UNIVERSITY OF MACEDONIA

Department of Balkan, Slavic and Oriental Studies

MA Dissertation

Submitted in partial fulfillment of the requirements for the degree of the Masters in "Politics and Economics of Contemporary Eastern and Southeastern Europe"

By Ioanna Fotopoulou

'E.U. Energy Security and the Eastern Partners: Competitive or complementary the role of the Turkish and Russian pipelines?'

Supervisor A: Dr. Nikolaos Raptopoulos

Supervisor B: Dr. Manos Karagiannis

Thessaloniki,
December 2014

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Author's Declaration of Originality

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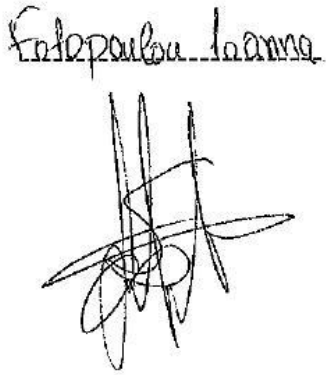
Name and Surname of the author



Thessaloniki, 15/12/ 2014

Summary

The purpose of this research is to examine the role of the Russian and Turkish pipelines to the European Union's energy security. In an age of emerging energy challenges and constant redrawing of the supply and transit maps, the geopolitical energy implications are of high importance. The European Union with its strong economy and heavy energy demand is a major player in the international energy arena. For the purposes of the paper I hypothesized that the Russian and Turkish pipelines are competitive to each other and complementary with regards to EU energy security, in the sense that the EU can decide from where it draws its resources. My hypothesis was based on the realist school of thought and was examined through a comparative analysis between the Russian and Turkish pipelines. To measure the significance of the current and projected pipelines as well as the energy relationship between Russia, Turkey and the European Union I employed four codes during my research conceptualization; pipelines (their number and performance), national gains (political and economic gains for Russia and Turkey in utilizing their pipelines), political will (of Russia and Turkey in promoting their pipelines to the EU market) and ways of influence (of the European Union towards Russian and Turkish energy policy).

The result of my research affirms the complexity of the energy relations between the three shareholders and supports my hypothesis. According to my research, the European Union is uniquely positioned to influence and affect the energy supply routes, policies and practices of Russia and Turkey. Through different ways and means the Union can "push and pull" its neighbors and counter-parties in the energy sector. Among the important issues that arose during the research were the significance of investing in advanced gas extracting infrastructure capabilities, the great energy "awakening" of the Caspian States, and Turkey's emerging role as a regional energy transit hub. Another issue that was beyond the scope and focus of the current paper but was presented as extremely important for further academic studies is the role of the United States in affecting EU energy security policy and in unilaterally supporting pipeline projects across the regional chessboard to promote its own political goals and ambitions.

Acknowledgments

This dissertation wouldn’t be complete without a specific part dedicated to the people that supported me through this effort. Some of them I would like to mention for their help, advice and support regarding the issues parlayed in the thesis, while for others I would like to express my heartfelt thanks for their understanding and for deeply believing in the importance of my work.

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Furthermore, I would like to deeply thank Mr. Stavros Kalenteridis for the time he generously offered; his undivided attention to detail along with the enthusiasm with which he embraced this endeavor from the very beginning, facilitated the completion of my paper. Also, I am grateful to Ms Erika Spagakou and Mr. Georgios Filis for their sincere willingness to share their interesting and professional insights.

Finally, I want to express the most sincere gratitude to my mother who crossed a country to be by my side during the final edits of the paper; her indispensable words of encouragement have the power to always strengthen me.

Foreword

Energy politics are nowadays more relevant than ever. European Union's eastern partners - the main energy suppliers of EU member states- are inside or in close proximity to highly alarming, tensed territories, such as the Middle East. From the "Arab spring" to the general political alternation of the region, the majority of the current regimes, their policies and any decisions taken are fluid. What is more, this past decade many EU member states experienced the dreadful results of two gas crises in the middle of two cold winters due to Ukraine-Russian disputes; along with the recent events of Crimea and the embargo imposed by Russia to the EU, a fresh scope into the matter of EU's energy security policy is needed. Political decisions in a European level have to be taken soon. Yet, such decisions should be reached in accordance with a deep understanding of the current geopolitical puzzle of the eastern borders of the Union and with constant focus towards a European flexibility and independence regarding the supply and disposal of energy.

My background as a surveying engineer as well as a yearlong introspection into the socio-political and economic situation of Eastern and Southeastern Europe made me eager to go along with the current thesis; because it gives me the opportunity to combine into my dissertation both my technocratic point of view on energy and the key findings of an academic approach of the region and its importance regarding the energy reserves. Specifically the issue of the gas pipelines is of particular importance and of interest to me because all the currently proposed pipeline routes pass either through Greece or the Balkan region on their way to the Western European market. Working for the past five years towards rebuilding the Civil Society in the Balkan Peninsula, I observed and had to deal on the ground with the devastating results the global economic crisis induced to such exposed, fragile and unprotected economies. Infrastructure plans such as the transnational pipeline systems which are consequently accompanied by heavy political importance, could give an important economic boost to the whole Balkan region; heal part of the biggest scourge of these societies which is the unemployment rate, promote the so needed social cohesion and achieve stability through the soft-politics channel of mutual cooperation and common economic advantages.

As I move forward with my academic and professional endeavors, having a strong grasp of the geopolitical situation in my region seems to be a necessity for my success. My work in the Civil Society and e-democracy fields is being heavily and constantly influenced by regional politics. Consequently I need to add this political perspective in my set of skills to continue being relevant and competitive. Global politics directly influence local politics; so this paper is a great opportunity to blend my academic background with my current and future professional ventures.

Contents

Abbreviations

APEC	Asia Pacific Economic Cooperation
BI	Baku Initiative
BTE	Baku–Tbilisi–Erzurum Pipeline
BTC	Baku–Tbilisi–Ceyhan Pipeline
EBRD	European Bank for Reconstruction and Development
EC	European Commission
ECT	Energy Charter Treaty
EIB	European Investment Bank
EU	European Union
EUROMED	Euro-Mediterranean Partnership
G8	Group of Eight
IEA	International Energy Agency
IMF	International Monetary Fund
SEEP	South East European Pipeline
SRTO	Severni Ragioni Tiamenskoi Oblasti (Northern Tyumen Regions)
TANAP	Trans Anatolian Natural Gas Pipeline
TAP	Trans Adriatic Pipeline
TEN	Trans-European Networks
TGI	Turkey–Greece Interconnector
UK	United Kingdom
WTO	World Trade Organization

Introduction

According to Pascual and Elkind «energy is at the heart of economic development in every country. It moves us and powers our factories, government and office buildings, schools, and hospitals. It heats homes and keeps perishable foods cold. Its centrality explains its complexity. Energy is the source of wealth and competition, the basis of political controversy and technological innovation, and the core of an epochal challenge to our global environment»;[1] or as Bahgat, on a similar approach states, energy constitutes the very lifeblood of civilization.[2]

Nowadays, the energy deficit of the European Union reached its tipping point; it is not any more an issue that we can deal with in the future. It is an urgent matter that we have to solve in the present. Thus, explaining and talking about energy and what the aspect of energy security means to our everyday lives is very important. The aim of this dissertation is to study the current energy status of the EU in connection with the security and viability of its member states in a highly competitive (and anarchic) international system and to examine in depth the geopolitical situation in its eastern borders.

Theoretical Framework

The problematic of the research

International organizations related to energy

Despite the fact that energy is one of the most important issues for our contemporary society, there is no comprehensive global agency for energy. On the contrary, a multitude of intergovernmental bodies and nongovernmental groups exist which address individually and with different perspectives the global energy issues. They include large multilateral organisations with a focus on energy, such as the International Energy Agency, the Energy Charter Treaty, the International Energy Forum; a variety of small-scale partnerships and multi-stakeholder

[1] PASCUAL Carlos, ELKIND Jonathan (Eds.), *Energy Security. Economics, Politics, Strategies & Implications*, Brookings Institution, Washington, 2010

[2] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, preface

processes; bodies that focus on specific energy sources, such as the International Atomic Energy Agency; and various business organizations, advocacy groups and research institutions. Finally, a number of other institutions address energy as well, such as the G-8, the European Union and the Asia Pacific Economic Cooperation (APEC)[3].

Yet, the lack of one main international energy organization is a big scourge, especially for institutions like the European Union that face important challenges in the energy field. Having such an international body would mean firstly easier access to data and secondly would imply that state actors such as Russia, Turkey and the EU would be conforming to specific and strict practices and values easier to codify and measure. In the absence of such an organization, access to data is difficult and the researcher has to examine each bilateral trade energy agreement and its regulations case by case.

Energy Security of the E.U. and the importance of the Eastern Neighboring countries

At a European level, the European Commission defines the purpose of an EU energy security policy as «a purpose to secure, for the EU, the immediate and longer-term availability of a diverse range of energy products at a price which is affordable to all consumers while respecting environmental requirements».[4]

At a closer approach, the citizens of the EU enjoy one of the highest standards of living in the world. Naturally, such a way of life, along with a really strong economy and industry, need big amounts of energy, which are currently obtained particularly from fossil fuels[5].

