Energy security in Balkans and the energy economy of Greece

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Abstract

Balkan Peninsula is a region with insignificant quantity of energy resources. Its geographical location constitutes a potential energy corridor, by transporting energy raw materials from the wider Caspian Sea to European Union. EU is the world's largest importer of energy raw materials and at the same time it is greatly dependent on hydrocarbon imports. Although most Balkan countries are pro-European, European Union's energy sector remains uncoordinated as the relative interests of its member states are differentiated. In fact, the entire area constitutes an East-West and North-South intersection in which Turkey, Greece, Bulgaria and Serbia have a particular geographical advantage. A regional complex environment such as Balkans requires alternative choices to meet energy objectives. Every country has to ensure supplier dispersion, energy security, top-level expert advice, appropriate energy infrastructure planning and specialized investment incentives. In order to achieve its energy goals, Greece must increase its energy autonomy and improve its cooperation with the other Balkan countries in all sectors. It ought to have a clear energy policy utilizing given advantages and appropriately associating with the various issues of its environment. Thus it can ultimately be able to exert meaningful influence by intervening directly or indirectly in decisions concerning various implemented projects in this fragile region. Balkan crude oil and gas transport networks, are the key strategic levers in the ongoing energy competition between the West and Russia. These are the reasons which are particularly important for Balkan countries' energy policy.

Keywords: Energy and the Balkans, energy security, energy dependency, energy policy

1. Introduction

Balkans is an area without energy sufficiency. It is a potential *energy corridor* which together with Nord Stream (and possibly with Nord Stream 2) will be the *main energy routes*, covering adequately and safely the transport of energy raw materials from Caspian region and other areas, the needs of European Union, the world's *largest importer of energy raw materials and hydrocarbons*. Although all Balkan countries are pro-European, the EU's energy sector remains uncoordinated as the relative interests of its member states are different (Every member state has its own energy ambitions) (International Energy Agency, 1994).

All Balkan countries allege their geographical position as a strategic asset and each one tries to highlight its own "virtues" in order to be preferred by the great powers as business partners. Turkey, Greece, Bulgaria and Serbia have a particular geographical advantage, while Romania, Moldova, Bosnia & Herzegovina, Albania, FYROM and Montenegro are considered as countries that can be bypassed (especially in relation to Turkey's corridor). However the geographical location alone does not seem to be enough to make a Balkan country business partner with a great power. This complex environment such as Balkans requires alternative choices to meet energy objectives. Every country must ensure supplier dispersion, energy security, top level expert advice, appropriate energy infrastructure planning and specialized investment incentives. These must be applied in an appropriate legal framework which has to be created based on current data.

Every Balkan country has its energy security priority as identified by the international Energy Agency (IEA) (EIA, 1999), i.e. ensuring uninterrupted availability of energy sources at acceptable prices. In order to achieve its own energy goals, Greece must have an unambiguous energy policy. Its main goals are the *increase of its energy autonomy* and the *improvement of its cooperation with the other Balkan countries*. For that reason it has to *utilize its advantages*, appropriately associated with the various issues of its Balkan environment. In this way Greece can ultimately be able to exert substantial influence by intervening directly or indirectly in decisions which affect Greece's future. Balkan *crude oil and gas transport networks* are the *key strategic factors* in the ongoing energy dispute between West and Russia. So they are particularly important for Balkan countries' energy policy (International Energy Agency, 1995) (See Figure 3, Appendix).

2. Energy safety: Ensuring stable and unimpeded energy supply

Energy security (see Figure 1 and 2) implies the diversification of producers and energy supply channels. The eastern Mediterranean Sea as a production area and the Balkan Peninsula as a transit region greatly increase the geo-economic importance of countries in the time of finding the relevant deposits within the Exclusive Economic Zones (EEZ) of the republic of Cyprus and Israel (Bielecki, 2000).

Figure 1: Defining energy security

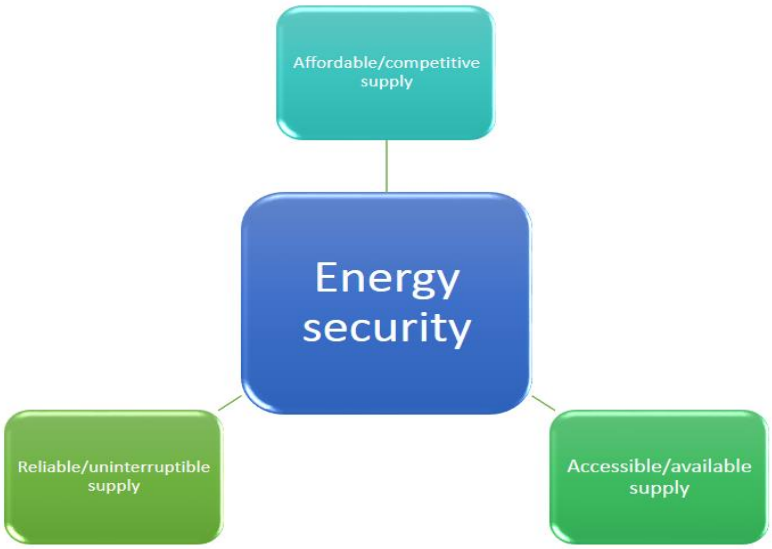

Figure 2: Energy security strategy

Short term strategies	Long term strategies
• Safe energy supply	• Increase of energy performance
• Enhancement of energy coordination of Member States	• Increase in energy production
• Enhancement of EU's GAS COORDINATION GROUP role to monitor developments in natural gas supply	• Diversification of supplying countries and supply routes
	• Integration of internal energy market
	• Construction of connection infrastructure
	• Develop a common external energy policy
	• Protection of vital energy infrastructure

2.1. Oil pipelines

The *Burgas - Alexandroupolis* pipeline was designed to meet the Greek energy goals with the capability of transporting 35 million tons of Russian crude oil per year from Novorossiysk to suburban Burgas and from Burgas to Alexandroupolis, so as to be channeled to international markets. It was rejected by the Bulgarian government *due to American pressure* and there is little chance that this project will be revived in the light of Russia's energy restraint by the West. Shareholders in this pipeline would be the Russians (51%) the Bulgarians (24.5%) and the Greeks

(24.5%) (Greene, 2000). It is also noted that despite the signing of various agreements between the three countries directly involved, Russia never guaranteed some minimum quantities for transportation so as to ensure the pipeline's competiveness (Asia Pacific Energy Research Centre, 2000).

