody knows whether are rumors or facts.

North Korean nuclear program theoretically started in the 1950s but practically in 1989. The North Korean nuclear program can be broken into four phases. *“Phase I (1956–80) dealt primarily with training and gaining basic knowledge. Phase II (1980–94) covers the growth and eventual suspension of North Korea's domestic plutonium production program. Phase III (1994–2002) covers the period of the “freeze” on North Korea's plutonium program (though North Korea pursued uranium enrichment in secret) (David E. Sanger, October 17, 2002), and Phase IV (2002–present) covers the current period of renewed nuclear activities.”* (North Korea's Nuclear Weapons Programme", March 14, 2013.)

In September, 1991, the United States withdrew one hundred nuclear weapons from North Korea as part of the agreement” Strategic Arms Reduction Treaty” (START) which was signed between President George H.W. Bush and Soviet leader Mikhail Gorbachev. In January, 1992, both Koreans’ governments-North and South- made an agreement to *“not test, manufacture, produce, receive, possess, store, deploy, or use nuclear weapons. “Nuclear power would be used only for peaceful purposes.”* In March 1993 – June 1993, Pyongyang incompetent inspections by the International Atomic Energy Agency (IAEA). After talks with U.S. diplomats, North Korea complied with IAEA safeguards, including the previous inspections at seven nuclear sites.

On October 21, 1994, the United States and North Korea signed the Agreed Framework. North Korea agreed to freezing its illicit plutonium weapons program and the construction of its power plants. In exchange, the United States promised to provide aid, oil, and two light-water reactors for civilian use. In 2001, President George W. Bush was the President of the United States and decided to follow a harsh line toward Pyongyang, characterizing North Korea, along with Iraq and Iran, as part of an “axis of evil”. In July, 2008 North Korea made a test of seven short-, medium-, and long-range ballistic missiles. In January 2009-December 2009, North Korea launched a modified version of the existing long-range ballistic rocket and tested a second nuclear device in

May ejecting an international try to check its nuclear facilities and President's, Barack Obama, tries for the revival of the Six Party Talks. North Korea accomplished nuclear tests in February 2013 and again in January and September 2016. North Korea's nuclear capabilities became better on that period. On April 27, 2018 Kim Jong Un was the first North Korean leader who attended a meeting with the South Korean leader after eleven years. It was a historic visit as the two Koreans Leaders agreed on a formal peace treaty including a nuclear-free Korean Peninsula to be happened.

The country unilaterally removed itself from the Treaty on the Non-Proliferation of Nuclear Weapons in January 2003, while it was never a member of the Comprehensive Nuclear-Test-Ban Treaty. It has conducted six nuclear tests since 2006. Moreover, the DPRK is not participated to the Chemical Weapons Convention (CWC), and the country's President has confirmed-too many times-that his country has a large chemical weapons program. Although, it was participated to the Biological and Toxin Weapons Convention (BTWC) and Geneva Protocol.

A number of heavy sanctions have been imposed to North Korea by the international community in order to force them to stop improving its WMD (Weapons of Mass Destruction) activities. After years of regional tensions, in April 2018 Kim Jong-un announced a cease to all nuclear and ICBM (Intercontinental Ballistic Missile) tests, and joined in a summit meeting with the leader of South Korea. Also, the same year, Kim met with U.S. President Donald Trump in Singapore. At the summit, the DPRK pledged *"to work toward complete denuclearization of the Korean Peninsula."*

However, the story shows that North Korea has built nuclear devices capable of adapting to the heads of its ballistic missiles. Pyongyang is seeking to develop more and more sophisticated nuclear weapons. Kim Jong Un has stated that that his country's nuclear arsenal is a guarantee of security and it "never" will break out on the Korean peninsula.

North Korea will continue to develop nuclear weapons to deter the US threat and will reveal a "new strategic weapon" in the near future (maybe referring to the hydrogen bomb), according to North Korea's news agency. Kim Jong Un confirmed that the development of nuclear deterrents would depend on the attitude of the United States. He continued by saying that his country can live under the international sanctions but he will not hold back from his ambitions of his country's nuclear arsenal.

The hydrogen bomb gives a step forward to North Korea in order to complete its nuclear weapons program and ambitions. This intensifies fears that Kim Jong Un is closer to building a missile that can carry a nuclear warhead and could hit the United States. The hydrogen bomb is the most powerful weapon North Korea has tested, with experts estimating its power at between 50 and 120 kilotons.

A nuclear weapon is the ultimate "survival mechanism" of an isolated and "socialist" regime, which has little influence to the world and few "friends"/allies. Many experts know that North Korea would never be the first to use its nuclear weapons as it would never win a war and Kim Jong Un is definitely aware of that. Kim is seeking international recognition, so a nuclear arsenal is a guaranteed way to get the world community to turn its attention to North Korea. For example, too many times North Korea has threatened to launch a rocket on the US island of Guam in the Pacific and similar incidents.

Conclusion

Nuclear energy is a highly polarizing issue. Nuclear energy is being considered as a reliable source of clean energy that can replace fossil fuels and operate efficiently in combination with renewable energy sources. Governments can keep existing reactors alive, within a reasonable management. Leaving nuclear power off the agenda for a low-carbon recovery after the pandemic is a mistake that we will later bitterly regret.

Nuclear energy could help the countries to achieve the goal of reducing carbon dioxide emissions, as these emissions from nuclear energy are low or even zero. Also, it is considered as a cheap form of energy that is why in the past was in -let us say- socialist and poor countries like China, USSR. What is more, nowadays nuclear reactor's safety has increased since the Chernobyl accident. But no matter the pros, no one can confirm that countries will use this kind of energy for peaceful reasons as the desire for enforcement is greater than the daily needs. Although, people's concerns about safety, waste and the decommissioning of units are still understandable, even if a comparison of deaths per hour shows that other forms of energy are much deadlier, given the effects of atmospheric pollution and industrial accidents.

Nuclear energy is a trump card for the country that occupies it. Sometimes it acts as a defense sometimes as an attack depending on who has it in their hands. In fact, after the unpleasant consequences of the past, it should function only as a form of energy for the nation. To the wrong hands, nuclear energy can harm, so it can't be an open issue to discuss.

As Kenneth Waltz said: "*When it comes to nuclear weapons, now as ever, more may be better.*"

Chapter 5: Terrorism

5.1 ISIS



Via ghetty images

The Islamic State is a radical jihadist organization founded in Iraq under the name of Jama'at al-Tawhid wal-Jihad (Organization for Monotheism and Jihad; 1999–2004). Later it was renamed as Al Qaeda in Iraq (2004–6) under the leadership of Abu Musa al-Zarqawi; after his death it was headed by Abu Hamza al-Muhajir, and at this time, it referred to itself as the Islamic State in Iraq (2006–13). It is known as Islamic State in Iraq and the Levant (ISIL) and Islamic State (IS). Its goal is to build an Islamic state that will be called a caliphate across Iraq, Syria and beyond. IS executes the Sharia Law, so as to establish a society that looks like the region's ancient past. Its actions are well-known for the death of dozens of people, executions, crucifixions and bombings not only people but mostly buildings, infrastructures etc. Even though there is a religious terrorist group from non-advanced states, they use modern tools like social media to promote rigid politics and fundamentalism. In the name of their religion, use to destroy monuments and important antiquities as they do not recognize the superiority of any other culture. Abu Bakr al-Baghdadi was

the leader from April 2010 until 2019 as he committed suicide so as not to be caught by American Forces in northern Syria. Abu Bakr al-Baghdadi was renamed Islamic State as the Islamic State in Iraq and the Levant (ISIL) or the Islamic State in Iraq and Syria (ISIS) when launching its incursions into Syria. After his death, Abu Ibrahim al-Hashimi al-Qurashi would be the new leader.

“In 2014, ISIS controlled more than 34,000 square miles in Syria and Iraq, from the Mediterranean coast to south of Baghdad. In early 2016, the United States calculated that ISIS had lost 40% of its 34,000 square miles of territory.” (CNN World, September 6,2020). By the end of 2017, the IS was shrunk even more in the border region between Iraq and Syria. In 2015, ISIS was estimated to be holding 3,500 people as slaves, according to a United Nations report.

But how ISIS became powerful, at least economically? *“ISIS's revenue comes from oil production and smuggling, taxes, ransoms from kidnappings, selling stolen artifacts, extortion and controlling crops.”* (CNN World, September 6,2020) According to U.S. intelligence officials ISIS can be considered as one of the wealthiest terrorist groups in history. Concerning recent researches, the group is making more than \$3 million a day, mostly due to oil trade. That is why the U.S often targets some of the ISIS-controlled oil infrastructures in an effort to cut back the ISIS' revenues. Most of their oil assets are in Syria and Iraq, but they shifted hands too many times between extremist groups.