Yet, alongside such a high demand for energy, EU suffers from a severe shortage of indigenous energy deposits[6]. EU's energy production is dominated by nuclear

[3] FLORINI Ann, *Energy Security. Economics, Politics, Strategies & Implications, Global Governance and Energy*, Brookings Institution, Washington, 2010

[4] European Commission, *Green Paper – Towards a European Strategy for the security of energy supply*, Office for Official Publications of the European Communities, Luxembourg, 2001, pp 81. [http://ec.europa.eu/energy/green-paper-energy-supply/doc/green_paper_energy_supply_en.pdf Last accessed in 10/01/2015]

[5] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 41

[6] Id. pp 41

power (30%), followed by coal (22%), gas (20%), oil (14%) and renewable sources (14%)[7].

Consequently, this combination of high-energy demand along with limited production means that the EU is very much dependent on foreign supplies[8]. This dependency is one of the main reasons for the Eastern neighboring countries being of great importance to the Union's future. Thus naturally, energy strategy holds an important place at both EU's and Member State's foreign policy.

In the last few years Europe has actively sought to establish close cooperation with major energy producing nations and regions. This cooperation is based not only on short-term energy deals but also on promoting economic and political stability. The EU has provided significant financial resources to support civil society, education, and free market mechanisms in Central Asia/the Caspian Sea, the Middle East, Eastern Europe and the former Soviet republics. These policies are likely to enhance the prospects for stability and contribute to long-term EU energy security[9]. Furthermore, these policies point to the fact that the EU has some options and ways of influencing its energy trade partners in the region. This, along with the increasing energy needs of the Union and the possible complementarity of the Turkish and Russian pipelines will be examined thoroughly in Chapter 2 of the dissertation.

Nevertheless, no EU member state is too strong to individually establish itself as a strategic actor, especially in the light of a growing energy resource competition vis-à-vis the US, China, Russia, India, Japan and OPEC[10]. Taking additionally into consideration, that many East European countries and former Soviet republics are more dependent on Russia (the main gas and oil supplier of the EU) than other Member States[11], illustrates clearly that a common energy policy and a unified strategy should be adopted and followed by the Union. For this is the most secure and solid way to ensure EU's energy security.

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[7] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 41-42
[8] Id. pp 41
[9] Id. pp 55
[10] UMBACH Frank, *Visions from Asia and Europe, German Debates on Energy Security and Impacts on Germany's 2007 EU Presidency,* Palgrave-Macmillan, Basingstoke, 2008. pp 7
[11] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 47

E.U. and natural gas security

Natural gas is a fossil fuel that has not yet been exploited to its full potential in the global energy map. Specifically, gas is of particular interest because it is an energy source difficult to store; and this peculiarity creates evident economic implications.

Consequently, and in order to proceed with some crucial definitions for the needs of this dissertation, like the meaning of gas security and its peculiarities in relation with the EU, it is optimal to first clarify what gas pipelines stand for and define what natural gas is.

Beginning with the technical terminology, a natural gas transmission pipeline is a pipeline that transports gas from a gathering line or storage facility to another storage facility, a distribution center or large-volume customer; operates at a hoop stress of 20 percent or more of specified minimum yield strength and transports gas within a storage field[12].

Regarding natural gas, Bahgat delineates it as the fossil fuel, which contains a mix of hydrocarbon, gases, mainly methane, ethane, propane, and butane; and prized for its relatively clean and efficient combustion, natural gas is gaining more and more importance in the global energy market[13].

Historically, in the 1950s and 1960s several natural gas discoveries were made in Europe, particularly in and around the North Sea. «The turmoil in oil markets, caused by the 1973–1974 Arab embargo gave more incentives to consuming countries to diversify their energy mix»[14]. Natural gas was seen to be a tangible vent due to its high qualities as a fossil fuel.

In numbers, the world's natural gas reserves are estimated at about «185.02 trillion cubic meters or 60.4 times the volume of natural gas used in 2008»[15]. Yet, EU holds just the 1.6% of these proven reserves, which are found mainly in Norway, Holland, United Kingdom and Romania. To exacerbate this reality, there are more than 15 member states, which import gas to cover all, or nearly all their

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[12] U.S. Department of Transportation Pipeline & Hazardous Materials Safety Administration, Glossary, [http://primis.phmsa.dot.gov/comm/glossary/index.htm?nocache=1540#TransmissionLine, Last accessed in 10/01/2015]

[13] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 5-6

[14] Id. pp 43-44, Table 3 and Table 4 of the Annexes

[15] Id. pp 5-6

gas consumption; the only member states that produce more gas than they consume are Holland and Denmark[16]. Thus, the aspect of gas energy security is indeed very crucial for a prosperous and tranquil E.U. economy and social stability. Still, even though of great importance, the nature and the problem of transporting natural gas slowed down the full utilization of its global deposits[17]. Unlike oil, gas is relatively difficult to store and this mandates its transportation to happen forthwith. Moreover, pipelines the main method of transporting natural gas, imposes severe limitations on trade. Its infrastructure is rigid. This means that a physical link between producer and consumer is required and that the number of alternative routes to the consumer is limited. The economic aspect of the pipelines has to be considered, too; construction costs, terminals, acquisition of rights of ways, costs of pumping and maintenance need to be taken into account[18] along with the fact that by nature, pipelines are only economical for trade over relatively small distances, and thus markets made through pipes stay regional[19]. This economic and political aspect of gas pipelines according to Pascual and Zambetakis «tends to create a long-term mutual dependence that militates against confrontational acts such as cut-offs or boycotts by the producer, the consumer, or the transmitter»[20].

To sum things up, the nature of natural gas, its historical evolution and the complexities regarding its extraction and transportation to the consumers allows us to define gas security as «the guarantee that all the gas volumes demanded by customers will be available at a reasonable price»[21] at any given time.

Theoretical Perspectives

In order to go through my research and before examining the relevant literature, I focused on two international relations theories as the more appropriate and

[16] Id. pp 43-44
[17] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 43-44
[18] World Bank, Caspian Oil and Gas - Mitigating Political Risks for Private Participation, June 2000, pp 4-5. [Last accessed in 10/01/2015: http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2006/03/10/000012009_20060310133646/Rendered/PDF/353700rev0Caspian0oil0prague2000a.pdf]
[19] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 5-6
[20] PASCUAL Carlos, ZAMBETAKIS Evie, *The Geopolitics of Energy. From Security to Survival*, Brookings Institution, Washington, 2010
[21] HAGHIGHI Sanam, *Energy Security. The external legal relations of the European Union with major oil & gas supplying countries*, Hart, Oxford, 2007, pp 13-14

relevant to provide answers and insights for my research question. Specifically, I theorized that neorealism and neoliberalism would be the two international relations theories that the scholars in my literature review will be using to provide answers to my chosen subject. To this end, a thorough examination of these two theories and how their basic ideas are connected to my chosen issue of study is needed.

Neorealism

Under the scope of neorealism, anarchy, or the absence of central authority, is the ordering principle of the international system. This context creates fear for the states since they cannot be certain of the intentions of the other states in the global arena. This in turn limits the cooperation possibilities of states since every state «is afraid that the possible gains resulting from cooperation may favor other states more than itself, and thus lead it to dependence on others».[22]

In this anarchic world of conflicting interests the main, basic and fundamental goals of the states are survival and security.[23] For example, Korab-Karpowicz compares this fundamental interest of the states for survival, to the survival instincts of corporations in a modern domestic economy.[24]

In addition, according to neorealism the international system can be explained as a self-help system of various units - the states, who are «autonomous, functionally undifferentiated actors each of which must always be prepared to fend for itself».[25]

Specifically for my topic and according to neorealism, state actors seek only their own gain from their interactions with other sovereign entities in the international geopolitical map. The most efficient ways to do that is by increasing their wealth

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[22] KORAB-KARPOWICZ, W. Julian, *Political Realism in International Relations*, The Stanford Encyclopedia of Philosophy (Summer 2013 Edition), Edward N. Zalta (ed.), [http://plato.stanford.edu/entries/realism-intl-relations/#Neo, Last Accessed in 10/01/2015]

[23] JAKOBSEN Jo, *Neorealism in International Relations – Kenneth Waltz*, NTNU, 2013, [http://www.popularsocialscience.com/2013/11/06/neorealism-in-international-relations-kenneth-waltz/, Last Accessed in 10/01/2015]

[24] KORAB-KARPOWICZ, W. Julian, *Political Realism in International Relations*, The Stanford Encyclopedia of Philosophy (Summer 2013 Edition), Edward N. Zalta (ed.), [http://plato.stanford.edu/entries/realism-intl-relations/#Neo, Last Accessed in 10/01/2015]

[25] JAKOBSEN Jo, *Neorealism in International Relations – Kenneth Waltz*, NTNU, 2013, [http://www.popularsocialscience.com/2013/11/06/neorealism-in-international-relations-kenneth-waltz/, Last Accessed in 10/01/2015]

and power within an international system with no supreme power to impose the law. That is to say, the international system remains anarchic. Consequently, competition is something natural between nation-states within such an anarchic environment and this is especially true regarding neighboring countries. This seems to be a truly relevant theory to describe and explain my research issue. Turkey and Russia are neighboring countries targeting the same energy market. Furthermore, and under the neorealist approach, the European Union should seek to gain the best possible outcome from its business with its eastern partners. States' competition is at the heart of neorealism theory and seems to be ideal in this case. Russia and Turkey will defend their political and economic status and interests and will strive to increase their power and wealth by competing each other in the energy sector, through pipelines that belong to them or pass through their respective territory.

Accordingly, the EU, although it has some important handicaps in formulating and applying common strategies, as another rational actor, would try to capitalize and use this situation to its advantage through a pragmatic approach. In doing so, the EU will try to manipulate its suppliers one against the other in order to cut down costs and get the best energy deal possible. As Baylis, Smith and Owens explain there are no ethics in international affairs expect those of self-interest; and that is a "moral duty" for states to promote their self-help. In conclusion, they argue that the states' main focus should be material and strategic gains and not ethics or the morality of their actions[26].