There is also the *AMBO* pipeline, between Bulgaria, FYROM and Albania which was designed and also never implemented as a rival project of the Burgas - Alexandroupolis pipeline which would exclude Greece. This pipeline which would have an actual capability of transporting 40 million tons of crude oil, did not attract international business interest, despite the interest of those three countries plus Italy and the initial support of the US.

The Pan-European Oil Pipeline (*PEOP*) project has also been frozen rather definitely. Five countries (Romania, Serbia, Croatia, Slovenia and Italy) signed in 2007 a declaration to create a pipeline for the transport of crude oil from Caspian Sea in a route starting from Constanta via Serbia, Croatia and Slovenia to Trieste. In addition, this pipeline would reduce the large number of oil tankers supplying Trieste and could supply directly six refineries on its route (two in Romania, and one respectively in Serbia and in Croatia). Even in this case, the energy diplomacy of Balkan countries proved to be ineffective, since this plan was not a priority of a strong Western factor, being a state or a business entity.

The only integrated pipeline which was recently built and operated in the Balkan region but had insignificant importance for the international market was the 210 km long pipeline from Thessaloniki to Skopje. This pipeline was the project of Hellenic Petroleum SA and it covered the needs of its own refinery ("OKTA") in Skopje. However, the refinery is inactive as in 2012 the FYROM government sued "OKTA" company[1].

2.2. Gas pipelines

Due to the fact that global crude oil reserves are rapidly declining and crude oil has been linked to serious ecological problems, natural gas has emerged as a desirable energy source of high value. Based on an agreement signed in 2003 the connection of the *Greece-Turkey* gas networks took place in 2007. The pipeline (continuation of the Balkan Tbilisi-Erzurum pipeline) starts from Karacabey in western Turkey and ends at Komotini. In April 2009 Greece and Bulgaria agreed to establish a natural gas interconnector (*IGB*) so as to connect the Greek National Natural Gas System (NNGS) with the respective Bulgarian from Komotini to Stara Zagora. The 180km long IGB emerged as a top priority project for the US diplomacy due to its contribution in *decreasing energy dependency from Russia*. This pipeline would flow from both sides and has the potential of supplying Bulgaria with at least 30% of its annual energy consumption[2]. It is planned to transit a total of 5 billion cubic meters of natural gas per year from Greece to Bulgaria. It is also planned to transit reversely, from Bulgaria

[1] The Greek minister of foreign affairs, Nikos Kotzias, speaking on Skopje on August 26 2016 to FYROM ambassadors said they had agreed with his counterpart to build a pipeline for the transportation of oil derivatives from Thessaloniki to Skopje and later a gas pipeline.

[2] Additionally, Bulgaria has been granted access to the liquefied gas storage facility in Revythousa

to Greece, about 1 billion cubic meters of natural gas. The IGB is expected to meet the needs of neighboring countries (Romania, FYROM and Serbia). For this purpose it was linked to the *IBR pipeline* (Ruse – Giurgiu) which is also scheduled to operate in 2018. The northern extension will be the construction of the *BRUA* pipeline, which is going to link Bulgaria to Austria through Romania and Hungary, while the IGB will have the potential to serve Ukraine and possibly even the Baltic states.

The long term failure to come to an agreement for the construction of *Nabucco* pipeline (whose route would skip Greece) has resulted to the idea of creating an alternative gas pipeline by the SOCAR Company in Azerbaijan in cooperation with the Turkish company BOTAS. That pipeline, the *Trans-Anatolian*, will have the capability of transporting 16 billion cubic meters of natural gas per year, with the scope of reaching gradually the 32 billion cubic meters. This pipeline's route will start from Azerbaijan and through Georgia and Turkey will end up in central Europe. The *TANAP* construction project was announced in 2011 and its construction will finish according to the plan in 2018. In 2013 it was announced that besides SOCAR (58%) and BOTAS (30%) in the construction of TANAP pipeline a 12% will be covered by BP.

The extension of TANAP is a 550km pipeline on the Greek territory called *TAP* (Trans Adriatic pipeline)[3], which is under the consortium of the energy companies SOCAR, Snam, BP, Fluxys, Enagas and Axpo. TAP will have an annual capacity of 10 billion cubic meters of natural gas and potential to increase that by 100%. This pipeline represents and investment of 1.5 billion euros which will directly spawn 2,000 new jobs in Greece and it is estimated also to create 8,000 indirect job positions and 400 other jobs of archaeological interest. The TAP is planned to bifurcate at Fier (Albania), into Italy via the Adriatic Sea and to Croatia via Montenegro and Bosnia & Herzegovina as the *Ionian Adriatic Pipeline* (IAP). TAP might also facilitate the strengthening of the Greek-Albanian cooperation which is facing obstacles because of the 2009 signing of the bilateral agreement between Greece and Albania on the delimitation of the continental shelf and other maritime areas.

The initial plan for the construction of the *ITIG* (Poseidon) pipeline which was designed to transport gas from Russia through Turkey and Greece to Italy, finally did not take place *due to disagreements from the US and the European Commission*. The main reason was the maintenance of *Russian energy dependence*. The construction of South Stream gas pipeline was agreed in 2007 between the Russian Gazprom and the Italian EMI. The pipeline was projected to have a route starting from Novorossiysk and through the black sea to Burgas (Bulgaria). From there it would head to central Europe via Serbia while a part of the pipeline would start from Bulgaria and would end in Thesprotia (Greece). From Thesprotia the pipeline route would end in Italy. In December 2014 Russian president Vladimir Putin announced the cancellation of South Stream construction due to *barriers from European Union*. So Russia announced the construction of the TurkStream pipeline (see Figure 2) and the construction in Turkey near the Greco-Turkish borders of a final Russian gas distribution center. A new route would be created starting from the distribution center and ending in Europe. TurkStream will have the capability of transporting 31.5 billion cubic meters of natural gas per year. TurkStream will have two

[3] Preferred by the Shah Deniz II consortium against the 1300km Nabucco West pipeline, part of the original 4000km Nabucco pipeline.

routes. The first one will supply the Turkish market and the second one will go through Greece in the other states. The undersea part of TurkStream will be funded by Gazprom. As it has been reported the land sector of the TurkStream is divided in two lines. The first line belongs to the Turkish BOTAS company and the second to BOTAS (50%) and Gazprom (50%). Following the relevant agreements the construction of the second line will begin in 2018.