But how they manage to operate these oil fields? The answer to this question was once given by Luay al-Khatteeb, a visiting fellow at the Brookings Institution's Doha Center in Qatar and director of the Iraq Energy Institute to Huff Post. *“The groups rely on the cooperation of locals, on the people who had been running these operations before. Having said that, the groups did suffer a significant loss of capacity. For example, ISIS is in control of 60 percent of Syria's oil production capacity. Pre-conflict, Syria's production capacity stood at 385,000 to 400,000 barrels a day, so 60 percent would be more than 200,000 barrels. But from what is being reported out of Syria, ISIS appears to only be producing around 50,000 barrels. The same thing is happening in Iraq. The capacity of the fields under ISIS control is about 80,000 barrels a day. The militants started producing around 20,000, increased to 40,000 and declined again after the start of the U.S. strikes and the joint operations launched between Erbil and Baghdad, between the Kurdish Peshmerga forces and the Iraqi army. It's also important to note that not all of these fields are staffed by “ISIS personnel,” but by other insurgencies or entities that are willing to cooperate with the group.*

Because of these different operators, the price per barrel varies from \$20 to \$60 maximum — still well below the standard international price of about \$90.” (Luay al-Khatteeb to Huff Post ,2014)

ISIS’s first consumers are the people who live in its territory-8 million ones. The crude oil is either refined in small facilities or exchanged mostly in Turkey for refined oil products. Turkey has been characterized as a country which nourishes terrorism. Turkey does not want to stop this trade. *“At the end of the day, we are talking about a region that is well known historically for illegal trading and thriving black markets. The difference since the start of the Syrian conflict is that this black market is becoming an instrumental player in the financing of groups such as ISIS.”* (Luay al-Khatteeb to Huff Post ,2014)

5.1.1 ISIS-North Africa (Libya)

North African countries are important to extremist groups as they enclose less than 4% of the world's oil reserves, and more than 4% of the world's natural gas reserves. *“The major oil reserves are mainly in Libya, with 2.8% of the world oil reserves and 0.8% of the global gas reserves, Algeria (0.7% and 2.4%) and Egypt (0.2% and 1% respectively).”* (British Petrol, June, 2017). These countries are highly dependent on exports of minerals, so they are vulnerable to any shock that may affect the oil productions and sales.

According to Ali Koknar, *“In general, the term energy terrorism may be understood to mean criminal activity aimed at energy facilities that causes significant losses”* (The epidemic of energy terrorism the concept of terrorism,2009). Tamara Makarenko divided terrorist attacks against energy sectors into seven categories. Let us see these interesting categories.

The first category, has to do with bomb attacks on fuel pipelines and is the most frequent one. The second category includes the espionage of oil and gas lines, so as to damage other countries’ national economy. The third category contains raids on oil company infrastructures. The fourth category embodies the attacks on oil depots, refineries, and petrol pumps. The fifth category consists of raids and hijackings of energy facilities and taking of hostages. The sixth category is a direct military attack on the staff of oil facilities or gas processing plants. The last one consists of kidnapping employees of energy companies.

“Generally, energy-related terrorism has on purpose to destabilize the government on the region. Also, Energy-related attacks may thus be an important part of a terrorist organization's strategy for fighting foreign powers” (F. Steinhäusler, 2008). Terrorists are targeting pipelines to gain additional income, which they would use to support their terrorist operations, but they also use to attack pipelines to increase their influence among other groups or even threaten them showing their power. Jihadists bomb energy targets to weaken the country's energy policy.

“The energy terrorism is a tool to the IS strategy. Its interests for energy can be divided into three areas: 1. the effective use and expansion of existing oil and gas fields in Syria and Iraq

2. increasing the production and sales of oil and gas to secure funding for the organization

3. seizing new oil and gas fields and the devastation of fuel transport infrastructure with the aim to punish and economically weaken Western states and other enemies of the IS.” (J.L. McFate The ISIS Defense in Iraq and Syria: Countering an Adaptive Enemy. (2015)

“The organization's shura (council) identified oil (and gas) as a key instrument for the survival of the uprising and, more importantly, as an instrument for financing its ambitions of creating and expanding a caliphate” (L. Tichý, J. Eichler, 2018)

Numerous attacks in Libya occurred in 2015. Specifically, in February 2015 jihadists attacked several oil sectors and kidnapped seven people. They did almost the same in March, as they attacked to two oil sectors, destroyed two oil pipelines that transported oil from the oil fields to As Sidr. On March 6, 2015, terrorists attacked the al-Ghani oil field, killed eleven guards, while kidnapped seven foreign workers. It should be mentioned that Libya’s Oil Crescent is of great importance and if the IS takes control over this and the coastal province of Sirte, then they would control up to 80% of all of Libya's oil reserves.

On January 6, 2016, jihadists attacked three times to two of the largest oil terminals in the Libyan ports of Ras Lanuf and As Sidr with an estimated export capacity of 550,000 bpd. This was one of the worst terrorist operations that ever happened to Libya. *“Five oil silos were set on fire at the terminal in As Sidr, and another two storage tanks with oil were destroyed at the Ras Lanuf terminal, which is equipped with the necessary infrastructure for the refinement and export of oil. In total, 850,000 barrels of stored oil were destroyed”* (L. Tichý, J. Eichler, 2018). In April 2016, five members of the Petroleum Facilities Guard were killed in an assault by jihadists near the

Bayda field. On February 10, 2017, they hit the pipelines of the Great Man-Made River; a pipeline network on which the Libyan capital, Tripoli, and other Libyan towns depend on their water supply. Some other ISIS attacks have to do with oil pipelines and electricity infrastructure.

Libya's geography is characterized by remoteness and this makes oil smuggling much more difficult to possible attacks. IS can transport crude oil through a pipeline to the coast, where there are oil refineries. Libya has only five refineries, and these are either controlled by other armed factions-not ISIS- or located far from the major oil fields. *Thus the IS could realistically sell oil to particular local communities and other armed groups* (A. Masi, 2016). Nevertheless, Libya suffers from numerous extremist attacks for various opposition groups, such as the Benghazi Defence Brigades and Libyan National Army led by Commaner General Khalifa Haftar.

5.1.2 ISIS-Syria

2015 was a year with several beatings in Syria's Deir Ezzor province and more precisely in oil infrastructure and vehicles which were involved in the oil trade. *"The attacks are terrible, sometimes 20 in a matter of hours,"* said a man living near Syria's al-Tanak oil field whose family traded crude oil produced by Islamic State.

What is more, Kurdish forces at that time took control of the Iraqi city of Sinjar and al-Hawl city in eastern Syria, cutting off the only supply route between the two cities used by the Islamic State. Despite the fall of international oil prices-Brent Price was at 45 dollars per barrel-IS continued making huge profits because the local communities both in Syria and Iraq are so dependent on its production.

On December 5,2016, a Marxist Turkish hacker organization- Red Hack- was claimed to have access at around 20 gigabytes of data from Albayrak's personal electronic accounts. Among the most important issues that had been circulated, were new allegations that the Turkish government and more specifically members of the Erdogan family had an active role in smuggling oil from areas controlled by the "Islamic State". The leak of all the Turkish Energy Minister's emails from Wikileaks seemed to confirm these allegations. The accusations against the Turkish government and in particular Albayrak became much more intense after the downing of the Russian plane by

Turkish forces on November 24, 2015. In addition to the sanctions imposed on Turkey, Russia complained that Erdogan and his family were involved in oil smuggling. A similar investigation was carried out by the Norwegian Ministry of Foreign Affairs, which concluded that oil was transported in Turkey came from areas controlled by the "Islamic State", where it was sold at low prices. Albayrak appeared to be acting as an unofficial managing director of the oil company Powertrans, which by law is the only company allowed to import and export oil to and from Turkey. It was also claimed that Turkish government had offered Powertrans a monopoly on oil imports and exports. In November 2011, the Turkish government passed a law banning to any kind of oil transportation in and out of the country. The law, however, provided that only one exception could be made if it was deemed that such a thing would serve the interests of the country. A few months later, the Turkish government decided to give the exclusive privilege to the oil trade to Powertrans, while with a new law in 2014, it extended the company's monopoly until 2020.

On January 9, 2017, Islamic State took the responsibility for blowing up a large gas station that generated 1/3 of Syria's electricity. The factory stopped operating a month ago following the advance of jihadists in the Palmyra area. The jihadist group released a video with the title "*Hayan, a gas company in the eastern province of Homs*" in which a man was seen planting explosive devices and then activated them causing a large explosion. "*The electricity generated by the Hayan unit before it exploded accounted for about a third of the country's total electricity,*" Jihad Yazigi, director of the Syria Report website, told. According to the website, the plant produced 3.7 million cubic meters of gas on a daily basis. "*For this reason it was one of the few stations that was still operating at almost maximum capacity,*" he added.

At the same year, the terrorist group claimed responsibility for a series of suicide bombings in the northern city of Samarra, that caused the death of seven people. "*The three kamikazes were wearing explosive belts under "military uniforms",*" said Qasim al-Tamimi, Chief of the security forces protecting the electrical and oil installations, according to the APE.

"*Oil never stops ... People need oil, the Islamic State needs to sell and business is running smoothly,*" said the owner of a makeshift refinery in Syria. Analysts made an estimation that there was an 88% drop in Islamic State monthly revenues compared to January 2015, with the jihadists were losing at that time about 90% of the oil wells they occupied in 2014. But they still possessed the two most productive areas: The Al Omar and Al Tanak, which in total can produce up to 25,000

barrels per day. Price per barrel ranged between \$ 20 and \$ 45, depending on quality. The Islamic State used them to buy weapons and transfer large sums of money to European capitals.

In 2019, the U.S., Europe, and other partners in the Middle East managed to breaking up the ISIS “caliphate” in Syria and Iraq. However, they did not achieve to defeat the jihadists in either Iraq or Syria or at least eliminate their influence in the regions. ISIS stops attacking and/or killing people at the rate it previously did. But, this does not confirm that ISIS has been defeated in Iraq or Syria and its influence has not expanded outside both states.