Neorealism in this case shows us that the role of the Russian and Turkish pipelines is competitive with regards to E.U. energy security.

Neoliberalism

As the world becomes more integrated, with minimal transportation and communication costs between the states and their people, and as the global civil society is getting more and more important, we are moving from the conception of

[26] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 201

international law as a minimum set of rules of coexistence to one enabling greater cooperation[27].

Cooperation and mutual gain are at the heart of the neoliberalism approach. Its main focus is on economic welfare, international political issues and other non - military issue areas such as international environmental concerns[28]. According to this theory, states strive to find ways of cooperating in order to achieve mutual wins and effectively increase their gains through their collaboration. In the words of Baylis, Smith and Owens neo-liberals believe that states cooperate to achieve absolute gains, and the greatest obstacle to cooperation is "cheating" or non-compliance by other states[29]. Consequently, neoliberalism also seems a strong and relevant theory that could explain my chosen issue of study.

Russia and Turkey have both gas pipelines running through their territories that have the EU markets as the end receiver. Neoliberalism can show the way for possible cooperation between the two countries in their efforts to export their products. Many variables can appear that would create the opportunities for such a cooperation to happen. Technical cooperation and the sharing of knowhow between the two countries can be the start of such a relationship. On the other hand problems and malfunctions can also provide an opportunity for assistance between Russia and Turkey. Moreover, shortages can lead one state asking for the help of the other in order to fulfill existing delivery contracts.

This is at the heart of the neoliberal notion of international interdependence. This interdependence can easily lead to cooperation in areas where states have mutual interests because the involved actors will want to maximize the absolute gains that are deriving from their common interests. According to this way of thinking, neoliberalism advocates for the maximum total amount of gains for all the parties involved[30].

The interconnectivity of the three neighbors that neoliberalism argues and explains, can be the driving force behind a mutual agreement between the countries, or to be more specific, a parallel deal between EU and Russia, and

[27] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 47
[28] Id. pp 123
[29] Id. pp 122
[30] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 123

between EU and Turkey. One cannot ignore that under neoliberalism «countries promote free trade and democracy in their foreign policy programs».[31]

Finally, according to the neoliberal school, the existing institutions of cooperation between the three countries have either created already or will be able to create the necessary culture for Russia, Turkey and EU to work together. Examples of this kind of institutions that are already in place are the European initiatives (Black Sea Synergy, Euro-Mediterranean Partnership), the Energy Charter Treaty, bilateral trade and cooperation treaties, etc. Neoliberalism acknowledges the potential of these institutional relations supporting the idea that «institutions and regimes are significant forces in international relations».[32]

To sum up, according to the neoliberalism view of the geopolitical energy map of the region, the Russian and Turkish pipelines can work complementary in achieving the goals of their respective countries.

Constructivism

According to constructivism theory, reality in international relations is being socially constructed. This leads constructivist scholars to put a great significance on norm development, the identity of states, etc. [33]

Specifically, under the constructivist approach the scholars examine the various variables of international relations based on their social meanings. According to the theory, these meanings are "constructed from a complex and specific mix of history, ideas, norms, and beliefs which scholars must understand if they are to explain State behavior". Consequently some important elements that influence states' behaviors are identities, the perceptions of friends and enemies, fairness and justice, etc. Constructivists examine and look into these elements while trying to examine the rationality of states in international relations. [34]

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[31] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 122

[32] Id. pp 123

[33] Oxford Bibliographies – [http://www.oxfordbibliographies.com/view/document/obo-9780199743292/obo-9780199743292-0061.xml]

[34] SLAUGHTER Anne-Marie, *International Relations, Principal Theories*, Wolfrum, R. (Ed.) Max Planck Encyclopedia of Public International Law, Oxford University Press, 2011 – [https://www.princeton.edu/~slaughtr/Articles/722_IntlRelPrincipalTheories_Slaughter_20110509zG.pdf]

Theoretical perspectives on energy security

In order to adequately incorporate the points that my research and my dissertation add into the vast academic field of energy and gas security, I proceed with the literature review regarding my research question. Thus, all the important points that deal with Turkish and Russian pipelines can be clarified and at the same time categorized under the different schools of thought.

EU's influence on Turkish and Russian energy policies

Neorealism appears to have a very strong support among scholars in analyzing the situation and providing answers for my research question. The absolute need for an EU energy diversification and the strong position of the Union as a trade partner are among the most important elements of the realist approach.

F. Umbach clearly predicts the need for gas diversification. He is basing this prediction on the rising energy needs of the European continent. Furthermore, he focuses on the geopolitical aspect of the matter and explains that the EU is in a most favorable position, being geographically surrounded by many gas-exporting countries; «eighty per cent of the global gas reserves are within a range of 4500 km» and most of those reserves can be connected to the EU by existing or new pipelines.[35]

J. Morales agrees that the European Union is an energy trading strongman, something that can be maintained if the EU member states continue to share a common strategy and operate multilaterally, while at the same time exploit the weakness of their main trading partner - Russia. In particular, Morales defines this weakness as Russia's ever increasing dependency in terms of export revenues.[36]

Another issue that my literature review showcased is the limitation of the powers of the producing and exporting countries. Specifically, the once great weapon of "embargo" seems now to be either outdated or incapable of being enforced against the EU. M. Meidan agrees with this notion saying that «the possibility of a voluntary embargo initiated by producer countries other than Russia targeting its

[35] UMBACH Frank, *Visions from Asia and Europe, German Debates on Energy Security and Impacts on Germany's 2007 EU Presidency,* Palgrave-Macmillan, Basingstoke, 2008. pp 17
[36] MORALES Javier, *Visions from Asia and Europe, Russia as an Energy Great Power: Consequences for EU Energy Security,* Palgrave-Macmillan, Basingstoke, 2008. pp 31

close neighbors has declined greatly»[37]. He supports that political and diplomatic costs make such disruptions unlikely to happen in contemporary global politics.[38] A. Tekin and P. A. Williams agree with this assertion but they also include Russia in their analysis of the impracticality of sanctions (an embargo). In a chapter that is characteristically entitled «Gas wars» the two scholars explain that although Russia may be able to apply an embargo of energy supplies to the former Soviet Union importing countries, as it has done so in the past, this isn't the case against its European partners, considering the great potential losses and repercussions.[39]

Finally, the neorealist approach also provides important insights for the case of Turkey. Tekin and Williams in particular explain that while Turkey is a member of the Customs Union since 1995 and an officially recognized accession state since 2005, a great number of EU member-states continue to block Turkey's full-membership bid on various issues with energy being one of them.[40] This obviously gives a strong negotiating card to the EU towards its energy trade negotiations with Turkey while further highlights the importance of realist theory in the focus of my study.

Cooperation and EU Energy Security

Another international relations theory that appeared regularly in my literature review is neoliberalism. Considering the many and complex relationships between the EU, Turkey and Russia, neoliberalism seems to be capable of providing a unique perspective on the role of Turkish and Russian pipelines to the energy security of the EU.

The main themes behind the neoliberal approach are the undisputed importance of the Russian gas and its tremendous effect on EU energy security, and the great cooperative gains that can be achieved on energy from all the parties involved.

Bahgat clearly explains that the EU can limit its significant energy dependence on Russia by using additional and alternative suppliers from Central Asia and the Middle East. Nonetheless, he explains that this reduction on Russian fossil fuels

[37] MEIDAN Michal, *Visions from Asia and Europe, Perceptions and Misperceptions of Energy Supply Security in Europe and the 'China Factor',* Palgrave-Macmillan, Basingstoke, 2008. pp 47
[38] *Id*. pp 47
[39] TEKIN Ali, WILLIAMS Paul Andrew, *Geo-Politics of the Euro-Asia Energy Nexus. The European Union, Russia and Turkey,* Palgrave-Macmillan, Basingstoke, 2011, pp 105
[40] Id. pp 2

reliance can only be limited. The new possible energy supplies «are likely to complement, not substitute, Russian exports». He cites Russia's massive resources and geographical proximity as the main reasons behind his rationale. [41]

The vast majority of scholars taking the neoliberal approach are focusing on «a pressing need for a meeting of minds to ensure that energy is conceived of as a shared interest rather than an object of geopolitical competition».[42] Bahgat agrees with that notion and states that the main focus now is cooperation; cooperation between countries, and between national and international companies. This kind of cooperation promotes stability on the global energy markets and proves that energy security is a win-win situation. Historically, he differentiates the 1970s and 1980s from today, when consuming and producing countries were vying for the lowest and highest price respectively. The situation began to evolve in the early 1990s with the formation of the International Energy Forum, which seeks to «broaden and deepen the cooperation between all players in the global energy market».[43] Looking forward, Bahgat theorizes the improvement of global energy security through the adoption of a more inclusive approach for all energy players to cooperate and work together for the benefit of all.[44] Florini adds to that by advocating a near-global «mutual interest in developing effective energy markets, coordinating policies on taxes and subsidies». Most of the world has a mutual interest in developing effective energy markets, coordinating policies on taxes and subsidies.[45]

Finally, C. Pascual and E. Zambetakis add their voice in this call for establishing national, regional and international strategies that promote energy cooperation, and of forbidding short-term political considerations and decisions to influence the countries' energy policies. They specify energy issues and fields that can foster such cooperation, like the possible mutual benefits of further exploration and

[41] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp50
[42] FLORINI Ann, *Energy Security. Economics, Politics, Strategies & Implications, Global Governance and Energy*, Brookings Institution, Washington, 2010
[43] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 213
[44] Id. pp 218
[45] FLORINI Ann, *Energy Security. Economics, Politics, Strategies & Implications, Global Governance and Energy*, Brookings Institution, Washington, 2010

development, cooperation and investment in transit systems, and energy security policies that can mitigate risks and create shared incentives between countries.[46] Consequently, in such a globalised market, with all the various levels of interconnectivity between countries, neoliberalism provides a contemporary approach in understanding the trends on energy affairs on the geopolitical map of Europe and its neighbors.