The cancellation of South Stream which would turn the Balkan states pro-Russian could increase the geopolitical importance of TAP. If TurkStream and TAP pipelines are finally built and operated, Greece will be upgraded on the Balkan energy map and become a strategic energy hub, because IGB strengthens the security of energy supply in the wider Balkan region. In an uncertain geopolitical region, *Greece is going to emerge as a stabilizing power* and a very useful factor in meeting Europe's energy needs. It is no coincidence that the IGB project is one of the top seven priority projects of the Energy Interconnection Initiative. Currently South Stream project seems to have been abandoned despite the statement by the Russian Energy Minister that under some guarantees from European Union the project could start again. In August 2016 Bulgaria took initiative as Prime Minister Borisov and president Putin communicated about this matter. However the subsequent visit of Turkey's President Erdogan to Russia resulted in a statement which restarted the TurkStream project, as Putin said that Bulgaria's good intentions without unreserved legal guarantees were not enough to trigger the construction of South Stream. Indeed on October 10 2016 an agreement between Russia and Turkey was signed in Constantinople to implement the TurkStream project in action by 2019[4].

The need to re-launch the Greek Stream project which is part of the Turkish Stream on Greek territory came as a result of the Turkish Stream agreement. Turkish Stream could be extended to Hungary via FYROM and Serbia as Tesla Stream. Despite the fact that Tesla Stream *has been approved by the European Commission* as a Project of Common Interest (PCI), starting in Nea Mesimvria (Greece), and ending at the node of Baumgarten (Austria) the section from the Turkish-Greek border to Macedonia is not covered and Russian Foreign Minister Sergei Viktorovich Lavrov said on November 2016 in Athens that the extension of the TurkStream is possible *only with the approval of European parliament*. It is therefore possible to qualify to an alternative connection option with Tesla Stream (either via TAP or via ITGI) and it is also expected to be, like the IGB, a two way flow. On October 14 2016 an agreement was signed between DESFA and the company managing energy resources in **FYROM** for the construction of an interconnection line, approximately 160 km long for the transportation of natural gas from New Mesimvria (Greece), to Stip (FYROM) (International Energy Agency, 2016a).

If the creation of the energy hub at the Greco-Turkish borders will take place, *Greece is going to be emerged as a gateway to Russian gas in Europe*. But also Turkey will be upgraded as well, since the dependence of Russia and EU from a demanding and aggressive neighbor of Greece will increase. In case (for any reason) of Greece's refusal to allow the extension of TurkStream through its territory, Bulgaria is the only alternative, which tries to become an energy gateway to natural gas in Balkans.

[4] The signature of the agreement does not guarantee the execution of the project, as Russian and Turkish interests are not completely the same

As far as it concerned Turkey, Bulgaria have the same importance with Greece in fulfilling its energy goals. Bulgaria has a 2.200 km gas distribution network connected to Greece, Turkey and FYROM, and its planned connection with Serbia via South Stream stopped when the project was shut down at its initial stage. Under a Russian-Bulgarian agreement in 1998, Bulgaria had secured its gas supply (from its only supplier, **Gazprom**, which has also a share in the natural gas supply network) until 2010 and facilitated the provision of Russian gas in Turkey, Greece and FYROM. Greece and Bulgaria rely heavily on energy issues from Russia. Sometimes their interests are of competitive nature. However, the have agreed on mutually beneficial cooperation which is ensured trough the manufactured IGB pipeline.

The former Bulgarian Minister of Foreign affairs (2010-2013) Nikolai Mladenov by speaking during an investment conference held in Varna (6-7 September 2016), referred[5] to the importance and viability of this project for the construction of the "Balkan" gas distribution center costing 1.5 billion euros. Gas is expected to originate from Russia, Azerbaijan and as well the floating gas liquefaction terminal expected to operate in Alexandroupolis. In this terminal with a budget of 380 million euros, the Bulgarian PPC has expressed its intention to participate with a 25% share[6] (BP Amoco, 1999). In August 2016, according to Bulgaria's Energy Minister statement there is now a realistic possibility that Iran will have the capability to supply this station with natural gas at 3-4 years. He also added that relevant expert meeting will examine the possibility of transporting gas from Iran to Bulgaria through Armenia and Georgia.

Mladenov pointed out that the plan to build a gas distribution hub near Varna is the first completed Bulgarian energy project that responds to Bulgaria's national interest in diversifying energy suppliers given its strategic location at the crossroads of major European transport routes. Mladenov said that: "Whether it will be implemented depends on both us and our partners because the implementation of this long term plan demands the cooperation with the EU, the neighboring countries and Russia, which will continue to be a major factor in the energy sector. How exactly this plan will be implemented depends also on our ability to work on achieving a long term national priority through careful diplomatic and economic moves", adding that European Union's strong support for the project is a first sign of success. As a former head of Bulgarian diplomacy, Mladenov emphasized that Bulgarian diplomacy would play the key role. Bulgaria's Prime Minister has made a proposal to hold a tripartite meeting (Bulgaria, European Union, Russia) to decide on the implementation of the project. According to Bulgarian officials the factors that justify optimism for its implementation are *the strong support from the European Union*, the expected large increase in gas consumption in the Balkans and the fact that there is no such other regional hub in the region. However despite the fact that EU is energy dependent from Russia, it continues to help the US plans for Russian energy blockade. On the other hand, the European Union does not have adequate alternatives to reduce its energy dependence on Russia. Even the increased supply from Norway or Algeria cannot ensure energy efficiency in a growing demand European market.

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[5] Bulgarian newspaper "24 hours" on September 7 2016

[6] Historically and statistically natural gas is cheaper than liquefied natural gas but we do not know price changes in the future

The Greek side is interested in ensuring an alternative source of energy supply so as not to depend from Turkey. It is reminded that the supply from Greece via Ukraine will cease in 2018. The creation of pipelines passing through Turkey binds a number of countries including Greece. Particularly in current tense political landscape in Turkey which turns into a totalitarian state, threatening its neighbors. So energy projects that would strengthen the Turkish economy would not be beneficial. Given the high consumption needs of European Union (about 450 billion cubic meters per year), Greece also welcomes the agreement between Russian and Germany from which Nord Stream 2 is going to be constructed. This pipeline will blunt the tensions between Russia and Europe benefiting the eastern and Balkan countries which are located at the forefront of Russia. It is important to have in mind that the Borisov government had decided to freeze three very important energy projects with Russian participation. That fact demonstrates how *Bulgaria is politically dependent on the West*[7]. These were three typical examples of energy diplomacy by the West at the expense of Russia with disproportionate cost for Bulgaria. *Bulgaria is heavily dependent from Russia* (crude oil 90%, natural gas 95% and nuclear fuel 100%).