Syria is the perfect case study as not only many other non-state actors shaped the patterns of violence in the Syrian civil war, but also the primary source of terrorism was state one by the Assad regime and not by ISIS. Governance, corruption, debts, weak economic development, and major ethnic, and sectarian inequities are the key forces that can sustain extremist movements and internal conflict.

Without oil, -or other natural resources-, ISIS could never succeed its goals. Oil is the essential tool to the organization’s grand strategy. In fact, Syria was not a major oil producer, but its daily production was at least pre-war at around 400,000 barrels and used by the regime of Bashar al-Assad as a significant source of income. Today, Syrian’s oil fields are controlled by rebel groups, like ISIS, al-Qaeda-linked Nusra Front, and local Kurdish militias. Previously, these rebel groups were involved in the extractive activities, but then ISIS has been the dominant player in the oil fields. As it is mentioned above, ISIS sells oil to buyers in Iraq, Syria, and Turkey. The revenues from the sales are given to the organization in order to pay its troops and acquire its vast stockpiles of arms and ammunition. So, a lot of countries support the action of terrorists.

5.2 Hezbollah



“Some violent ethno-supremacist and ultranationalist groups in Europe will employ violent tactics as they seek ways to cooperate against immigration and the perceived Islamization of Europe, posing a potential threat to US and allied interests.” (Daniel R. Coats,2019).

Hezbollah was founded in 1982 by the "Guards of the Islamic Revolution", a unit of the Iranian army, financially supported by Iran itself, while Syria also provides political support. Hezbollah has been considered by many Western countries as a terrorist organization. The EU classifies Hezbollah's military wing as a terrorist group, but not its political wing. Hezbollah is the most powerful group in Lebanon because of a heavily armed militia that has fought several wars with Israel. It is a political movement and a guerrilla army, drawing its support from the Lebanese Shiite population. A coalition of anti-Syrian factions came to power after the election, giving Hezbollah 14 seats in the 128-seat parliament.

In 2011, Syria's civil war led to years of political paralysis in Lebanon. In January of the same year, the first government of Saad al-Hariri, son of Rafik al-Hariri, was overthrown when Hezbollah and its allies resigned from the UK-backed tribunal. Six months later, Prime Minister Najib Mikati announced a government dominated by Hezbollah and its allies. The group's rise to power came after joining the war with Syria in 2012 in support of President Bashar al-Assad. The group and its allies helped shape the current Lebanese government. Hezbollah's arsenal has been

a major battleground. The paramilitary group says its weapons are needed to deter Israel and, more recently, to protect it from Islamist insurgents in Syria.

The reasons that contribute to the increase of pressures are mainly economic, since in the country, even before the explosions, shortages in food and electricity were recorded. While thousands of protesters demanded radical changes in the clientelist political system, the parties were consumed in a game of rivalry over who was responsible for the multi-layered crisis plaguing the country. Hezbollah has been repeatedly targeted by its political opponents, accepting accusations of economic collapse and involvement in the war in Syria. Although it showed some signs of good governance during the pandemic, the Iranian-backed organization's budget was hit hard by US sanctions against Tehran, affecting Lebanon as well. The situation was not helped by Lebanon's dependence on food imports, nor by the large number of refugees the country hosts. Beirut and international organizations have repeatedly expressed concern about the economic and social burden of this influx on a state that is not equipped to help them. Importing food in cheap domestic currency continues to be a major challenge with many obstacles, despite Hezbollah's efforts to boost economic activity with Syria and increase imports from Iran duty-free. All of the above, however, constitute only the internal aspect of Hezbollah. At the same time, its foreign activities are dominated by its conflicts with Israel and consequently the USA. This foreign activity, however, endangers the entire Lebanese state. A 2019 poll showed that, despite the fact that the Lebanese consider Israel their number one enemy, their three priorities were not the foreign policy but the economy, corruption and public service.

In 2018, Hassan Nasrallah, the head of the Iranian-backed movement Hezbollah, impulse the Lebanon's government to exercise its rights against Israel, with violence if necessary, to assert access to an anticipated energy windfall. Lebanon, Israel and Cyprus hem the Levant Basin in the eastern Mediterranean, where big sub-sea gas fields have been classified since 2009. Israel and Cyprus agreed on maritime boundaries in 2010. But not Lebanon. *"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 televised remarks from a Hezbollah rally.

Lately, many have linked the Beirut bombing to a ruling by the International Court of Justice (ICJ) that former Prime Minister Saad al-Hariri was assassinated in 2005 by Hezbollah members. The announcement of the decision changed the date and from August 7 it was postponed to August 18

"as a sign of respect for the countless victims". Hezbollah itself said in a statement that it was not involved in the blast and that the ammunition depot did not belong to them, as rumored.

Electricity had become even before the explosion in the port of Beirut a kind of luxury that only a few can enjoy. In 2019, there was a rally in which the main demands were the constant energy supply. The state's electricity company, EDL, has been one of the main targets of their anger, as the energy shortage is a result of years of under-investment in power plants. This happened due to the profit from the failures of the national grid that politicians gained. Most Lebanese pay two electricity bills - one to EDL and the other to their local generator owner. *"They switch to private power when blackouts hit, but it is much more expensive. And, technically, running private generators is illegal. That means the suppliers need political cover."* (Tim Whewell,2019) *"The security forces expected generator operators to provide free electricity to some communities to ensure their loyalty to the government in elections."*, Chadi Nachabe, a city councilor and former political activist, claimed. A lot of Lebanese are getting free electricity through theft in order to survive.

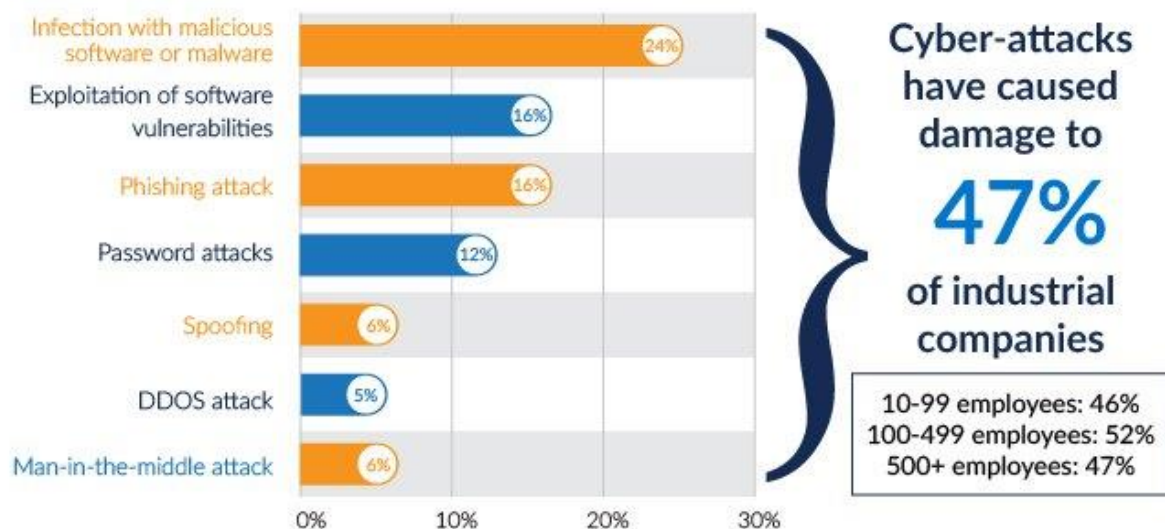
Conclusion

Terrorist organizations, as seen in the above remarks, make use of energy to satisfy their interests. Either they make money themselves, or they exert political influence on each government by owning and controlling energy infrastructure or by threatening to bomb them. It's true that the damage that can be caused by their actions is of the utmost importance and countries that are repeatedly persecuted by such practices put terrorism on their agenda.

Chapter 6: Cyber Attacks and Sabotage

Almost half of the industrial companies suffer damages from cyber-attacks

Which of the following types of cybersecurity attacks have caused damage to your business or organization in the past two years?



Basis: All industrial companies surveyed (n = 503): Multiple answers in percent | Source: Bitkom Research

“While much about the precise nature and magnitude of cyberattacks remains fuzzy, there is good reason to view cyber as among the newest, most powerful geo-economic instruments. Some aspects of the problem are clear: the overwhelming share of attacks can be traced back to IP addresses inside Russia and China” (Robert D. Blackwill and Jennifer M. Harris, War by Other Means, 2016).

Cyberattacks, sabotages and espionage are considered as parts of modern warfare as long as all have taken place against CEI- Customer Experience Index, ej. the Stuxnet malware attack against Iranian nuclear facility (the latest and most famous example). Cyber warfare has not only an economic aspect but also can be evolved into a political and military conflict. Due to all these situations, there is an extend need for more secure programs to keep safe -to some extent- the energy infrastructure of national energy systems.