The EU framework in the economic and political environment of the region

Another theory that I witnessed during my literature review was constructivism. Interestingly, in my theoretical framework I hadn't anticipated that constructivism could provide any interesting insights for my chosen issue of study. Nonetheless, my research led me to some important views based on constructivism and before I proceed with presenting them, a thorough definition of this theory is needed.

According to constructivism, the interests of the states are constructed by their environment and interactions between them. In addition, it is the environment that influences the actions of the actors and affects their interests and even their identities.[47] Moreover, constructivism states that actors are not born outside from their societies but are instead produced and created by their environments. This environment is responsible for creating the realities of international relations; «historically produced and culturally bound knowledge enables individuals to construct and give meaning to reality».[48]

A main point of constructivism theory regarding my research issue is the EU framework and the political and economic environment that affects its relationship with its energy business partners. J. Mankoff points to the fact that the member states are not equally dependant on Russia, thus to increase its energy security it is imperative for the EU to promote coordination among its members. His suggestion to that end is the creation of «an integrated European gas market with an agreed

[46] PASCUAL Carlos, ZAMBETAKIS Evie, *The Geopolitics of Energy. From Security to Survival*, Brookings Institution, Washington, 2010
[47] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 159
[48] Id. pp 155

framework governing the Russian participation».[49] Furthermore, Mankoff argues that if the member states continue to act in an uncoordinated, or even worse, a mutually exclusive fashion, Russia will continue to enjoy its energy dominance by playing a game of *divide-and-rule* in the EU.[50]

Another point also by Mankoff is the extent that the geopolitical environment influences to this day the perception and attitude of the EU. Specifically he mentions the gas transit dispute between Russia and Ukraine which has affected the views of EU countries about Russia and led even the most conservative among them, such as Germany, to challenge the energy status quo between the EU and its Russian energy partner.[51]

Concepts under consideration in relation to the case study

Every case study has some closely related concepts that need to be defined and explicitly explained in order for results to be reached in a concrete way. Geopolitics of energy along with energy security are two concepts whose definitions we need in order to analyze in depth the research question and clarify the nature of gas security. Moreover, since Turkey and Russia along with the EU are state actors situated in a close proximity, it is optimal to define Eurasia since the geopolitics play an important role in the energy security and the formulation of energy policies. Last but not least, these bordering actors having more than energy trade connections, thus their economic and political interdependence is vital to be clarified in order to reach tangible results and conclusions.

Geopolitics of energy

One of the main issues this paper parleys is the aspect of energy security. However, energy security can never stand alone without the political decisions and

[49] MANKOFF Jeffrey, *Eurasian Energy Security*, Council on Foreign Relations, New York, 2009, pp 4
[50] Id. pp 27
[51] Id. pp 5

the geopolitical stand of the involved countries [52]. According to Pascual and Elkind, it is really geopolitics that supply and reliably secure energy at affordable prices[53].

Thus, a definition of "geopolitics of energy" should precede the definition of energy security; because energy and energy products are commercial as much as they are strategic commodities. Energy security is challenged by a number of geopolitical threats such as: internal instability, civil wars, and sectarian or ethnic violence that disturb production in producing countries, terrorist attacks on energy infrastructure, politically motivated suspension of oil or natural gas supplies, economic sanctions against a producing country (a present example being Iran), and wars between energy producers or territorial disputes.[54]

I. Skeet accurately construes geopolitics of energy as «the effect that location of resources has on the politics of states» and supports that the key aspect of this effect is dependency, which applies both to producers in the form of revenue as well as to consumers in the form of energy needs[55]. Practically, geopolitics of energy is the management of these energy-related relationships that exist among states, with the most fundamental relationship being the one between energy suppliers and consumers. Yet important relationships can also exist among competing consumer countries or groups that can move beyond mutuality of benefit; relationships in which one party or another seeks to exploit its energy-related power to dictate other aspects of political or security relations with another country[56].

This mazy interdependence between actors, states and stakeholders along with the involvement of politics, decisions and prospects, showcases in a tangible way that energy security is a challenging aspect that should be defined and used carefully as well as dealt with focused attention to detail from any actor involved.

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[52] SKEET I., *CERI International Oil and Gas Markets Conference N°14*, Calgary, Alberta, Canada, (25/09/1995) 1996, vol. 14, n° 3-4 (166 p.).
(bibl. dissemination.), pp. 265-272

[53] PASCUAL Carlos, ELKIND Jonathan (Eds.), *Energy Security. Economics, Politics, Strategies & Implications*, Brookings Institution, Washington, 2010

[54] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 14-15

[55] SKEET I., *CERI International Oil and Gas Markets Conference N°14*, Calgary, Alberta, Canada, (25/09/1995) 1996, vol. 14, n° 3-4 (166 p.)
(bibl. dissemination.), pp. 265-272

[56] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 14-15

Energy security

The International Energy Agency defines energy security as «the uninterrupted availability of energy sources at an affordable price». Nevertheless, this is considered to be a traditional definition of energy security since it only includes the aspects of availability, reliability and affordability. J. Elkind, along with G. Bahgat, support that a contemporary understanding of energy security has at least four areas of 'risk'.[57] Thus, according to aforementioned scholars, except from these three dimensions, a present definition must also include a fourth one – the environmental sustainability.

Accordingly, first and foremost energy security stems from the availability of energy goods and the consumers' ability to secure the energy they need. Regarding the reliability, it involves the extent to which energy services are protected from interruption while affordability is not just a question of whether energy prices are low or high relatively to consumers' income; the volatility of prices is the most central matter. Lastly, environmental sustainability deals with the infrastructure that is typically long-lived but still affects the environment. At the same time, the climate change should be taken into consideration and how this might affect the energy systems in the future.[58]

So, it becomes obvious that energy security is a complex matter with many dimensions. This consequently means that it encompasses many approaches like the long term and short term, the economic and political energy security[59] or even as P. Nivola and E. Carter argue the domestic and foreign energy security and energy intensity of a nation.[60]

Nonetheless, energy security - especially when natural gas is concerned - is shaped differently in different regions around the world. Interstate relations, the contemporary economic situation and the political motives create a unique environment in which the aspect of energy security is to grow; and this is why it is important to clearly define and clarify the region within which we examine the aspect of energy security.

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[57] Id. pp 213 – Table 1 from the Annexes

[58] ELKIND Jonathan, *Energy Security. Economics, Politics, Strategies & Implications, Call for a Broader Agenda"* Brookings Institution, Washington, 2010

[59] International Energy Agency – [http://www.iea.org/]

[60] NIVOLA S. Pietro, CARTER E. R. Erin, *Energy Security. Economics, Politics, Strategies & Implications, Making Sense of "Energy Independence"*, Brookings Institution, Washington, 2010

Eurasia

On the geopolitical map, the energy security of the EU needs to be examined under the broader regional context of Eurasia. "Eurasia" can be defined as «the vast landmass stretching east/west from China to Europe and north/south from Siberia into the Caucasus, the Crimean Peninsula, Central Asia and the Himalayas».[61]

J. Mankoff gives a more strict definition of the term as «Russia and its one-time satellites in the Caspian Basin - primarily Azerbaijan, Kazakhstan and Turkmenistan». According to his research, ensuring and maintaining access to Eurasia's energy is one of the most important strategic elements of Europe. While Europe needs to cultivate this relationship, at the same time should strive to achieve reasonable prices from its Eurasian partners in order to succeed in its key energy objectives.[62]

Among the most important of these Eurasia partners for Europe, are the Caspian littoral states apart from Russia and Iran - namely Azerbaijan, Kazakhstan and Turkmenistan. According to Mankoff, these emerging energy players appear to be «the most promising non-Russian source of oil and gas for Europe». These countries have not seen any significant pipeline project directly linking them to energy consumers and the main reason behind that is their close proximity to an already established and extensive Russian pipeline network, which is actually used already by these Caspian littoral states to export their natural gas - especially Kazakhstan and Turkmenistan.[63]

This trend seems to be changing though with the planning of future pipeline projects TAN and TANAP, which aim to directly link the Caspian littoral states with Europe. The overarching idea behind this changing of plans on the geopolitical map is the ever-increasing influence of economic and political interdependence.