Regarding oil and gas drilling started in spring 2016 (the relevant competitions were held in 2012), it took place in the Han Asparuh deposit in the Black Sea by French Total (40%) in a joint venture with the Austrian OMV (30%) and Spanish Repsol (30%). On October 28 2016 the Bulgarian Deputy Prime Minister Tomislav Donchev announced that oil was found without further clarification. The agreement stipulates that the French company will have to make two deep drillings near the sea border with Romania. The issue of energy projects in Bulgaria is closely linked to unemployment and immigration. As an executive of the opposition said “we cannot afford to see two million Bulgarians to emigrate because they have no jobs.” On 2 November 2016 the Bulgarian government approved plans for a five year contest about oil and gas extraction in Northwest Bulgaria, its poorest region.

Furthermore Tomislav Donchev said that his country intends to retain the ownership of existing gas infrastructure for national security reasons but it is ready to offer the possibility of forming a joint venture for this particular planned gas hub project near Varna. 50% of the new company's shares will be offered for sale, while the gas management company will be Bulgartransgaz’s subsidiary.

It is underlined that Russian company Gazprom was not present at this conference and that the Bulgarian government's answers to the relevant questions did not satisfy those who put them. Donchev said that without Russia the project would not be "so sustainable", but the Bulgarians are determined to move ahead with the Turks as a Russian substitute, apparently having a link between Turkey and Varna. Bulgaria coerces Turkey to speed up the process of building a two way Turkey – Bulgaria interconnector. Bulgaria has secured 50% of its funding from European Union. On the other hand Bulgarians are increasingly suspicious of Turks, who use the Turkish minority as a mean of political pressure against the Bulgarian government. In early September 2016, Bulgarian Prime

[7] After stopping the construction of the nuclear plant, the Russian side appealed to the International Chamber of Commerce, which decided that Bulgaria’s PPC should pay 550 million euro compensation to Russian Atomstroyexport. The amount owed had increased due to interest to 628 million euros by the end of September 2016

Minister in a speech to his party youth, he highlighted the long term risk posed by Turkish investments.

However Bulgarians seem to prefer the undersea connection through a pipeline with Russia in order to further promote natural gas in Europe, in spite of reviving South Stream. The feasibility study for the project is scheduled for 2017, while the final investment decision in going to be taken in 2020. The project construction will start at 2021. Moreover Gazprom has announced that it does not intend to renew the contract relevant to the transport of Russian gas through Ukraine which expires at the end of 2018. On October 24 2016 Gazprom Managing director Alexei Miller met with President Putin. During this meeting he said that "I can surely say that the construction of both routes of the Turkish stream can begin. They may have been completed by the end of 2019".

The influence of Gazprom (the world's largest natural gas company, which owns and almost all of Russian gas reserves) and Lukoil (the second largest company in Russia) is well-established in the Balkans. Lukoil has a strong presence in Bulgaria and Romania. It owns the huge refinery of Neftochim (in Burgas) in Bulgaria where it has made its largest investment outside of Russia. It has also secured the monopoly on the gas market in Romania since 2001. In addition it has become the only supplier of state-owned Rom-Gaz. In Ploesti (Romania), the Petrotel refinery belongs to Lukoil. Romania through large in size and market, it has the lowest dependence on imported energy raw materials among all Balkan countries, while serving as a transit country for gas transportation from Russia via Ukraine to Bulgaria, Turkey and Greece.

Intense diplomacy actions were developed by Russia during the 2000's in an attempt to make **Serbia** fully dependent on Russian energy raw materials combined with Russian investments in the Serbian energy sector, where two companies are active. The first one is SrbijaGas which supplies exclusively Russian gas under an agreement up to 2021 and the second one is Gazprom's JugorosGas. As Serbia and Russia are both Slavic and Christian orthodox countries, they have developed cooperative initiatives between them. The diplomatic exclusion of Serbia from European countries due to the Yugoslav wars and the poor performance of the Serbian economy played a significant role in this approach. A key role for Russia-Serbia relations plays the fact that *Russia as a permanent member of the UN Security Council blocked Kosovo's membership in the UN*. In January 2008, an agreement was signed on the purchase of 51% of Serbia's state-owned hydrocarbon company (Naftna Industrija Srbije, NIS) by Gazprom for 400 million euros. In return the Russian company had the obligation to invest 500 million euros in the Serbian energy sector by 2012 and a month later a new Russian-Serbian agreement was signed on Serbia's participation in the South Stream pipeline. The following months, new agreements were signed that provided the establishment of a joint venture for underground gas storage in Pancevo, near Belgrade. The cancellation of Bulgaria's South-Stream participation due to the US involvement, did not allow the implementation of the Russian-Serbian agreements.

On the other hand, Russia penetrated in Republika Srpska, securing a majority stake in two refineries and an oil company. Gazprom's bargaining power is firm due to the intra-Balkan competition that is often imposed by geography and the insignificant Balkan market as a whole. If European Union were able to negotiate by representing all its member states that could balance Russia's and Gazprom's bargaining power. European Union as a whole entity could dictate terms and impose solutions due

to the size of its gas demand, obviously putting also other issues at the negotiating table. In any case it is not in Russia's advantage to negotiate versus all the European Union members' states but rather negotiating with each one separately and threatening them with alternative solutions that can offer to third parties, e.g. blocking Bulgaria, preferring Turkey's solution. The united voice of European Union could say to Russia: "Take it or leave it". But *even the strongest European state alone, cannot prevail on Gazprom over negotiating*.

In this case, Turkey has the advantage over Bulgaria, due to the size of its market. Turkish soil is a natural corridor for the necessary energy flows from the Caspian Sea to Western Europe, and Turkey is trying to exploit its geographical position by pursuing its own priorities (eg joining the European Union). Due to its geographical position, *Turkey is also an important hub for Russian neutralization*. On the Russian side, by securing Turkey's co-operation makes Europe weaker. EU relies on Turkey as an alternative choice to any Russian energy offer to the West. Bulgaria cannot play Turkey's role. It can be easily circumvented because of its insignificant market size. If it's possible for Russia to bypass Ukraine, which is the shorter energy corridor to central Europe, it is even easier to bypass Bulgaria which is geographically smaller and politically and economically weak. The same goes for any other small Balkan state.