Not all cyberattacks are geo-economics. Considering geo-economics, a cyberattack should fulfill two basic criteria. *“Because geo-economics is necessarily concerned with state behavior, a geo-economic cyberattack must be state sponsored (or at minimum, materially encouraged by government actors). It must also involve an attempt at economic influence. A cyberattack on a*

major Internet service provider for the sole purpose of reading emails would not be geo-economic in nature, but attacking the same provider in a way that aimed to weaken the company itself or wreak economic havoc in the target country by causing widespread internet disruptions would be geo-economic. Generally speaking, geo-economic cyberattacks are those making use of economic or financial market mechanisms and seeking to impose economic costs as part of a larger geopolitical agenda”. (Robert D. Blackwill and Jennifer M. Harris, War by Other Means, 2016)

“Some servers are targeted more than 10 000 times per month.” (Brodkin, 2013). *“There are networks, like Information and Communications Technology (ICT), Industrial Control Systems (ICS), were designed to provide management and control reliability, however many such systems did not provide a mechanism to prevent unauthorized access or deal with cyber security threats originating from external networks”* (Spellman & Bieber, 2010). Cyber-attacks on CEI can threaten the national security except of energy security. Several nations have been developing cyber warfare doctrines and means. *“For example, China has invested a lot of money in personnel and information infrastructure for cyber warfare, and this was so helpful that in 2002 China conducted cyber espionage on the U.S Department of Defense – “operation Titan Rian”* (Gervais, 2012). This development of cyber warfare made the U.S to adopt more cybersecurity strategy. *“So, The U.S. Department of Defense adopted the “Strategy for Operating in Cyberspace” and ratified as a non-member of the Council of Europe its convention on Cyber-Crime, more commonly known as the Budapest Convention, which creates a framework for cyber defense, warfare, cooperation and crimes, fraud and cyber-terrorism, respectively”* (European Parliament, 2014). *“At the same time, the offensive use of those units can be considered a per se armed attack, which falls under the Article 51 of the UN Charter, and allows nations to exercise collective or individual self-defense”* (Gervais, 2012). In 2008, in the Russo-Georgian war, Russia conducted cyber-attacks against Georgian targets. If Georgia had made an integration with NATO, this movement would threaten Russia’s energy hegemony and security as a whole, as Georgia was consuming Russian’s hydrocarbons. *“Prior to the invasion, specifically on 19 July 2008, the security service was informed about a Distributed Denial of Service (DDoS) attack against various Georgian websites”* (Shakarian, 2011). Russian hackers could definitely destroy the SCADA system, even those attacks were not detected, but their true intentions were to test their skills, and technologies for future attacks.

“Today’s developing “information age” technology has intensified the importance of critical infrastructure protection, in which cyber security has become as critical as physical security (...)” (Spellman & Bieber, 2010, p. 112). The first ever cyberattack is the famous “The Morris Worm”. It did not happen on purpose! In 1988, Robert Tappan Morris, developed a new program to assess the size of the internet. The program would scroll the existent web, install itself on other computers, and then count how many copies it made so he would have the number of computers. Unfortunately, each one of installation, infected the computers until they finally crashed. It was the first Distributed Denial of Service (DDoS) attack, and it was entirely by accident. In total, 6,000 computers (10 % of the entire internet) were damaged and the estimated cost was extremely high, at between \$201,000 and \$2.9 million adjusted for inflation. Morris was charged with the violation of the Computer Fraud and Abuse Act, and his sentence included fines, plus three years of probation and community service as it had hacked personal information. So, generally, a cyberattack is any malicious activity that takes place through a computer or network and is intended to modify, destroy, steal, intercept or even unauthorized access to the rightful owner's information. A cyberattack can be a computer information system, a computer network or a common personal computer. A cyberattack can come from a state, a group, a community, an organization or even an anonymous source.

There are different types of cyberattacks. The first one is also the most common one and it is called the Unpatched Software. They are programs that are used in the daily life of a user like Java, Adobe Reader, etc. and the companies in their effort to fill the security gaps, proceed to release newer updates of their software. Although, patching your software is an important – but often over-looked – step to protecting your network. Another one is the Phishing Attack and has to do with a fake entity that pretends to be reliable and authentic and aims to extract information from the user through a text message, email, or even a printed letter sent to a user. The success of e-fishing is based on the victim's lack of knowledge, the victim's lack of attention and visual deception. The correspondence will instruct the user to submit personal information like account numbers, passwords, usernames, or similar data to the phisher. The third type of cyberattack is called the Network-traveling Worms. A worm-type virus replicates itself on other computers, causing network congestion or installing malicious virus software. These viruses may delete files, or encrypt files in a ransomware attack, or steal valuable information, like passwords. Most commonly, worms deliver a payload that installs a backdoor, enabling the computer to be

controlled as a botnet by hackers. The fourth type are the DDoS (Dedicated Denial-of-Service) attacks. These are denial of service attacks on a server. It overloads the system and causes significant delays or even interruptions. DDoS attacks are often used to silence businesses or overwhelm a financial institution. A Trojan Horse attack-named from the Greek fable-seems as an innocuous file often attached to an email as an image. The infected computer doesn't even know it has been infected. Also, Advanced Persistent Threats are cyberattacking that are designed to steal intellectual property, by using phishing tactics or specific Trojans, in order to sell it to competitors or blackmail the victimized company.

Concerning the energy sector, state and non-state actors are targeting critical infrastructure sites and energy distribution facility. Any disruption across the supply chain potentially having increased consequences to the company, even to a whole country as there are a lot of countries that GDP is determined by the energy. Some examples of sabotage on energy sector are the following. In 2003, a malware had caused a blackout, which left 50 million North Americans- in USA and Canada- without electricity. In 2008,the Baku-Tbilisi-Ceyhan (BTC) oil pipeline in Turkey experienced a big fire .The Kurdish Workers Party stated the responsibility for the incident, although, investigations found out that there was a cyber-attack in which there was a hack in the control system of the pipeline via inter- connected security cameras that gave access ,to the attackers ,to the industrial control systems to raise the rupture the pipeline.

On April 17 to 19, 2011, there was a major cyberattack on Sony. The attack had hacked the personal details from 77 million accounts and prevented users of PlayStation Portable consoles from accessing the service. *“On August 15,2012, there was another cyberattack on 35,000 computers of Aramco, the Saudi Arabian oil company. As the ability of Aramco to supply 10% of the global demand for oil, this biggest computer hack in history alerted the world to the terrifying possibility of a cyber Pearl Harbor.”* (Paravantis,2019) In April 2013, attackers physically damaged and disabled the Metcalf substation that supplies electricity to Silicon Valley. In a well-planned night-time operation, they cut communication cables and used rifles to severely damage 17 electricity transformers, resulting in damage worth US\$15 million. The motivation is unknown till today. There were cyber-attacks on Ukrainian power grid, in 2015 and 2016.The Ukrainian power grid suffered two blackouts due to cyber-attacks. In December 2015, the attackers hacked the computer system of a western Ukrainian power utility, and cut off the electricity to 225,000 people. A year

after, in 2016, a cyber-attack cut off an electricity substation and a lot of customers in Kiev remained without power for about an hour. Both attacks were allocated to Russian hacker groups. In August 2017, a cyber-attack on a Saudi petrochemical plant was the first strive to manipulate an emergency shutdown system. Cybersecurity experts put the blame on a Russian government. Lately, in March 2019, the US grid regulator NERC claimed that a hacking group with Russian ties was running reconnaissance into the networks of American electrical utilities.

The United States launched a cyberattack on Iranian weapons systems in 2019, according to US media reports. The cyberattack neutralized computer systems that control rocket launchers. According to the BBC, these are the US retaliation for the downing of a drone by Iran, but also for the attacks against the tankers. The cyber-attack was the product of several weeks of planning, US sources told, various US media outlets, and was the product of a response to the attack on the tankers in the Gulf of Oman. The cyber-attack targeted weapons used by Iran's Islamic Revolutionary Guard Corps, which was believed to have been responsible for shooting down a US drone in June, 2019. (“tit for tat”)

The US President Donald Trump announced, that the United States would impose significant new sanctions on Iran, hours after he assured that if the Islamic Republic abandoned its nuclear program, it would become its best friend. *"Iran cannot have Nuclear Weapons! Under the terrible Obama plan, they would have been on their way to Nuclear in a short number of years, and existing verification is not acceptable. We are putting major additional Sanctions on Iran on Monday. I look forward to the day that.....Sanctions come off Iran, and they become a productive and prosperous nation again - The sooner the better!"* (Donald J. Trump (@realDonaldTrump) June 22, 2019).

On 30th September 2020, Armenian hackers attacked the light system of Flame Towers Baku to show their national flag colors instead of Azerbaijan to make them clear that in this war they may are fewer in population but they can use technology as weapon to this internal conflict, as well.

Russia is the country that it is well known for its cyberattacks attempts. The “Mitrokhin Archive”, is an archive that shows the Russian’s plans to target energy infrastructure in the United States, in order to create tensions amongst the population and made the government resigned. The plans were targeted electricity power grids, significant ports and pipelines mostly in the North American region. Let us focus on two different examples that expresses the USSD sabotage. *“Operation*

Target Granit was a two-step plan prepared by the U.S.S.R. secret service against the U.S. The first step was to disrupt power lines and pipelines in specific areas of the United States. A blackout in the East and Midwest as well as massive pipeline fires in Texas and California would have been followed by a strike against the New York City skyline, identified by KGB as "Target Granit". A network of piers and warehouses that lined the Port of New York, which includes ships' berths, warehouses, communications systems and port personnel, were the priority targets of the KGB officers" (Andrew & Mitrokhin, 2015). "The second one is the Operation Kedr - "Cedar" (1959-1971). The operation was prepared at the Soviet embassy in Ottawa in 1959. The preparation took twelve years and contained a detailed intelligence of Canada's oil refineries, oil and gas pipelines from British Columbia to Montreal. The potential targets were photographed and vulnerable points were identified. The goal of this operation was to be prepared to sabotage the oil and gas facilities" (Andrew & Mitrokhin, 1999).