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[61] Washington University in St. Louis – [http://ias.wustl.edu/eurasian-studies]
[62] MANKOFF Jeffrey, *Eurasian Energy Security*, *Council on Foreign Relations*, New York, 2009, pp 3
[63] Id. pp 22

Economic / Political Interdependence

A major theme of today's energy markets is that of the interdependence between consumers and producers. Calls for self-sufficiency or energy independence are more for domestic political aspirations and as Florini states, energy security should not be confused with national energy independence. Such a thing would require concrete energy sources within the national borders, which are able to produce enough energy to meet all the needs of a country, from industry to private households.[64]

Leaving aside this reality that can be found only in a few countries around the world, on the other side of the coin, «energy interdependence fosters cooperation between countries in other areas such as economic development and world peace».[65] Or as W. Carlsnaes, T. Risse and B. Simmons illustrate, «interdependence grows the aspects of sensitivity and vulnerability among separate nations».[66]

This is for example the intricate case between EU and Russia, the Union's most important gas supplier. Gradually over the years, stronger ties were created and a bond was forged between EU's and Russia's foreign policy. However, because of the fact that Russian foreign policy is in a great extend interlinked with the interests of Gazprom and Rosneft, EU is as well forced to deal with these two «often state-run and nontransparent corporations».[67]

Hence, since interdependence is something unavoidable in today's interconnected world, Baylis, Smith and Owens pertinently showcase the importance of management of interdependence with the establishment of regional mechanisms, which will guarantee security along with promotion of cooperation and state-led integration as the only way for such bilateral relations to work.[68]

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[64] FLORINI Ann, *Energy Security. Economics, Politics, Strategies & Implications, Global Governance and Energy,* Brookings Institution, Washington, 2010

[65] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach,* Wiley, Chichester, 2011, pp 3

[66] CARLSNAES, W. – RISSE, T. – SIMMONS, B. (Eds.*), Handbook of International Relations*, London, Sage, 2001, pp 235

[67] MANKOFF Jeffrey, *Eurasian Energy Security*, Council on Foreign Relations, New York, 2009, pp 4

[68] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition, pp 431

Formulation of the hypothesis

I will now proceed with the formulation of my hypothesis regarding my research question. My thorough examination of the work of various researchers illustrated three different theories as the more relevant and capable to provide an answer to my research question; realism, neoliberalism and constructivism. Out of these theories, I believe realism is the one that can provide insights to the issue at hand, more accurately than the other two. Thus, using realism my hypothesis is as follows:

«The Russian and Turkish pipelines are competitive to each other and complementary with regards to E.U. energy security, in the sense that the E.U. can decide from where it draws its resources».

Methodology

Regarding my methodology, I used a comparative way of analysis. Namely, I illustrated the differences and the competitive nature of the Russian and Turkish pipelines by showcasing their differences and the different needs of their respective countries in the geopolitical map of the region. The overall methodology was concluded using qualitative analysis where I combined my primary and secondary sources to valuable conclusions for my research question. To help me in this effort I used a basic level of conceptualization to categorize my research parameters. These codes were "national gains", "political will" and " pipelines" for the part of the examination of the Turkish and Russian pipelines, and "ways of influence" regarding the role of the EU towards the energy supplies of both Turkey and Russia to the Union.

The code "national gains" was used in order to measure the importance of the gas pipelines for Russia and Turkey in the sense of those countries' national political and economic agenda. "Political will" is used to illustrate the political importance of the gas pipelines for Russia and Turkey and the level of priority that these two countries set in promoting their own pipeline system towards the EU gas demand. In addition, I analyze "pipelines" as the number (current and proposed) of gas pipeline structures of the two countries. Finally, I measure the ability of the EU to utilize the two countries' pipeline systems as well as the capability to influence the

two countries regarding their actual supply towards the Union through the "ways of influence" code.

For the purposes of my research I used a wide array of both primary and secondary sources.

Specifically, my primary sources include documents and data from regional and international organizations and institutions such as the European Union, the World Bank and others. Furthermore, I have strengthened and complemented my sources of data and official records with relevant documents and statistical information from major and globally known private firms such as BP. Finally, my primary sources also included personal and online interviews with a scholar and a business professional from the fields of energy policy, directly related with the EU, Russia and the Middle-East.

As far as secondary sources are concerned, I carried out an extensive literature review related to my research question by studying books and academic journals from international relations scholars that have EU energy security as their academic focus. These books and journals were analyzing and evaluating primary sources that I also had the opportunity to examine and crosscheck myself. Additionally, I used relative online articles by scholars and industry professionals that were published in globally recognized international media such as the Financial Times, BBC and others.

Importance of the undertaken research, possible uses of the final results

According to my research, the European Union is uniquely positioned to influence and affect the energy supply routes, policies and practices of Russia and Turkey. Through different ways and means the Union can "push and pull" its neighbors and counter-parties in the energy sector.

This dissertation is part of an extensive academic effort to study and analyze the gas pipelines of Eurasia. It is undoubtedly important as it provides an updated and contemporary take on the events surrounding this interesting area and topic. As the decisions for new or expanded gas pipelines are being made and cancelled on a frequent basis, and as new plans are replacing the old supply routes and the geopolitical energy map is dynamic and being constantly redrawn, the academic

community needs researchers to monitor the situation and its variations through time.

More importantly, the research brought to light the important issue of gas reserves and the capabilities of countries to extract it. This was particularly true about the case of Russia, a country that although it has huge gas reserves, it is witnessing a significant increase in its internal gas demand. Considering that EU gas demands are relatively steady and that Russia is not investing into infrastructure to extract and produce gas at higher rates, one should be skeptical about Russia's future capabilities to meet EU gas demands. Another relative factor that needs to be mentioned is the investment of Russia not in extracting infrastructure but in promoting a monopoly transit system.

After the 2006, 2008 and 2014 Ukrainian crises, the US and EU sanctions against Russia and the reciprocal Russian response, the long-term stagnancy of Turkish EU-membership negotiations, the great energy "awakening" of the Caspian States - especially Azerbaijan, and the possible normalization of Iran - West relations illustrate the great significance and academic importance of the issue of gas pipelines as it relates to the energy security of the EU.

This dissertation can work as a stepping-stone for further research in the emergence of the Caspian and the Mediterranean states (such as Cyprus, Israel, Egypt, etc.) as relevant EU energy partners. In addition, of great interest for further research is the stance of Turkey as an important transit country and the effects this might have on its accession status to the EU. Especially after the recent events, with the termination of the South Stream Pipeline project on behalf of Russia and Turkey's acceptance to become the "gas connection" between Russia and the EU, it will be very interesting to see how Turkey's foreign policy can be trapped or strengthened due to this decision.

What is more, an issue that was beyond the scope and focus of the current paper but was presented as extremely important for further academic studies is the role of the United States in affecting EU energy security policy and in unilaterally supporting pipeline projects across the regional chessboard to promote its own political goals and ambitions. Finally, the research created the academic space for new studies on gas reserves and the switch of the interest away from gas pipelines construction towards the ability of countries to survey for new gas fields and to invest in advanced gas extracting infrastructure capabilities.

Chapter I – EU Energy Security Policy and Eastern Partners: the Gas security dimension

Introduction

The purpose of this chapter is to provide a spherical approach to all the policies and necessities behind the formation of the European Energy Security Policy. An in depth analysis of the role of EU's Neighborhood Policy is vital in order to explain the policy background that is established in the region. This, along with the EU's growing demands in energy, are explaining the recent developments in energy diversification and the intensification of the efforts for Gas Security.

E.U.'s Neighborhood Policy

Carlsnaes, Risse and Simmons state that the presence of international institutions plays an important role regarding the trade policies that are followed regionally. The utter fact that the majority of the countries worldwide are active members in one or more international organizations showcases their importance.[69]

Specifically for the trading sector, the EU as one of the most important international organizations has had clearly a positive effect on lowering trade barriers and promoting more equal and free trade with its regional business partners. Particularly energy trading was a large part of many EU initiatives and policies aiming to promote political and economic cooperation, deep bilateral relations and by extension strengthen EU's energy security.

One of the most relevant initiatives is this aspect is the Black Sea Synergy initiative. It was launched in Kiev, Ukraine by the EU and the Foreign Ministers of the Black Sea partner countries in 2008. The Black Sea Synergy initiative includes both Russia and Turkey and is a regional effort to promote cooperation and enhance the political and economic relations among the countries involved. Along with the Euro-Mediterranean Partnership and the Eastern

[69] CARLSNAES, W. – RISSE, T. – SIMMONS, B. (Eds.), *Handbook of International Relations*, London, Sage, 2001, pp 455

Partnership, it is part of the European Neighborhood Policy, through which «the EU works with its southern and eastern neighbors to achieve the closest possible political association and the greatest possible degree of economic integration».[70] Of particular interest to my paper is the specific focus that this project gives to energy; specifically «the EU wants to give reality to the Black Sea Synergy Initiative by establishing sector partnerships in three crucial sectors: environment, transport and energy. These sectors have been chosen because it is hard to question their importance to the region».[71]

Turkey and its relationship with the EU can also be examined through the lens of the Euro-Mediterranean Partnership (EUROMED). Formerly known as the *Barcelona Process*, «the cooperation agreements were re-launched in 2008 as the Union for the Mediterranean and its projects address areas such as economy, environment, energy, health, migration and culture».[72]

While the Black Sea Synergy and the Euro-Mediterranean Partnership cover the cases of Russia and Turkey respectively, another regional cooperation effort that is relevant to my research is the Eastern Partnership, an initiative that includes Azerbaijan, the origin country of the gas that will be transferred through TANAP and TAP pipelines. This effort was made a reality in 2009 and one of its key pillars is to strengthen energy security between the EU and the six Eastern European and South Caucasus partner countries, including Azerbaijan.[73]

Last but not least, INOGATE should be explained here, as it is one of the longest running energy technical assistance programs funded by the European Union. Up to date, the energy cooperation channeled through the INOGATE Program has received over 150 million € in funding from the EU.[74] Such initiatives show not only how important energy security is for the Union but also the capacity of the EU in creating and funding organizations and initiatives to implement its plans and really reach its energy security objectives.