Following the recent localization of large quantities of natural gas in the eastern Mediterranean Sea and despite the recent Cyprus-Egypt energy agreement, there is the prospect of constructing the East Med pipeline, so as to cover the energy needs of Israel, Greece and Cyprus. East Med pipeline will have the capability of transporting 8 to 10 billion cubic meters of gas in Europe, through Crete & Peloponnese to the point of interconnection with the Poseidon pipeline (continuation of ITGI) in Thesprotia. This route may be extended through the Balkans where new branches could be constructed as final route destinations[8]. In particular, the discovery of large natural gas quantities in the maritime area between Cyprus, Lebanon, Israel and Egypt in 2011, created new geopolitical data in this area. Cyprus and Israel negotiate the possibility of the East-Med pipeline which is going to link them with Greece and Italy. This pipeline could be an alternative option from Russia[9].

The construction of the East-Med pipeline and its extra gas supply from the Caspian Sea, Iran, Egypt and the Persian Gulf will abolish Russia's monopoly as an EU supplier and will diminish Turkey's value as an energy node[10]. Indeed, there is a degree of mobility in the energy sector in the South East Mediterranean sea. Due to the pipeline in Israeli and Greek EEZ, Turkey is pushing for the solution of the Cyprus dispute, so as to control the transfer of the region's gas to Europe on its behalf[11].

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[8] Παρίσης, Ι., Η Καθ' ημάς Θάλασσα. Γεωστρατηγική Ανάλυση της Μεσογείου, Εκδ. Λιβάνη, Αθήνα 2013, σ.136

[9] Ibid σ.136

[10] Ibid σ.137

[11] http://www.liberal.gr/arthro/109139/oikonomia/2017/entoni-kinitikotita-sta-energeiaka-tis-anatolikis-mesogeiou-.html 22-01-2017

High-level contacts have taken place between EU, Italy, Greece, Cyprus and Israel. The aim is to prepare a Summit between the Energy Ministers of every country in April 2017. The main theme will be the pipeline which will going to transport gas from Leviathan gas field to Europe[12].

The four Energy Ministers met on 4 April 2017 in Tel-Aviv and signed a Joint Declaration recognizing the project of East Med pipeline as "a strategic priority for exporting to Europe the part of existing Eastern Mediterranean sea gas reserves"[13]. The next major goal for the pipeline promotion is the Intergovernmental Agreement, as it was decided to set up a four-party working group to monitor and support the East-Med pipeline project[14]. The pipeline to Turkey or natural gas transfer by LNG through Egypt were studied as alternative approaches. They may be considered more economical however they hide an increased political risk[15].

On the Italian side, Enel, a former state-owned electricity company privatized in 1990, is interested in the pipeline construction venture[16]. During energy conference in Abu Dhabi in a meeting with the Israeli government, Enel informed about the company's interest to obtain gas from Israel and place it on the Italian market[17]. Italy has expressed an interest in supplying gas from Israel as an alternative to North Sea deposit which is decreasing[18]. Italy has expressed an interest in supplying gas from Israel as an alternative of from the North Sea deposits which are decreasing.

According to Israeli financial website "Globes", officials from the four countries will discuss the project to build a gas pipeline from “Leviathan” to Italy via Cyprus and Greece[19]. The pipeline will be the largest its kind in the world having a length of 2200 km and will effectively connect the Israeli “Leviathan”, Cypriot “Venus” and every other deposit discovered in Italy. From there it will interconnect with the existing pipeline network to all other European countries[20].

Specifically, the pipeline route will be undersea from Basilica reservoirs in Cyprus and it will continue its course to South Crete. Thereafter the pipeline route leads through Peloponnese and Western Greece to Italy[21].

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[12] Ibid

[13] http://e-amyna.com/east-med 4-04-2017

[14] Ibid

[15] Ibid

[16] http://www.liberal.gr/arthro/109139/oikonomia/2017/entoni-kinitikotita-sta-nergeiaka-tis-anatolikis-mesogeiou-.html 22-01-2017

[17] Ibid

[18] Ibid

[19] Ibid

[20] Ibid

[21] http://e-amyna.com/east-med 4-04-2017

European countries have expressed the view that this ambitious project should be undertaken by EDISON, a power company controlled by EDF, France's state-owned electricity company. EDISON has already been involved in drilling into the EEZs of Israel and Egypt[22]. According to a survey conducted by EDISON in cooperation with the European Commission's Directorate for Energy, the pipeline to Greece will cost 5.7 billion dollars[23].

The project is supported by the EU and it has been included in Public Interest projects as a potentially alternative source of supply, so as to *decrease its dependence from Russia*, which covers 42% of its natural gas needs[24]. In this case scenario, Greece is upgrading its importance in the region. The implementation of TAP and IGB (interconnection with Bulgaria) pipelines and the construction project of a new LNG terminal in Alexandroupolis, highlight Greece as an energy hub[25].

In particular, the entire construction plan is planned to be funded and operated by private companies with the support of EU and the European Investment Bank[26]. The project also includes the addition of another 240 km pipeline from Greece to Italy in the Brindisi region that will continue to Rome carrying 12billion cubic meters of gas per year[27].

However, there is a contradiction by some experts who are questioning the viability of the pipeline. They point out that the large pipeline cost will raise prices by 3-4 dollars per thermal unit when the current price in Europe is 5-6 dollars and in Italy the price come to 6.5 dollars per thermal unit[28].