Although, on 25 September 2020, the Russian President, Vladimir Putin, proposed cooperation between Russia and the United States in the field of cybersecurity, proposing the signing of a transnational agreement in this field, which will guarantee non-interference in the internal affairs and electoral processes of one country to another.

Referring to the bilateral agreement on the prevention of cyber security incidents between Russia and the United States, Putin said that this agreement could be "*analogous to the current Soviet-American Treaty on the prevention of offshore and airspace incidents of 25 May 1972*". Finally, addressing all countries, including the United States, the Russian president proposed the conclusion of an international agreement, under which the states will commit not to carry out attacks using information technologies against each other.

Except from countries, cyber warfare may be caused by criminal groups. DragonFly is one of these groups, and was responsible for a number of attacks in Europe, Asia and elsewhere to gather artificial intelligence on the operational and control systems within the energy industry.

Surprising, there is a category of hacktivists or environmentalists that politically oppose fracking, the development of pipelines, or other actions taken by the oil and gas industry. Hackers, also, commit attacks for wealth reasons through ransom attacks, and criminal cartels often conduct spear phishing.

6.2 Cybersecurity

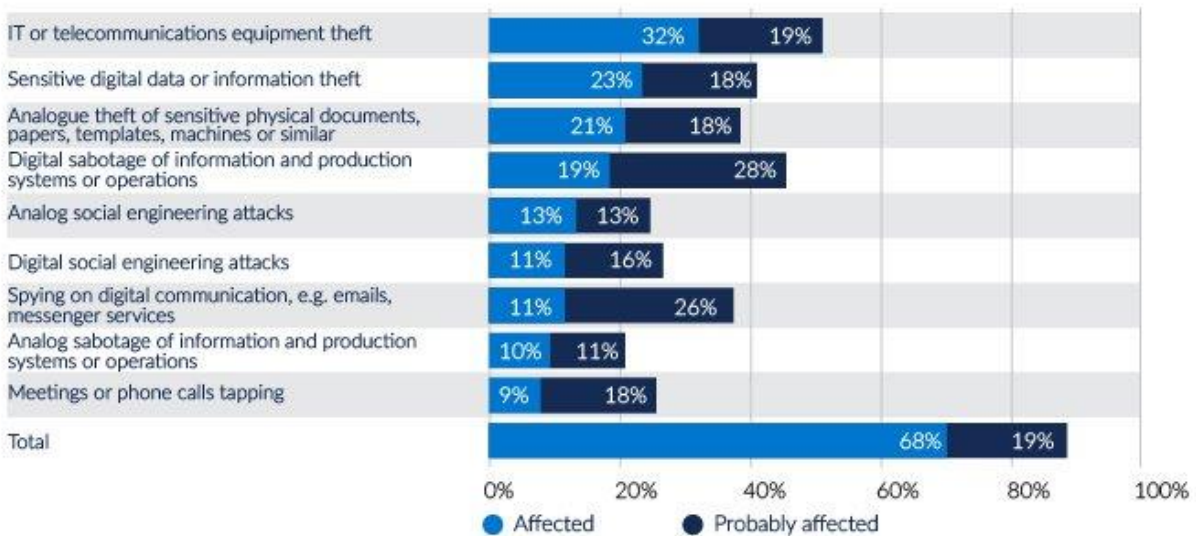
Protection from cyber warfare starts with assessing and improving the cybersecurity system. Companies should have consisted a framework that includes assessments to detect any malwares or malicious software, penetration testing on the network, monitoring, end-point protection, assessments of backup systems and real-time cyberattack response and recovery drills. Cybersecurity is taken into consideration of energy companies' budgets. Energy companies are embracing artificial intelligence to increase additional operational efficiencies and (to) mitigate the risk of costly cyberattacks. The oil industry as a whole has already taken measures to prioritize cybersecurity. However, all energy companies in general should make this prioritization.

Behind cyberattacks on energy “hide” foreign actors. *“Foreign entities often play a prominent role in cyberattacks on oil and gas pipelines”*, experts said. *“When you talk about cyberattacks and cyberattacks against the energy infrastructure, primarily you are looking at nation states like Russia, China, Iran,”* said Caitlin Durkovich, who served as DHS assistant secretary for infrastructure protection during the Obama administration. A successful cyberattack can cause an economic impact. Cutting off someone's pipeline can destroy the biggest part of their economic activity.

It is way difficult to have a complete picture of the number of attacks as different companies have different reporting requirements. Not all companies report what happened to their systems and when they do that, they report the situation to specialized services. Companies prefer not to talk because they want to hide any vulnerability in their system. Energy companies report attacks to their governments for a couple of reasons, from needing a helping hand to wanting to alert others in the industry. Cyber threats need the collaboration between government and industry to deter and impugn.

7 out of 10 industrial companies have become victims

Which of the following actions have affected or have probably affected your company within the last two years?



Basis: All industrial companies surveyed (n = 503) | Source: Bitkom Research

Cyberattack and sabotage are becoming more and more the weapon of choice for state or even terrorist groups. Hacking a power grid is more complex than simply leaching a computer network and the hackers mostly target critical infrastructure. Web-connected devices in homes are also in danger as these infrastructures. A cyberattack to an industry's system, may cause significant problems to its reputation. Some industries tend to move away from large, centralized power stations to smaller, flexible ones like gas power plants or even solar panels on homes, believing that could increase cyber risk but some experts do not believe so.

Nevertheless, the European Commission has grown concerned about attacks on the energy sector. Its new cyber security package, which covers all areas of the EU economy and society, includes proposals for more scrutiny of the software and other components used to monitor industrial control systems.

The technological and digital advancement are rapid through the years and new threats are constantly emerging, while cybersecurity is moving in exactly the same direction. For some companies ,cybersecurity may be a comparative advantage, for example, to differentiate the product and strengthen a brand as history has already shown that this kind of companies that deal with cyber-attacks in a way that is transparent to the public and generally made the right moves,

usually have positive results, because such management significantly increases the sense of trust. The truth is that there is no full security. So, the best solution is to amalgamate the cybersecurity actions into all the operating system of the company, to be prepared for any malware.

Chapter 7: China

“Beijing has been playing the new economic game at a maestro level,” as one observer aptly put it, “staying out of wars and political confrontations and zeroing in on business— its global influence far exceeds its existing economic strength. Nations do not fear China’s military might; they fear its ability to give or withhold trade and investments.” (Leslie Gelb, 2010)

7.1 China’s Energy Sector

China's shift from an almost entirely carbon-based state to one that takes the environment seriously and makes extensive use of renewable energy sources came after a better understanding of the energy problem. The conditions of production, the lifestyle of the Chinese, the industrial needs of China, the reckless use of resources and the dependence on coal together created a severe problem of energy consumption, since the rate of consumption exceeded the growth rates of the country and domestic resources were not enough for the growing demand for energy. A look back at the Chinese nation’s period and an examination of its first steps in the energy sector is needed.

In 1949 Mao Zedong, implemented the development model that respected the particularities and responded to the needs of China, but instead of these, they caused political and social unrest. The period 1949-1993 is the first phase of Chinese energy policy, with energy self-sufficiency following the economic recover. During the first decade, China maintained close ties with the Soviet Union, from which it imported oil and technological know-how. However, in the early 1960s, relations between the two countries broke down, leading China to turn to other oil-producing countries.

During the second phase of Chinese energy policy, 1993-2003, the country turned to international markets by investing in order to adapt to the internationally competitive environment and to ensure the adequacy of oil and gas at home. At the same time, China is developing a special mutually beneficial relationship with the underdeveloped, but with great natural wealth, African countries, like Nigeria.

The final phase of shaping Chinese energy policy began in 2003 and continues to this day. The government's new goals are to reduce energy consumption, while increasing green growth, international cooperation, energy saving and innovation. Their implementation presupposes, inter alia, the use of renewable energy sources and the prudent use of fossil fuels.

China's main source of energy is coal. As the largest producer and consumer of coal in the world, China has 4 million tons of coal. The main reasons for its preference are its low cost, ease of production and competitive advantage over other energy sources, renewable and non-renewable. It is used primarily for electricity generation, for heat generation in industry and for domestic use.

At the same time, China's energy needs require both oil and hydroelectric resources to meet. China is in an advantageous position in terms of hydrodynamics, as large rivers flow through its territory, making it the first country in the world to produce hydroelectric power. In addition, the Chinese industrial sector and households use natural gas mainly to generate electricity, while the utilization of nuclear energy is also important but slow.

Every five years, the Chinese government issues the Five-Year Development Plan, which outlines its key objectives, changes, and measures to be implemented. The constant goals of the last Five-Year Development Plans are the protection of public health, the reduction of the Chinese energy footprint on the planet, the promotion of the use of natural gas to upgrade air quality and the use of renewables.

7.2 China -Russia Relations

The Sino-Russian gas pipeline, which launched in 2019 is a perfect symbol of one of the world's most important transnational relations: a long-term, strategic link between two countries united by a desire to resist US domination. For Russia, the pipeline offers a new source of revenue from abroad as well as reduced dependence on Europe. For China, it brings a new and cleaner source of energy that neither the US Navy nor the US Treasury Department can disrupt. For both countries together, it represents a safeguard against future accidents in relation to other critical markets and suppliers.