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[70] - European Union External Action, *European Neighborhood Policy*, [http://eeas.europa.eu/enp/index_en.htm, Last Accessed in 10/01/2015]

[71]- European Union External Action, *Black Sea Synergy*, [http://eeas.europa.eu/blacksea/index_en.htm ,Last Accessed in 10/01/2015]

[72] European Union External Action, *Euro-Mediterranean Partnership (EUROMED) – Turkey*, [http://eeas.europa.eu/euromed/index_en.htm, Last Accessed in 10/01/2015]

[73] European Union External Action, *Eastern Partnership*, [http://eeas.europa.eu/eastern/,Last Accessed in 10/01/2015]

[74] INOGATE, *Energy cooperation*, [http://www.inogate.org/energy_cooperation?lang=en, Last Accessed in 10/01/2015].

EU and Energy Diversification

As already mentioned above, the European Union has one of the most advanced economies in the world and is one of the biggest players in terms of political influence globally. Consequently, this power is interpreted in huge energy needs in order to be able to maintain the high standard of living of the European citizens, its broad economy and industry and by extension its position in the global political arena. Such a goal can only be achieved if the EU diversifies its energy supplies along with its energy suppliers.

Diversification of portfolio

According to J. Elkind there are many ways that a strong institution like the EU can enhance its energy reliability. First of all it is important to have diversity in the suppliers along with diversity in the process of supply (processing - transportation - distribution); and secondly it is optimal to increase the capacity of the energy infrastructure and of the transmission systems.[75]

Regarding the diversity in supplies, there are fossil fuels other than gas that can have their share in EU's energy mix. Bahgat supports that oil is to remain the most important fuel in the years to come. Yet, EU holds just the 1.1% of the world's total proven reserves while it «produces less than one-fifth of its total oil consumption».[76]

The Union's stance regarding coal is more promising. Even though EU's coal reserves represent just 3.5% of the world's total, this percentage can secure at least 50 years of today's production. However, the future of coal in the EU is under auspices due to a growing popular and governmental concern regarding pollution of the environment; still, technological advances are rapidly progressing towards the creation of "clean coal".[77]

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[75] ELKIND Jonathan, *Energy Security. Economics, Politics, Strategies & Implications, Call for a Broader Agenda"* Brookings Institution, Washington, 2010

[76] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach,* Wiley, Chichester, 2011, pp 43

[77] Id. pp 44

But fossil fuels are not the only alternative that EU uses for its diversification of energy portfolio. Sustainable energy like nuclear power and renewable energy resources are both growing sectors. 30% of the electricity produced in the EU derives from nuclear power plants. With 132 nuclear reactors operating in 14 EU member countries, EU is the largest nuclear electricity generator in the world. Away from price fluctuation and instability, nuclear power is proven to be very reliable as an energy source[78], while the Euratom Treaty ensures a safe and sustainable use of nuclear energy across Europe and provides help to non-EU countries towards meeting high standards of safety, security and non-proliferation.[79] Nonetheless, uranium sources in the EU represent only about 1.9% of the world's total and the management of radioactive waste is a difficult procedure.[80]

Regarding "green energy", C. Pascual and E. Zambetakis delineate that the dynamics of energy markets can be changed from instability to security only when «importers escape from the cyclical price incentives that perpetuate the current structure of international oil and gas markets and diversify their energy sources, with greater reliance on renewable energy and energy conservation».[81] Renewable sources of energy like the wind power, solar, hydroelectric, tidal power, geothermal energy and biomass represent a tangible alternative.[82]

Since 2009, when the European Council adopted the climate - energy legislative package the use of renewable energy in a European level rose. Green electricity production generated from wind and biomass and biofuels production has expanded while «for the heating and cooling sector biomass, solar and geothermal energy concretely increased their share». G. Bahgat along with E. Spagakou agree that this showcases a strong desire EU acquires on improving its security[83] and reliability of energy supplies.[84]

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[78] BAHGAT Gawdat, *op. cit*, pp 44 - 46

[79] European Commission, *Energy – Nuclear Energy* [http://ec.europa.eu/energy/nuclear/index_en.htm, Last Accessed in 10/01/2015]

[80] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 44-46

[81] PASCUAL Carlos, ZAMBETAKIS Evie, *The Geopolitics of Energy. From Security to Survival*, Brookings Institution, Washington, 2010

[82] Interview with Ms Spagakou Erika, Junior Professional Associate - Office of the Director-General of IRENA, Athens, 05/11/2014

[83] Id.

[84] BAHGAT Gawdat, *op. cit.*, pp 46-47.

EU Gas Security Policy

The incomparable advantages of natural gas though, ensure its key role to EU's energy security. The number of projects proposed in the recent years focusing on the construction of pipelines with end users the citizens of the EU (such as the Nord Stream, Nabucco, South Stream, TAP, TANAP, ITG-IGI, etc) verify this key position gas holds. Many of these projects like Nabucco and South Stream were even competing with each other, proving evidently the importance of natural gas and the geopolitical interests behind such transactions.

Considering these issues, one can say that it was important for the mere existence of the EU to secure its gas supplies. Thusly, in 2004 the EU adopted a directive to ensure and provide broad, transparent and non-discriminatory policies towards security of supply. Additionally, a Gas Coordination Group was inaugurated for monitoring the supply chain and providing a complete coordination mechanism in case of crisis. This group was practically «a forum for member states, the gas industry, and gas customers to exchange information and debate policy developments».[85]

In 2009, more regulations and directions were adopted by the EC, which were providing the member states with tools like «a common indicator to define a serious gas supply disruption such as the shutdown of a major supply infrastructure» or advocacy on the creation of an authority responsible for monitoring the gas supply and securing the constant availability of gas resources. Last but not least, it directed the member states to cooperate with each other during a crisis.[86]

Conclusion

A stronger and more coherent policy regarding energy security and specifically gas security is always relevant. Closer cooperation and cohesion among the member states of the European Union, along with a constant effort for energy diversification can create an extra asset for the EU to use towards the "manipulation" of the energy relationships with its Eastern Partners.

[85] BAHGAT Gawdat, *op. cit.*, pp 43-44
[86] Id. pp 166.

A common characteristic of such relationships is the strong consumer - producer bond that is forged. Nonetheless, such bonds are not and never will be equal, since the EU is a customer with big energy needs that is offering great revenues to the suppliers and having at the same time a broad range of tools and techniques at its disposal for guaranteeing an easier implementation of its own energy agenda.

Yet, the Eastern Partners are undoubtedly important regional and global players and the EU should take into serious consideration the geopolitics of energy in the region. Analyzing and exploring in depth the political, economic and energy-capacity stances of its neighboring countries is the first and most important step towards building a more tangible and concrete energy policy. A policy that will allow the maintenance of the Union economically, politically and socially as it is today.

Chapter II – E.U. and the Russian & Turkish Pipeline projects

Introduction

As I already outlined in my methodology in order to categorize and analyze my research, I developed a relevant set of codes. These codes were "pipelines", "national gains", "political will" and "ways of influence"; and they were analyzed for the cases of Russia and Turkey in relation with the EU.

As already explained in depth, the Eastern partners play a significant role for the Union. Their close proximity with the European market along with the important energy reserves in the region, are great incentives for a stronger cooperation and collaboration with the EU. Specifically, regarding the EU gas security, two are the major players to be analyzed, namely Russia and Turkey; the first one as both a transit and a supplier country, with a prestigious position in the international economic arena and a strong political stance; while the second one as a bordering country of the EU, thus with an important geopolitical place in the energy map of the region (bordering Azerbaijan) and excessive negotiations towards an EU accession.

Role of Pipelines: Competitive or complementary to E.U. Energy Security?

Pipelines

"Pipelines" was a code appearing constantly in my research and thus I separate my findings based on this code in two distinct sub-chapters, "Pipelines: the case of Russia", and "Pipelines: the case of Turkey".

Pipelines: The case of Russia

Recent Russian–European energy cooperation goes back to 1968, when the Soviet Union started selling natural gas to Austria. Five years later in 1973, Germany started buying Soviet gas as well. In the ensuing decades more European

countries were added to the list.[87] Nowadays, Russia is the biggest supplier of gas to the EU as a bloc, while this reality is not about to change in the near future. In 2013, Russia held 16.8% of the world's natural gas, being the country with the second largest proven reserves after Iran.[88] The same year, Russia was also one of the largest gas producing countries, coming second only to the USA, producing the 17.9% of world's total gas.[89]

Thus, Russia's close proximity to the EU markets created over the years a necessary network of pipelines that connect the two regions and secure an important amount of energy for the union while helping Russia generate a high flow of revenue (taking into consideration the high "western prices" that are paid for its gas) while at the same time is giving to its gas an instant direction to the market (since it is extremely difficult to store due to the nature of gas).

One of the most important gas pipelines that carry Russia's gas to the EU is the Nord Stream. Also known as the North European Gas Pipeline, Nord Stream is passing under the Baltic Sea all the way to Germany and the heart of Northern Europe. The main shareholder is the Russian state company Gazprom that holds 51% of the joint venture. Nord Stream was assigned the Trans-European Network (TEN) status in 2000 and again in 2006, it has currently two pipeline strings and the participating companies are exploring the scenario of building two more in the near future. Except its important transit capacity though, Nord Stream fulfils a political effort of security as well, as it is «avoiding transit countries and building direct connections to Europe».[90]

The importance of Nord Stream is further underlined with the existence of Gryazovets - Vyborg gas pipeline, which among other reasons it is «designed for securing gas deliveries to the Nord Stream».[91]

Another pipeline that leads the Russian gas export to the Union is the transnational Yamal - Europe gas pipeline. With Russia as a starting point, Yamal

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[87] BAHGAT Gawdat, *op. cit.*, pp 164-167.
[88] BP *Statistical Review of World Energy - Natural Gas*, June 2014, pp 20, [http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-natural-gas-section.pdf, Last Accessed in 10/01/2015]
[89] BP *Statistical Review of World Energy - Natural Gas*, June 2014, pp 22, [http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-natural-gas-section.pdf, Last Accessed in 10/01/2015]
[90] - Gazprom - *Nord Stream*, [http://www.gazprom.com/about/production/projects/pipelines/nord-stream/, Last Accessed in 10/01/2015]
[91] Gazprom - *Gryazovets-Vyborg*, [http://www.gazprom.com/about/production/projects/pipelines/gvg/, Last Accessed in 10/01/2015]

- Europe passes through Belarus and Poland to reach Germany. «The European Union qualified the Yamal - Europe as the top-priority investment project implemented as part of the Trans-European Network (TEN)». Its construction started in 1994 and its design capacity was reached in 2006.