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[22] Ibid

[23] Ibid

[24] http://www.kathimerini.gr/890772/article/epikairothta/kosmos/energeiako-skaki-sth-na-mesogeio Λιάγγου, Χ., 8-01-2017

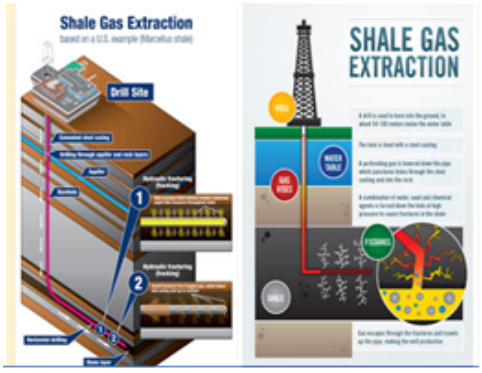
[25] Ibid

[26] http://www.liberal.gr/arthro/109139/oikonomia/2017/entoni-kinitikotita-sta-energeiaka-tis-anatolikis-mesogeiou-.html 22-01-2017

[27] Ibid

[28] Ibid

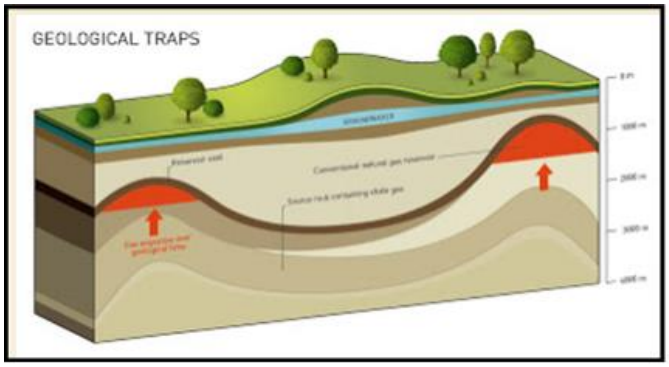
Figure 3: Shale gas



Natural gas could cover up to 30% of planet's demand on energy until 2025. Shale gas, a promising but controversial energy source, refers to gas deposits which are located in subsoil layers.

Advantages:
Shale gas pumping can increase gas stocks and decrease EU's dependence from other outer energy sources. The development of new gas sources will increase bussiness competition, decrease gas prices and increase the safety of EU's supply.

Figure 4: Shale gas (b)



The use of such quantities by exercising great pressure creates pollution risks, when water aquifiers are used, which cause pollution. Also the technique of breaking up soil is well known that causes seismic activity.

The enviromental problems that gas pumping causes are known. The breaking up soil technique demands a great mass of water, up to 4000 cubic meters for the opening of only one source and up to 14000 cubic meters for shale fracturing and gas pumping

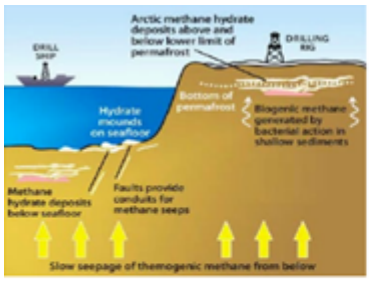
Figure 5: Methane Hydrates

Methane Hydrates

Hydrates are located in 98% in subsoil to the seabed subsoil. They form in depths of 200-300 meters where the pressure goes up to 30bar and the temperature is about -10 Celsius. Organic matter is sufficient for bacterial methane production.

In the case of methane hydrates, they consist of solid crystal. Solid crystal is composed of molecular methane which is surrounded by converging molecules, in a molecular ice cage.

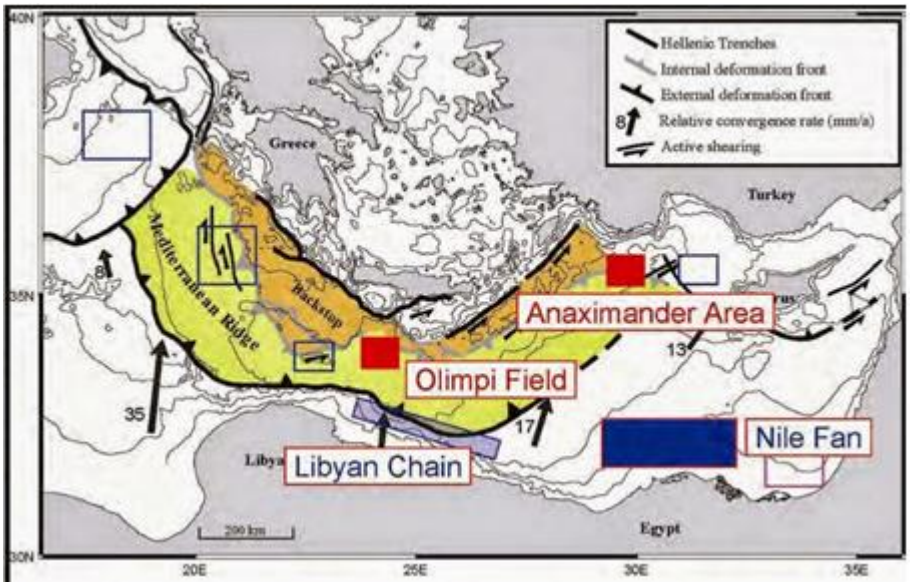
Figure 6: Methane Hydrates (b)



The hydrates have been found in the Caspian Sea, in the Barents Strait, in the Eastern Mediterranen Sea, Eastern of Rhodes, south of Antalya bay, in Anaximander area and in Kasterllorizo.

There have been investigations in Anaximander area in Southeast Mediterranen Sea, where hydrate samples where collected from depths of 40-80cm under the sea floor, 2000 meters under the sea surface. Also two mud volcanos where investigated which named "Athens" and "Thessaloniki".

Figure 7: Eastern Mediterranean Sea study area



3. Recent Developments

EU and the US support three moves launched in the energy sector which strengthen and upgrade the role of Greece and Cyprus in the energy map of the wider region of the South East Mediterranean. On the other hand, however, the factors that affect these actions do not exclude provocative actions from Turkey, which seeks to create fait accompli especially in the Cypriot EEZ.

In particular, in the two-month period September-October 2018 contracts for the granting of exploration rights and exploitation of hydrocarbons in the two marine lands west and southwest of Crete are expected to reach the Greek Parliament. The joint venture of the oil giants Total and ExxonMobil with Hellenic Petroleum have won those regions. The signing of the intergovernmental agreement for the construction of the EastMed gas pipeline has been planned in September in Chania. As already mentioned, the pipeline promoted by DEPA and Edison, making a 1,872 km route, will bring the quantities of natural gas from Israel, Cyprus and Crete deposits, if found in maritime concessions, to Europe crossing Western Greece and ending in Italy. The third move comes to the island of Aphrodite by the American oil group ExxonMobil, who in cooperation with Qatar Petroleum brings a drilling specialist to make two promising drills at EEZ Site 10. Estimates want this piece to hide huge amounts of gas at levels similar to those of the Egyptian Zohr. For these moves, Washington and Brussels provide full political support to Athens and Nicosia as well as Tel Aviv (EastMed).