The Power of Siberia project is a colossal infrastructure of engineering: a 2,900-kilometer pipeline from the Russian province of Yakutia to the southeastern tip of China. It passes through seismic areas where extreme temperatures prevail and forest fires are not absent. When completed in 2025, it will transport 38 billion cubic meters of gas a year - 10% of the amount consumed by EU countries last year. The pipeline consolidates a transnational relationship where Russia supplies China with basic goods and sophisticated weapons systems, while China secures a steady flow of money and consumer goods that reduces the pressure of Western sanctions five years ago to punish Russia for the invasion of Ukraine.

Vitaly Yermakov, an analyst at the Oxford Institute for Energy Studies, argues that *“the only reason the project still has a positive Net Present Value (ie it still has a reason to exist in financial terms) is because the ruble collapsed in 2016. Thus, future revenue (in dollars) from gas sales will cover the huge cost (in rubles) of its construction.”*

Gazprom, the world's largest gas producer, initially estimated the project's development costs at \$ 55 billion. However, the collapse of the ruble means, according to analysts, that these costs were eventually reduced to \$ 29 billion.

However, the pipeline enables China to reduce the volume of liquefied natural gas (LNG) imported by the Asian economic and industrial giant from the United States. Russian gas is, after all, cheaper than US LNG and will be a vital source of energy for China, which is unable to meet its domestic production needs. It will also turn Russia into China's most important supplier, overshadowing and overcoming Turkmenistan and Australia.

Russia also has huge gas reserves on its eastern border, the so-called Russian Far East, which are much closer to China than to Europe.

7.3 China-Nigeria Relations

China has intensive economic, political and diplomatic activities on the African continent, in order to achieve a strategic partnership with the African countries. Chinese leaders and strategists 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.) This is established with the Sino-Nigerian relation and China’s engagement in Nigeria’s politics, economy and energy sector.

China is perhaps the only power in the world that could challenge the USA in order to attain the status of a superpower. China's goal is to gain ground through its economic power by exploiting its vast surplus. Beijing continues its economic development; China is needy for energy. The current impact of China, on a worldwide level, could be identified with the evolution of Beijing's mega project, the so-called OBOR. The Belt and Road Initiative (BRI) was first announced by Xi Jinping in 2013 and abides by the Chinese Dream of Silk Road revival. Many countries claim that, beneath the huge and deep commercial interdependence that OBOR calls for, is rising the augmentation of China's 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). The BRI has as its primary goal to connect through economic cooperation three continents, Asia, Europe, and Africa. It is consisted of multiple networks and includes around 78 countries that are located on these continents. The amount of investments develops railways and roadways, ports, power grids, oil and gas pipelines, and other associated infrastructures.

China's effort to be the leader of developing countries by put them actively to the international economy is depicted in its policy towards Africa. In 2015, the second Chinese policy paper for Africa underlines the importance of Chinese and African nations regarding the global economy, while most African people (around 76-78% in states as Nigeria, Kenya, and Senegal) see China as a positive partner. *“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). It is more than obvious that China seeks to kill two birds with one stone by including African states in BRI, narrowing to augment its economic and geopolitical role and simultaneously, to exploit the energy sector of 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). For China, Nigeria is a geopolitical asset by itself given that it has

coastline across the Atlantic Ocean. For both energy security of China and OBOR Maritime Silk Road, Nigeria is essential for China.

“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) China's relations with Nigeria, The Round Table). Hence, in the last years, numerous Chinese companies have been attracted to Nigeria, particularly in the construction, oil, telecommunications and pharmaceuticals fields. These investments were first established with the Lekki Free Trade Zone (FTZ) in Lagos. *“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). The close relations of the two countries are reflected also 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)”**“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). In order to increase its production capacity, the Nigerian government introduced production-sharing contracts (PSCs), as a scheme to invest in new ventures. Hence, in 2004, the Nigerian government started to grant to Beijing oil contracts and PSC agreements. Exploiting this opportunity, Sinopec, the state-owned Chinese oil company, signed an agreement with the Nigerian National Petroleum Corporation (NNPC) to develop 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). Moreover, another agreement was achieved between China National Offshore Oil Corporation (CNOOC) and the Nigerian government, in order for the first to locate 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).In the last years, the above 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).

“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)

In August 2019, Chinese investments in Nigeria’s oil & gas sector are up to \$16 billion, an action that highlights that Chinese interest in the area is augmenting. Recent data incorporating coronavirus impact on oil markets indicate 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).

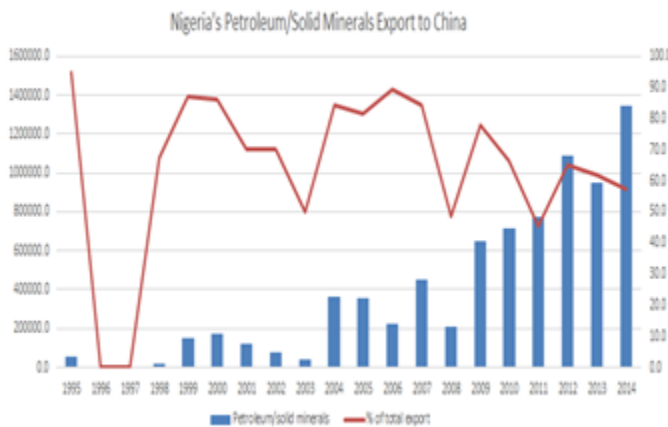


Fig.1. Nigeria’s Petroleum products export to China (in ths US dollars) (1995-2014)

Chinese policy towards Nigeria unfolds the tools and instruments that Beijing implements to achieve its regional and international goals. This policy is aligned with the vast commercial project “One Belt -One Road” and its regional and global geopolitical role. The intensive trading activities between the two countries started long before OBOR and are expanded in every economic sector and particularly in the energy sector. China focuses on energy security and diversification and Nigeria is an important partner towards ensuring China’s energy independence.

7.4 Rare Earths

Rare earths play a significant role in the economic development of states and are an integral part of their security. Their demand in the 21st century has increased rapidly, “*however, because mining is a difficult business and has serious consequences for the environment and humankind, production has shifted to China. Indeed, China controls about 95% of the world's rare earth production, which can create many problems for countries that import rare earth from it, because China, for its own political purposes, can cut off production or exports to other states, which will be severely affected.*” (Bossi, 2018)

17 rare earth elements in the periodic table

The image shows a periodic table with 17 elements highlighted in red. These elements are Scandium (Sc), Yttrium (Y), and the lanthanide series (La through Lu) and actinide series (Ac through Lr). The lanthanide and actinide series are shown in two rows below the main table.

1 H																	2 He	
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne	
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr	
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe	
55 Cs	56 Ba	57~71 La-Lu	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn	
87 Fr	88 Ra	89-103 Ac-Lr	104 Rf	105 Db	106 Sg	107 Bh	108 Hs					112 Cn						
			57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
			89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

Rare earths (or lanthanides) are 17 metals (chemical elements) and are key ingredients in the manufacture of hundreds of high-tech products, from cell phones and military equipment to electric car batteries and wind turbines. A possible reduction in their production would create huge problems in the countries where they are exported, such as the USA, which in the three years 2014-2017 met 80% of their needs for "high-tech metals" from China. Due to their industrial uniqueness in applications and uses of high-tech products (lasers, mobile phones, liquid crystal displays, etc.) and in the so-called "green" technologies (in hybrid car batteries, photovoltaics, low-energy lamps, turbines of wind turbines) the demand for rare earths is constantly increasing.

The word "rare" is rather misleading, as these metals are not so rare, concerning how easy are to be found even in large quantities in the upper crust of the Earth. Let us see their history. They were first discovered in Sweden in the 19th century, but the separation and identification became a century after. *"Until the 1950s, the main producers of rare earths were Brazil and India, while in the 1950s, South Africa took over."* (Katsikaris,2015) From 1980 and until today, China has a comparative advantage in this field, because the country affords to produce rare earths much cheaper and cleaner than its competitors, due to its low labor costs and very low environmental standards.

Concerning their rarity, *"For example, two of the rarest metals - thulium and lutecium - are much more abundant than gold. Therefore, their rarity does not lie in whether they are abundant or not, but in their required concentration in order for the metals to be exploitable, that is, to be detected in the minerals in a high concentration, so that mining is economical."* (Dr. Tzeferis, 2014) The biggest problem arising from the extraction of rare earths is the high percentages of radioactivity and the high cost as it is very expensive.

"The Chinese city of Baotou, located in Inner Mongolia, is of great geopolitical and economic importance because it is the largest source of rare earths - it produces 2/3 of Chinese production. The Baotou deposit contains thorium, which has created outbreaks of contamination in soil and water. Within two decades, from 1958 when mining began, in the wider area, crops began to fail, animals to die and people to face serious health problems. The result of these effects was the abandonment of the area. In fact, the pollution has now reached enormous proportions, because sewage has been found in the Yellow River, which flows through Baotou and plays an important role in the water supply of the capital and other major cities. Today, efforts have been made by

large companies to find more sustainable ways of managing rare earths, but others still follow the traditional way, with the aim of keeping costs low.” (Katsikaris, 2015), (Dr. Tzeferis, 2014), (Thinkglobalgreen.org, 2018,Zotos,2020)



Retrieve from ghetty images

Extraction and separation of rare earths have serious consequences to the environment, because rare earths occur within other minerals that also contain radioactive elements. During the separation process, radioactive waste and other toxics by-products are generated, which are dumped in retention areas like artificial lakes, and remain there forever. The mining process also generates polluting gaseous emissions; harmful to workers.