The Yamal - Europe pipeline is receiving its gas from another pipeline system, the Northern Tyumen Regions (SRTO) – Torzhok gas pipeline.[92]

The Blue Stream pipeline connects Russia and Turkey under the Black Sea. It came into operation in 2002 and is a joint venture of Gazprom and ENI. Via Blue Stream Russian gas reaches Europe via the "Turkey–Greece interconnector". Future plans aim to another link that will connect Turkey to Greece and will reach Italy in the end.[93]

Last but not least are four pipeline networks, namely Yamburg-Uzhgorod**,** Orenburg-Uzhgorod**,** Urengoy-Uzhgorod and Dolina-Uzhgorod. All these projects run through Ukraine, «carrying Russian gas to Western European countries mainly Germany, Italy, and France».[94] However, with the recent tension between Russia and Ukraine that led to Crimea's secession, the future of these projects is blurry, as according to Dr. Filis «the Ukrainian system is considered by Russia as obsolete» and is trying harder to find alternative ways to reach the EU market while at the same time maintain its exports level.[95]

Regarding the future infrastructure projects that Russia and Gazprom are planning, the leading role had, up until recently, the South Stream pipeline, a joint venture between Gazprom and ENI. The pipeline was supposed to run «underneath the Black Sea, to Bulgaria and then branch off in two directions: one toward the north-west, crossing Serbia and Hungary and ending in Austria; the other directed to the south-west through Greece and Albania, linking to the Italian network».[96] Yet, the 2014 sanctions against Russia due to the Crimea situation, along with the huge revenue losses due to a major fall in oil price with which Russian natural gas is connected to, forced Vladimir Putin to announce the

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[92] Gazprom - *Yamal-Europe*, [http://www.gazprom.com/about/production/projects/pipelines/yamal-evropa/, Last Accessed in 10/01/2015]
[93] BAHGAT Gawdat, *op. cit.*, pp 166-167.
[94] U.S. Energy Information Administration, *Russia - Analysis*, [http://www.eia.gov/countries/cab.cfm?fips=RS - Last revised 12 March 2014]
[95] Interview with Dr. G. Filis - Professor at the American College of Greece, Athens, 12/11/2014
[96] Gazprom - *Nord Stream*, [http://www.gazprom.com/about/production/projects/pipelines/nord-stream/, Last Accessed in 10/01/2015]

termination of the project in the beginning of December 2014 and obliged Russia onto a huge turn in their energy export strategy.

Following, is the Murmansk – Volkhov gas pipeline, which «will ensure gas supplies from the Shtokman field to consumers in Northwestern Russia and gas exports via Nord Stream».[97]

Finally, a Yamal - Europe 2 project is under consideration that «will allow increasing transit capacities of gas supplies to Poland, Slovakia and Hungary».[98]

Pipelines: The case of Turkey

Turkey on the other hand might not be a strong producing country but is an energy crossroad. On the west shares its borders with the EU, a region with excessive energy needs that are constantly growing; while on the east with Central Asia, the Caspian Basin and the Middle East, the regions with the world's largest proven gas reserves. These advantages create fertile ground for Turkey to become an important energy transit country. «Indeed, since the early 2000s Turkey has transformed itself into a major energy hub. Gas pipelines from Russia, the Caspian Basin, Iraq and Iran reach Turkish territories and from there traverse to Europe».[99]

Consequently, such a transformation along with a revived European interest towards energy supplier diversification, urges official talks about new pipeline projects in the country.

To begin with the already operating pipeline networks, the Baku–Tbilisi–Ceyhan (BTC) is one of the most important projects. It was inaugurated in 2006 and passes through Georgia and Turkey on its way to Europe.

Shortly after the BTC, the South Caucasus pipeline or the Baku–Tbilisi–Erzurum (BTE) pipeline came into operation. Part of the gas that BTE transmits stays in Turkey for domestic use while the rest is transported to Europe.

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[97] Gazprom - Murmansk-Volkhov [http://www.gazprom.com/about/production/projects/pipelines/mvg/, Last Accessed in 10/01/2015]

[98] Gazprom - *Yamal-Europe 2*, [http://www.gazprom.com/about/production/projects/pipelines/yamal-evropa-2/, Last Accessed in 10/01/2015]

[99] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 166-167

The same "gas division" for Turkish internal use occurs to the natural gas that Tabriz–Erzurum pipeline transmits. This pipeline came into operation in 2001 and transports gas from Iran to the EU via Turkey.

Lastly, the Turkey–Greece Interconnector (TGI) was officially inaugurated in November 2007 and is connecting Turkey with Greece via the Marmara Sea. Yet, it is important to underline that TGI carries not only Azeri gas from Shah Deniz but also Russian gas via the Blue Stream pipeline.

Regarding the future plans, there are many concrete proposals on behalf of strong global players for pipeline construction in the region. BP among them proposed the South East European Pipeline (SEEP), a project that «would require the construction of only 800 miles of pipeline as it would rely on existing infrastructure»[100] and thus would be economically vital.

Following is the Trans Anatolian Pipeline or TANAP that was brought to table after the fail of Nabucco pipeline. TANAP constructors are considering to either upgrading an existing pipeline network or constructing a new one from the beginning. In both cases, TANAP will cross Turkey while transporting natural gas from Azerbaijan and Shah Deniz II to Europe.

The extension of TANAP will be TAP, the Trans Adriatic Pipeline. This extension will meet TANAP in the eastern borders of Greece with Turkey and will reach under the Adriatic Sea the European market trough Italy. These two projects are among the most important ones, having the stronger support from political and economic elites. The reason behind this is explained adequately from Leslie Palti-Guzman, a global analyst at the risk consultancy Eurasia Group. He clearly states that there are many alternatives for incremental flows into TAP and TANAP and they will not just transmit gas completely from Shah Deniz II. For example, natural gas can be directed into TAP and TANAP from the big field found in 2010 in the coast of Israel with the name Leviathan, or from other fields developed in Azerbaijan like Aspheron, a field developed by the French Company Total, as well as from Turkmenistan, Cyprus and even Kurdish Iraq[101]. Such potentials make the

[100] U.S. Energy Information Administration, *Turkey - Analysis*, Last updated 17 April 2014, [http://www.eia.gov/countries/cab.cfm?fips=TU Last accessed in 10/01/2015]

[101] - European Commission, *Commission Staff working document, In-depth study of European Energy Security*, Brussels, 2 July 2014, [http://ec.europa.eu/energy/doc/20140528_energy_security_study.pdf Last accessed in 10/01/2015]

infrastructure costs viable and the two projects very crucial for the energy security of the Union and its advancing needs for gas[102].

Another ambitious project is the Turkmenistan - Turkey - Europe Natural Gas Pipeline. This network is aiming at transporting Turkmen gas to Turkey, with 50% of it targeting the internal Turkish needs while the rest targeting the European market.[103]

Last but not least, «Turkey-Iraq Pipeline would give Turkey access to Iraq's natural gas resource». Yet, even though a memorandum of understanding is signed, a tangible planning for its construction has not reached yet».[104]

In conclusion, this large and growing network of natural gas pipelines that is connecting the east with the west borders of Turkey underscores its crucial role in EU's energy security. Bahgat in a very realistic approach states that «the more of these schemes become operational, the more Turkey's role will become significant»[105] for EU and its energy strategy.

National Gain

The Russian and Turkish pipelines seem to be directly linked with the political and economic prosperity of their respective countries.

Russia is apparently investing a lot on its "Blue stream" pipeline project. According to G. Filis, Blue stream will increase its capacity and transferrable volumes and will have to eventually link to TANAP-TAP on its way to Europe. With this strategic movement from Vladimir Putin, Turkey is becoming even more dependent on energy from Russia and this by extension means that Turkey is becoming politically dependent from Russia as well.[106] This is an example of Russia gaining influence over Turkey and through exerting its energy political will

[102] - Financial Times, *Azerbaijan gas pipeline aims to carve out a niche across Europe*, by CHAZAN Guy, 1 January 2014, [http://www.ft.com/cms/s/0/174b403e-6c87-11e3-ad36-00144feabdc0.html#axzz3KGb8Bp4F Last accessed in 10/01/2015]

[103] International Energy Agency, *Oil and Gas Security – Emergency Response of IEA Countries – Turkey*, 2013. [http://www.iea.org/publications/freepublications/publication/2013_Turkey_Country_Chapterfinal_with_last_page.pdf Last accessed: 10/01/2015]

[104] U.S. Energy Information Administration, *Turkey - Analysis*, Last updated 17 April 2014. [http://www.eia.gov/countries/cab.cfm?fips=TU Last accessed: 10/01/2015]

[105] BAHGAT Gawdat, *op. cit.*, pp 53-54

[106] Interview with Dr. G. Filis, *op. cit.*

in Eurasia in general. This is consistent with Russian policy of using energy as a power lever.