Research into the identification of natural gas deposits and the implementation of their pipeline in Europe serves the EU's options for alternative sources of gas supply to ensure energy supply and security supply for member states and also satisfies the diplomatic US policy towards Russia, which aims to limit Moscow's political influence though the supply of gas. The EU is largely dependent on Gazprom's fuel. The decision by Brussels and Washington to implement this energy policy is also evident from the activity of the large oil companies Total French and American ExxonMobil in the region. Regarding the issue of deposits in Crete, last week the Minister of Environment and Energy

George Stathakis pointed out the companies of Total - ExxonMobil - HELPE as selected participants of the two marine areas west and southwest of Crete, following a suggestion by the Hellenic Management Company of Hydrocarbons. HHRM SA (Hellenic Hydrocarbon Resources Management) is already negotiating with companies for the two draft contracts. It is estimated that this work will end at the end of the month and then it is down to the minister that the contracts are sent to the Court of the Auditors, so as to be signed and finally ratified by the Parliament. One stage before is the case of the Ionian Marine Concession, with HHRM evaluating the offer from Repsol – Hellenic Petroleum. The presence of the world's largest oil companies (Total, ExxonMobil and Repsol) in hydrocarbon exploration in the country is increasing the chances of having deposits.

Beyond that HHRM made up of scientific staff, states in its annual financial report: There are geological similarities to the rocks of the South-East Mediterranean that have given over the last five years many discoveries of large gas deposits. The marine area of Western Greece and south of Crete are characterized by limestone rocks and are similar to the Zohr of Egypt, Calypso and Onisiforou deposits in Cyprus, but also in other cases with the deposits of Aphrodite in Cyprus or Leviathan in Israel. All of these gas deposits have been discovered over the last five years with a series of drillings.” HHRM continues: "Geo strategically and commercially, it is also evident that there is geographical convergence between the hydrocarbon exploration areas and the two major gas transports from the South East Mediterranean to Europe of the TAP and EastMed pipeline. It is understood that the combination of investments in exploration and transport of hydrocarbons offers strong financial incentives to investors.”

Provided that the promising deposits are identified, natural gas deposits south of Crete are estimated in a range of 3 up to 30 trillion cubic feet. The Chairman of the Hellenic Hydrocarbon Management Company Yannis Basias has made this assessment during the Med Petroleum Summit organized by IN-VR Oil & Gas in Athens. Mr.Basias said during his speech that "the geological features of Crete and the Ionian Sea are similar to those of the Zohr deposits that were recently discovered in Egypt and changed the whole situation in the global community of oil science and industry."

During the talks with the journalists, referring to the big concessions for the South Western and Western concessions of Crete and the Ionian Islands, he announced that the total offers of Total - ExxonMobil - Hellenic Petroleum - 0,98% (for the first two plots) and Repsol - HELPE (for the third) are under evaluation by HHRM and will end by 31 May. Then the final suggestion will be made to the Minister of Environment and Energy. Then, according to Mr. Basias, negotiations on lease agreements with preferred investors will follow. The competent minister, speaking at the same event, announced the signing of these contracts in 2018.

Mr. Basias, addressing representatives of foreign independent companies of hydrocarbon management and oil companies operating in research and exploitation, has attributed estimates of the size of natural gas fields:

- On the similarities of the geological structures of Western Greece with those of Zohr
- The corresponding similarities of the depositσ of Crete with those of Onisiforos and Kalypso of Cyprus.

- The discoveries that have been made in the wider Mediterranean region by four types of geological structures:
    1. Calypso, Onesiforos, Zohr: 37 trillion cubic feet natural gas
    2. Aphrodite, Tannin and Carris: 6 trillion cubic feet
    3. Leviathan and Tamar: 33 trillion cubic feet
    4. Mari, Noa and Gaza: 2,5 trillion cubic feet

The President of HHRM and the Minister of Environment and Energy, in their speeches, described the favorable conditions for the exploration and exploitation of hydrocarbons in our country. As they mentioned two major investment projects are developing that transform Greece into an energy hub. It is about the TAP pipeline which is 80% integrated and the planned EastMed which is going to link Israel, Cyprus and Greece. Moreover, Mr. Basias added that "the region of western Greece and south of Crete offer geopolitical security."

Mr Basias estimated that the first drillings in the concessions of Crete and the Ionian Sea will take place three years after signing the contracts. The depths that can be reached by the large drilling machines bases based on the existing technology are up to 3.000 meters. According to him, exploration and drilling should be certified at least 500 million barrels of oil equivalent and the depth of the water up to 3.000 meters.

3.1. New round of concessions

The president of HHRM also announced that after three years Greece will be able to proceed to a new round of concessions. This is because according to the contractual obligations of the concessionaires with the Greek state, after three years of research, 25% of the land should be returned. "This process will provide us with experience and know-how, so we can go to shorter international competitions." He also said that HHRM is collaborating with the Norwegian PGS (Earthquake Investigation Company) to obtain new data and in other areas south of Crete where the lines are not dense. Mr Basia said PGS is seeking investors to pre-fund research so they can start.

3.1.1. The old concessions

HHRM estimates that in 2019 the first drillings will be made in the Gulf of Patras, and in Katakolo. HELPE and Edison have the first concession and Energean Oil & Gas have the second one.

4. Findings – Concluding Remarks

The construction of recently planned pipelines has either been stopped, paused or it lies at an early stage of implementation (International Energy Agency, 2016b). This situation is reflecting *the opposite interests* (great powers, organizations, multinational companies, regional powers) *that influence or overturn decisions* (Meadows, 1972). Balkan countries themselves have proved to be powerless against the will of great powers firstly the US and secondly Russia (International Energy Agency, 1974). Additionally, critical decisions on large-scale energy investments are taken by joint ventures or multinational companies according to their interests (Federal Energy Regulatory Commission, 2018). Their basic criterion for the implementation or not of a project is its profitability.

In recent years a series of ambitious and costly projects were abandoned for a number reasons. Instead smaller-scale projects have achieved their implementation to interconnect the Balkan energy market (US Geological Survey, 2000).

Energy policy can be a useful tool. But it is important for every government to *perceive every conjuncture that occurs and exploit it to its benefit*. It is also crucial to have the ability to *plan in short, medium and long term*, so as to create useful alliances either with neighboring states, or corporations (Giamouridis & Paleoyannis, 2011).