China, as the largest producer, is the country that puts the most burden on the environment in order to extract rare earths. Due to rare earths a heated incident between China and Japan was provoked.

On September 7, 2010, a Chinese fishing vessel violated Japanese territorial waters and was arrested by the Japanese Coast Guard. The incident took place in the Senkaku archipelago, where the eight islands of the region belong to Japan, but have been claimed by China since 1970. Then, China cut off rare earth exports to Japanese, like punishment/sanctions. Chinese knew that this action could have a huge impact on the Japanese economy. Japanese economy relies on rare earths for the production and development of high-tech products. All in all, it is obvious that China (mis)use the rare earths as a political weapon to achieve its political goals. China follows Russian practice when it comes to influencing foreign powers or pushing them to pursue its own interests by using energy.

Rare earths are also the main “ingredient” applying to electronic warplane and tank systems, radar and communications systems. They are so important that states need them for their military security. A possible blockade of rare earths could be equated with insecurity, a loss of military power, putting other states at risk.

So, will rare earths become China's weapon under unwarranted US pressure? *"We have the largest stockpile of rare earths in the world,"* said Wang Shuen, China's deputy trade minister, who plays a key role in the dispute and negotiations with Washington. *We want to meet the needs of other countries. However, it is unacceptable if other countries use rare earths from China to hinder its development."* A Beijing spokesman presented Washington's challenges (Huawei's blacklist due to suspicions of financial espionage) saying: *"We do not want a trade war, but we are not afraid of it, we will fight if necessary. "China's position on this has not changed."*

Conclusion

China uses strategies in sub-Saharan Africa. Prime Minister Wen Jiabao has hinted that \$ 10 billion could be lent over the next three years - like the \$ 10 billion in lending to Kazakhstan during the banking crisis - paving the way for making investments. In fact, some of the proposed agreements are even larger than those in Central Asia. The Niger-China oil program amounts to about \$ 5 billion, while \$ 7-9 billion in investments have been proposed in Guinea. For African countries, China offers a source of both aid and investment, while for China, first and foremost investing is

a business decision. However, an important secondary issue for China is the promotion of the view of non-interference in the supreme affairs of other states. However, there are reports that Chinese investors have abandoned investment projects in several sub-Saharan African countries, and investment in infrastructure is slow to materialize.

Also, rare earths are used as a weapon. The foreclosure of China's Huawei, the world's largest company of telecommunications equipment and the world's second-largest mobile phone company, showed just how vulnerable China is to technology. However, the fact that the US is covered at 80% of the demand for rare earths from China in the period 2014-2017, shows that America is also technologically dependent on China. Rare earths are used in consumer goods, from cell phones to electric cars, and in military equipment, from aircraft engines to satellites and rockets. They are used in rechargeable batteries for electric cars, in high-tech ceramics, in computers, in wind turbines, and oil refineries, in monitors and televisions, in lighting fixtures, in lasers, in optical fibers. Also, the use of some rare earths is vital for the construction of electric car engines. However, they also have significant use in military equipment, as their presence is essential for the construction of military jet engines, missile guidance systems, missile defense systems, satellites and lasers. Companies such as Raytheon, Lockheed Martin and BAE Systems build technologically advanced rockets that use rare earths in their guidance systems and sensors. Apple uses them in mobile phones, cameras and speakers. It is rather ironic that, while rare earths are necessary for green growth, their extraction leads to serious pollution of the environment itself.

Chapter 8: OPEC



Via ghetty images

In 1973, OPEC organization successfully used oil as a political weapon to pressure the West by imposing an oil embargo. History has shown that war for oil is a very frequent concept but a war over the price of oil was something completely new. In recent history, oil can be used as a tool to achieve political goals and political influence. In 1973, the Saudis understood the important role of oil that it could play in regional and international system only by opening or closing oil taps in order to succeed the desire outcome to the Yom Kippur War.

In October, 2018, Saudi Arabia threatened to “weaponize” its oil production again after four decades if it faced any disciplinary measures as a result of the assassination of journalist Jamal Khashoggi. Saudi Oil Minister Khaled al-Faleh spoke of to Russia’s TASS new agency the possibility of reliving the events of the Oil Crisis of 1973. *“Saudi Arabia is a completely responsible country. For decades, we have used our oil (production) policy as a responsible*

economic tool and we have kept it apart from politics,” Faleh emphasized. However, a lot of analysts emphasize that this “weapon” is not so effective for managing relations as it was once.

In 1960, five countries, - Iraq, Iran, Kuwait, Saudi Arabia, and Venezuela -, established the Organization of Petroleum Exporting Countries (OPEC) in Baghdad. Other Arab countries and oil key actors in the developing world became members to the OPEC in the 1960s and early 1970s. Now represents 13 members. The companies formed an oligopoly (not a true monopoly). This oligopoly’s intentions was to limit competition and control supply. The goal of this energy cartel, was to “coordinate and unify” oil policies among member states.

Ministers from OPEC’s countries met with ministers from the non-OPEC states—Egypt and Syria—in Kuwait, in order to agree on a historic decision; by supporting Damascus and Cairo’s military during the Arab-Israeli War. On October 17, 1973, they decided on an oil embargo with significant consequences all around the world. What did they decide exactly? They increased the price of oil exports by 70 %. Then, OPEC’s nations made a threat to decline their oil production at around 5% every month until Israeli government pulled back from the land-including the Egyptian Sinai, Syrian Golan Heights, the Gaza Strip, and the West Bank. They splitted the world’s countries into three main categories according to their political positions on Israel so as to implement the embargo accordingly. OPEC governments were aware of states’ dependence on their oil, and knew that even a small collapse in prices would cause an internal political stability.

The three categories were: 1. The first category had to do with countries that supported the Arab. These countries were classified as “friendly,” and they would not been imposed with any drop in Arab oil imports.

2. The second category had to do with states that they did not involve in this war and they were classified as “neutral”. These would be subject to a 5 % reduction in oil imports.

3. Last but not least, the third category had the “hostile” states- ej. the United States, the Netherlands, Portugal and South Africa; those who were supportive to Israel. They would “*bear the full brunt of the embargo.*”

Even though, the Arab Oil Embargo lasted for a couple of months, it caused serious energy crises in the U.S. and in other countries that imported oil from the Middle East.

“Each OPEC state has a NOC (national oil company) that controls the industry and partners with IOCs (international oil companies)—such as ExxonMobil, Total, Chevron, BP and Shell. OPEC’s petrodollars are tied into the global financial system, recycled through weapons sales and real estate investments, integrated through financial mechanisms and have permeated the tech industry.” (Gregory Brew, 2020)

The 1973 crisis was not the first (crisis) that oil had been used as a weapon, and surely not to be the last one. It was one (crisis) with the greatest impact on oil-consuming countries. The net loss of supply counted to 4.4 million barrels/day by December 1973, about *“14 percent of internationally traded oil.”* The gasoline prices led to rise at the pump in the U.S. and Western Europe.

“Although Arab states were successful in weaponizing oil in 1973, they were not successful in harnessing it to achieve their ultimate goal: the complete withdrawal of Israel from all of the territories it had seized in the 1967 Arab-Israeli war—including the Gaza Strip and the West Bank.” (Helal Aljamra, 2019)

In the early 2000s, oil prices had exceeded \$100 per barrel (2014 prices). The American invasion in Iraq and the terrorism were two factors that linked to the steady increase of oil prices. The situation posed a threat to OPEC. *“Increased competition would depress prices over the long term, weakening OPEC’s market position and potentially increasing social and political pressures inside Saudi Arabia.”* (Gregory Brew, 2020) The Saudi Arabian economy, its welfare state and government budget hang on oil price of at least \$80 per barrel, according to IMF data.

In 2016, Crown Prince Mohammed bin Salman withdrew Al-Naimi from the position of energy minister. He proceeded to it because bin Salman started using the energy crisis to push through a new strategy, which was in his favor. Vision 2030 was proposed to lessen the Saudi state’s dependence on oil production and to stabilize prices. *“Saudi Arabia led the rest of OPEC in cutting production, removing over 1 million barrels per day from the global market.”* (Gregory Brew, 2020) The Prince managed to bring close to his strategy Russia, a non-OPEC state and a major oil exporter. Russia agreed on cuts that were proposed. *“Rather than compete, OPEC and Russia (colloquially referred to as “OPEC+”) colluded to reduce output, boost prices and retain oil’s value.”* (Gregory Brew, 2020) Although, in March, 2020, that cooperation collapsed. *“The result is a war in which the price of oil fell 30 percent in a single day, a sudden and profound shift in the*

energy paradigm that will have lasting and uncertain effects on the global economy and humanity's continued reliance on fossil fuels.” (Gregory Brew, 2020)

Chapter 9: NATO

9.1 NATO is the Answer



The only solution to tackle asymmetric challenges and, of course, countries like Russia which weaponize its energy is the North Atlantic Alliance (NATO). *“The Alliance should: (1) elevate discussion of hybrid threats in the North Atlantic Council (NAC), permit allies to invoke Article 4 when confronted with hybrid threats to share information and request assistance through hybrid response teams, and internally clarify thresholds for coordinated response in times of hybrid crises; (2) work with NATO allies and with the EU to ensure the optimal utilization of resources and expertise in combating asymmetric threats; (3) develop stronger public-private partnerships to address asymmetric threats outside the purview of the Alliance; (4) invest in resources to improve resilience in individual member states, as mandated by Article 3; and (5) issue a*

declaratory statement that hybrid, asymmetric tactics pose a serious threat to the Alliance and that allies will respond appropriately” (GMF,2018)