When Russia and Iran hold more than 50% for the world's gas reserves, inevitably there will be energy dependency from these countries (European Commission, 2000). Things are getting complicated taking into account the political pressure of US and NATO to Balkan countries. Since the energy supply of Balkan countries is based on coal (lignite), the rapid decline in its reserves causes them to seek gas as a substitute for the near future (International Energy Agency, 2001). The more dependent a country is from an energy supplier, the more expensive it will pay for energy supply. Currently Russia has the advantage of being the closest energy source to Eastern Europe and Balkan region and it also has sufficient quantity to offer (International Energy Agency, 2000a). For those reasons Europe's *energy dependency from Russia is not going to be decreased* (International Energy Agency, 2017). Balkans may deal to substitute a relatively small proportion of Russian gas with imports from countries such as Azerbaijan and Iran. Turkmenistan which is also an energy provider has given priority to supply China (International Energy Agency, 2015). Despite the fact that gas deposits have been found in Azerbaijan, there have been problems concerning the extraction of natural gas due to its low prices on the international market (International Energy Agency, 1998).

In the future, European energy dependence on Russia and Gazprom is expected to be in effect due to mainly increased European needs. Therefore this dependence limits the freedom of European's Union strategic choices (International Energy Agency, 2000b). However Europe will continue the effort of decreasing *Russian energy dependence* via alternative forms of energy, LNG etc. Given the circumstances there is a chance for Greece to *emerge as an energy supplier by exploiting gas deposits in eastern Mediterranean*. Greek diplomacy has reasonable arguments to persuade the European Union that East Mediterranean Sea hydrocarbons should not be carried forward through Turkey. If these reasonable arguments are combined with appropriate partnerships with energy corporations, Greek side may achieve remarkable gains due to this favorable combination of international developments.

4.1. Suggestions

Greek diplomacy must be valid and timely informed about energy developments in Balkans and Middle East (Sotiropoulos, 2014). Therefore, an organized institutional information network is required and the relevant information must be cross-linked and as detailed as possible. The members of the Greek economic diplomacy are the most suitable for the extraction of such information.

Greek energy interests must be represented with appropriate executives on the international diplomatic scene within European Union and NATO. Initiatives, coordinated by the relevant ministries (mainly Foreign and Energy), to support projects that primarily serve Greek interests and

secondly the interests of the wider Balkan region. Projects that can be described as PCIs must ensure substantial Community funding.

The government must introduce special investment incentives, subject to specific conditions by offering a multi-year tax exemption to investors, so as to create new jobs. It is better to tax formerly unemployed citizens than paying unemployment benefits. Energy diplomacy should be promoted by the government in terms of energy security, budgeting, environmental protection, innovative applications, and so on.

Greece must support the country or plans that serve Greek interest the most. Given the constant threat that Turkey poses for Greece, it is in Greek interest to prevent any upgrading of Turkey and to assist anything that can degrade it. But this strategic choice should not risk jeopardizing our country from major energy projects. A policy of denial with the sole aim of excluding Turkey and looking forward to unrealistic projects is not beneficial (Τσάλτας, Μπουρτζής, & Ροδοθέατος, 2009).

Particular attention should be paid to avoiding energy competition against neighboring Bulgaria in a rather counter-productive and dangerous conflict aimed at completely eliminating the opposing party.

Initiatives should be taken to make collective actions and projects with neighboring countries that serve common interests. Joint negotiations with third parties are also desired. At the same time, lower-cost projects have proven easier to implement, and Greek attention should be directed towards less ambitious projects of mutual interest and energy interconnection of neighboring countries (Φαραντούρης, 2014). Top priority should be given for cooperation with the Republic of Cyprus, mainly on the energy issues of the wider region of the Eastern Mediterranean Sea.

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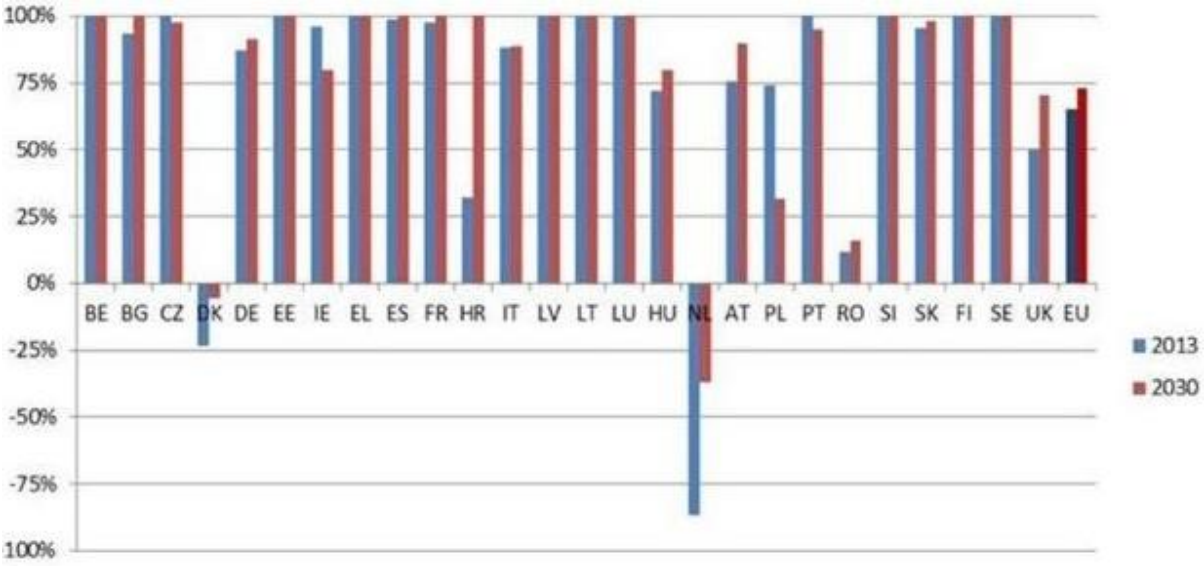
Appendix A

Figure A1: Balkans Pipeline route map except TurkStream

Figure A2: TurkStream

Figure A3: Turkish, Greek & Tesla Stream

Figure A4: Gas import dependency in 2013 and 2030*



*import dependency in 2013 based on EU statistical pocketbook and in 2030 based on the PRIMES 2013 reference scenario

Cyprus not included (no gas market in 2013 and expected to be a major exporter (>500%) in 2030).