“At the December 2015 NATO Foreign Ministerial meeting, NATO adopted a strategy for confronting hybrid threats and pledged greater cooperation with the EU in doing so.” (Jens Stoltenberg and Federica Mogherini, December 2, 2015.) “Part of this included better information-sharing and early warning of hybrid threats from both the East and the South. Member states were also encouraged to map potential vulnerabilities to Russian influence in “business, financial, media or energy concerns” and share best practices and lessons learned in building resilience within NATO.”(Jamie Shea, March 30, 2016), “At the 2016 Warsaw Summit, NATO took another step toward greater cooperation with the EU when it agreed on a strategy for Countering Hybrid Warfare that it is implementing in coordination with the EU.”(Federico Yaniz, February 2, 2018) “And much like the EU counters Russian disinformation through its East StratCom Task Force, NATO’s public diplomacy office employs the #WeAreNATO hashtag to counter anti-NATO narratives.” (Julianne Smith, Jim Townsend, and Rachel Rizzo, March 30, 2018)

NATO contributed to the formation of the Centers of Excellence to deepen analyze and develop strategies in order to find a solution to individual elements of the asymmetric toolkit, such as the Cooperative Cyber Defense Center in Estonia, the Strategic Communications Center of Excellence in Latvia and the European Center of Excellence for Countering Hybrid Threats in Finland. NATO member states have voluntary participation in these centers. *“For example, only 16 countries currently participate in the European Center of Excellence for Countering Hybrid Threats.”* (GMF,2018) During the NATO Warsaw Summit, the NATO countries decided to accept the cyberspace as a fifth ‘*domain of operations*’, beside the conventional domains of land, sea, air, and space.

“Invoking Article 4 would mandate political consultations to develop political solutions to hybrid attacks.” (GMF,2018) Article 4 would give a great opportunity for NATO allies which suffer from different threats to share its knowledge and intelligence to get on the same page about defensive strategies to tackle the hybrid threats. *“These consultations would include discussion of internal thresholds for triggering various responses by the Alliance to hybrid operations, including the invocation of Article 5.”*(GMF,2018)

First of all, *“NATO and the EU should further improve collaboration to increase transatlantic resiliency to asymmetric tactics. A Joint Task Force, led by senior officials from both organizations, could better coordinate the work of the various parts of NATO and EU bureaucracies already addressing this challenge to defend against a threat that crosses organizational jurisdictions.”* (GMF,2018) What is more, NATO should make better efforts to evolve its partnerships with local organizations that can detect and fight irregular problem, in order to *“play the role of the “watch dog” in holding political elites to standards of transparency, and advocate for democratic ideals and principles at the grassroots level”*. (GMF,2018) Also, any malign foreign interference in order to be eliminated is needed to come face to face with strong institutions and societies. *“Under Article 3 of the Washington Treaty, each member state is obligated to “maintain and develop” its “capacity to resist armed attack,”* (The North Atlantic Treaty (1949), North Atlantic Treaty Organization, April 4, 1949)*which should include enhancing resilience and civil preparedness in the realms of cybersecurity, energy security, and election security.*(General Doug Lute ,June 21, 2018.) Last but not least, hybrid threats can disorganize the Alliance and its member states. That is why, the allies have to issue a declaratory statement to the Brussels Summit concerning the specific threats and how the allies appropriately respond to them.

9.2 Energy can provide security

Energy security is an integral part of the national security framework. This correlation between energy security and national security can be met on a basic four-level model, -the military security, the internal security, the economic prosperity and the environmental consciousness. Initially, energy products are vital to the functioning of society. In practice, however, the main historical significance of energy lies in its military need. What is more, lack of adequate power supply for critical national infrastructure networks can cause a range of basic services to malfunction, from healthcare and safety systems to transport. The third level has to do with maintaining reasonable prices for energy products. Rises in oil and gas prices can "shock" the economy. The energy threat, however, does not necessarily arise not only from higher prices, but rather from price volatility. The above proves that energy is interlinked with national security and its aspects. At the military level, energy is the factor of defense - sometimes attack - of states, at the domestic level energy is

the driving force for the operation and protection of citizens, at the economic level energy prices characterize the viability of states while at the environmental level, energy and its management show states' empathy for the importance of the former. Therefore, a modern state that wants to organize its national security, cannot ignore the above, especially at a time when energy challenges are becoming increasingly complex. Therefore, energy for some is a weapon for the pursuit of political goals while for others it is a necessary good for the smooth functioning of society.

Conclusion

NATO must confront successfully the asymmetric threats in order to defend itself against them and sustain internal cohesion. This cohesion will be transferred to the member states, as well. Measures should be taken to clarify existing policies and ameliorate coordination with the EU and external actors. These would push NATO's potentials to defend the Alliance against unorthodox warfare. Each NATO ally will need to build resilience within its own society and with other countries to provide security and sovereignty. Energy is a necessary "evil"; its use must be done with measure and under certain circumstances.

Chapter 10: Conclusion

The purpose of this dissertation was to prove and analyze how energy is either used as a weapon of pursuit of interests -political, economic, social- (weaponization of energy) or is targeted by terrorists, states and other (non)-state actors to cause incalculable damage. First of all, Russia is a shocking example. The pipelines, its bilateral relations with other states, like Ukraine, are evidence that a single state has been weaponizing its energy for so many years undisturbed. It is also a state that bases almost all of its economy on this endeavor. *“The Strategic Multilayer Assessment (SMA) White Paper, concluded to three significant observations concerning the Russian strategic intentions and these are:*

- *Russia is adopting coercive strategies that involve the orchestrated employment of military and nonmilitary means to deter and compel the US, its allies and partners prior to and after the outbreak of hostilities.*
- *Russia exhibits a deep-seated sense of geopolitical insecurity which motivates it to pursue strategic objectives that establish an uncontested sphere of influence in the post-Soviet region. Yet, Russians increasingly disagree with the Kremlin’s assertions that the US is a looming external danger and a subversive force in Russian domestic politics.*
- *Russia’s gray zone tactics are most effective when the target is deeply polarized or lacks the capacity to resist and respond effectively to Russian aggression. According to Russian strategic thought, deterrence and competence are two sides of the same coin. (Russian Strategic Intentions, A Strategic Multilayer Assessment” (SMA) White Paper, May 2019)*

Although, Turkey is a country dependent on foreign hydrocarbons, it seeks to become a hub due to its location on the map. Its geographical location makes it attractive to countries like Russia, which sees it as a transit country that is not part of the EU but close to it. Of course, everyone has in mind the authoritarian practices of Turkey. It has often been involved in wars with the ultimate goal of energy resources, in particular, and economic interests, in general, beyond the coupling of the religious element that Erdogan is trying to achieve.

Concerning nuclear energy as an isolated act is particularly useful in developing countries and is considered an inexpensive form of energy. On the other, the use of weapons destruction can bring unpleasant consequences in the environment beyond the accidents (Chernobyl). Countries with nuclear energy either depend on it to provide electricity either it is oneway enforcement against their enemies and a Defense Policy.

Terrorist organizations are aware of the seriousness of the energy. Energy revenue is the main source of their paramilitary pursuits. Their usual practice is to bomb energy stations in order to bring about reshuffles in the energy sector, to overthrow governments, to upset the people, to show their strength. They are aided by states that foster terrorism such as Turkey in exchange for money.

Cyberattacks, although started by an innocent mistake, may in the future be the main source of evil. In the past it was the means of the countries to spy on their enemies or to postpone their plans. Nowadays, whether used by a state or a non-state actor, they have the same purposes to extract information, money, or to destroy critical infrastructures and energy distribution facilities. The only solution is cybersecurity which needs to be expanded further as malware becomes more resilient. On the positive side, the EU and other international organizations have put cyber-attacks on their agenda.

China is a rising force that by 2050 will have surpassed America. *“What most Americans still haven’t awakened to is that just in the last generation [China] has emerged like a rocket to displace the U.S. as the No. 1 producer of automobiles, computers, smartphones, and artificial intelligence.”* (Graham Allison,2017). It develops energy relations with countries like Russia, - Power of Siberia project-, seeking to cut off liquefied natural gas supplies from the United States. China also repays in Africa the loans of countries like Nigeria in order to cover its energy needs. For China, Nigeria is a geopolitical asset by itself given that it has coastline across the Atlantic Ocean. Sinopec signed an agreement with NNPC to develop Oil Mining lease in the Niger Delta. Finally, China, which controls 95% of the world’s rare earths, can control the imported-dependent countries. China has threatened the United States that sanctions on the Huawei company would force them to cut off the supply of rare earths to the United States, a particularly costly move for Americans who use them to produce mobile phones, electrical appliances, etc. Equally, they are used for electronic airplane, tank systems, radars and communication systems, implying military security. A blockade would mean insecurity, loss of military power and an increase on risks.

The reference to an organization ,like OPEC, is suggesting that under the contribution of five states, the Oil Crisis of 1973 caused. In all these practices of states and non-states actors, the solution is NATO, an international organization with a wide scope.

Energy can be used as an irregular warfare but there are ways to eliminate this use of energy sector.

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