At the economic side stands the fossil fuels' importance on the Russian GDP. According to data from the World Bank, in Putin's first term in office (2000-2004) the oil and gas sector's GDP share increased from 8 to 19%[107]. Yet, as Morales states, this reliance on oil and gas exports is a cause of vulnerability for Russia, which depends on world energy prices and on the availability of customers, transport routes and reserves for its economic growth. At this point the importance of the gas pipelines for Russia becomes apparent. Finally, it is necessary to add that Russia's economy is energy-intense, with the domestic prices being much lower than the real market prices. This creates the need for investing in new oil and gas fields. Otherwise, and as the situation stands «a mid-term security of production might be more of a serious risk than a short-term security of supply».[108]

Turkey also appears to be highly invested in its pipeline projects and its role as the region's energy transit hub. Specifically, Turkey wants to capitalize on energy issues and use them as leverage to advance and promote its EU membership. In order to achieve such a political gain, Turkey has decided to deal on energy issues only within the framework of the accession negotiations, namely through negotiations on chapters of energy and trans-European networks. This policy is being pursued in such a way that all other geopolitical diplomatic efforts that don't also include the EU accession issue become obsolete or irrelevant. The perceived potential political gain for Turkey is also being proven by the historical fact that Turkey refuses "to discuss energy on bilateral basis as well as on a wider regional basis involving a number of non-EU countries".[109]

Tekin and Williams make clear that the official EU position through the 2004 Progress Report on Turkey is related directly with energy security issues and conclude that "Turkey will play a pivotal role in diversifying resources and routes for gas transit from neighboring countries to the EU".[110] In comparison with the Russian gas that passes through transit countries such as Belarus and Ukraine that

[107] TEKIN Ali, WILLIAMS Paul Andrew, *op. cit.*, pp 87
[108] MORALES Javier, *Visions from Asia and Europe, Russia as an Energy Great Power: Consequences for EU Energy Security*, Palgrave-Macmillan, Basingstoke, 2008. pp 26-27
[109] TEKIN Ali, WILLIAMS Paul Andrew, *Geo-Politics of the Euro-Asia Energy Nexus. The European Union, Russia and Turkey,* Palgrave-Macmillan, Basingstoke, 2011, pp 179-184
[110] Id. pp 173

exemplified in 2006, 2007 and 2009 the difficulty of «balancing the potentially clashing roles or import-dependent consumer and reliable transit pipeline operator»[111], Turkey could be the answer as a more secure transit country for gas to the EU. This implies specific and tangible economic gains for Turkey. On this level, Bahgat mentions the "Encouraged" project that the EC supported and Turkey is part of, which is about the optimization of future energy corridors between the EU and its neighboring countries. Among the project's objectives are: "to assess the optimal energy interconnections and network infrastructure for electricity, gas and hydrogen with and through neighboring regions; to identify, quantify, and evaluate the barriers and potential benefits of a large European energy connected area; and to recommend the necessary measures to ensure and implement these energy corridors and realize a high level of network security".[112]

The Baku Initiative signed in Azerbaijan in 2004, aims to enhance cooperation in terms of energy between the EU and the Eurasian countries; with Turkey being a full participant, this Initiative showcases more possible economic gains for Turkey. TANAP an enormous pipeline running the length of Turkey and TAP, another pipeline that transits through Greece into Italy, will become operable after "a BP-led consortium concludes its work on Shah Deniz II – a $ 28 bn natural gas project in the Azeri sector of the Caspian that has been on the drawing board for years"[113]. The whole endeavor will cost about $ 45 bn and will bring Turkey in Eurasia's energy spotlight with both economic and political gains for the transit country.[114]

Political Will

An interesting finding about Russia regarding my "political will" code is its direct and hostile moves against the Turkish pipelines projects that occurred over the years. Russia understands that Turkey can be a tangible competitor due to its

[111] Id. pp 83
[112] BAHGAT Gawdat, *op. cit.*, pp 53-54
[113] CHAZAN Guy, *Azerbaijan gas pipeline aims to carve out a niche across Europe*, *Financial Times*,1 January 2014. [http://www.ft.com/cms/s/0/174b403e-6c87-11e3-ad36-00144feabdc0.html#axzz3KGb8Bp4F. Last accessed: 10/01/2015]]
[114] *Id.*

geopolitical position in the regional energy map[115] and thus «tried many times to block Turkey from becoming an energy hub corridor».[116] A representative example of such actions is the Blue Stream pipeline. The proposal and construction of the project happened as an attempt to cancel the BTC gas pipeline.[117]

Another example where Russia was this time vindicated for its hostile efforts is the US-backed Nabucco project. Nabucco pipeline, designed to pass through Turkey, started dwindling and was finally cancelled when Russian South Stream Pipeline was proposed and put forward. Morales, evidently agrees that South Stream was «directly competing with the Nabucco project»[118] since both pipelines were designed to reach the EU through Bulgaria and even the projected volumes of transmitted gas were equivalent.[119]

Last but not least, Russia is using economic strategies to keep its partners committed. For example, Russia offers to the Former Soviet Union Caspian gas producers, higher prices (European-level prices) for the region's resources, a strategy that was viable at least until the burst of the financial crisis in 2008.[120] So, apparently, according to both Spagakou and Mankoff[121], Russia is both willing and able «to endure significant short-term financial damage in order to secure long-term advantage».[122]

However, another important finding regarding Nabucco and South Stream is that these two projects even though identical and competing with each other, they could be used in a complementary way on behalf of the EU in order to maintain lower prices for gas and a higher competition. Of course both projects, mainly due to being economically non viable, are abandoned nowadays; however this is a clear indicator of how the EU can manipulate the gas market[123], as seen in numerous statements of top energy officials of the European Union, like Mr. Oettinger, according to whom the E.U. is willing to «hit the brakes on further negotiations» regarding the pipelines with Russia if the planned projects do not abide with EU regulations and rules.

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[115] U.S. Energy Information Administration, *Turkey – Overview/Data*, Last updated 17 April 2014. [http://www.eia.gov/countries/country-data.cfm?fips=tu. Last accessed: 10/01/2015]]
[116] MARQUINA Antonio (Ed), Energy Security. *Visions from Asia & Europe*, Palgrave-Macmillan, Basingstoke, 2008, pp 62-63
[117] Id. pp 62-63
[118] MORALES Javier, *op. cit.*, pp 30.
[119] MARQUINA Antonio (Ed), *op. cit.*, pp 62-63.
[120] TEKIN Ali, WILLIAMS Paul Andrew, *op. cit.*, pp 157
[121] MANKOFF Jeffrey, Eurasian Energy Security, Council on Foreign Relations, New York, 2009, pp 14
[122] Interview with Ms Spagakou Erika, op.cit.
[123] MANKOFF Jeffrey, *Eurasian Energy Security*, Council on Foreign Relations, New York, 2009, pp 20.

Continuing with the findings on "political will", Russia is clearly pursuing a strategy to further consolidate the Union's dependence on its energy supplies.[124] EU is trying for an energy supplier diversification for two reasons. Firstly, its internal gas production decreased by 17% between 2010 and 2012[125] and by extension its reliance on importing energy grew higher. Secondly, the concern over the fact that Kremlin is controlling the majority of the Russian gas pipelines and incidents of withholding deliveries might occur as a political blackmail is making this attempt for diversification imperative.[126]

European Union's attempts of energy supplier diversification with numerous non-Russian pipeline projects found, as described above, important resistance. Additionally, a lack of a common energy policy on behalf of the EU allows Moscow to build strong bilateral agreements with individual EU member states, making some of them completely dependent on Russian energy.[127] Russia is moreover willing to expand its own energy reserves (that are as well declining) in order to meet this growing EU need for gas. This political will of Russia to be a strong and concrete energy supplier becomes clear from the fact that the *Energy Strategy-2030* «underscores Russian leaders' growing interest in exploring and developing the Arctic Ocean, a region, where analysts agree that holds substantial oil and gas deposits».[128]

Lastly, due to various problems Russia is facing with neighboring countries, there is a clear political will to bypass these territories in the case where a diplomatic solution is not an option (the Ukrainian case being the brightest example). Nord Stream and South Stream (before the later being abandoned) were aiming to accommodate this need and secure a normal gas transit to Europe regardless Russia-Ukraine or Russia-Belarus gas disputes. This was the main reason that the European Commission supported officially Nord Stream and

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[124] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 166-167

[125] - European Commission, *Commission Staff working document, Trends and Developments in European Energy Markets 2014*, Brussels, 13 October 2014, pp. 9 [http://ec.europa.eu/energy/gas_electricity/doc/2014_iem_communication_annex1.pdf. Last accessed: 10/01/2015]]

[126] MANKOFF Jeffrey, *Eurasian Energy Security*, Council on Foreign Relations, New York, 2009 pp 5

[127] BAHGAT Gawdat, *Energy Security. An Interdisciplinary Approach*, Wiley, Chichester, 2011, pp 167

[128] Id. pp 162

hadn't opposed South Stream.[129] Due to the serious economic effects that the financial crisis and the sanctions of 2014 caused to Russia, the construction of new pipelines seems not viable. What Russia wants to accomplish is the increase of the capacity of their existing pipelines that go around Ukraine so as to maintain their access and supply to the EU energy market. As a last point that shows the competitive environment between Russia and Turkey is the very fact that «Nord Stream was built to overpass not only Ukraine but Turkey as well».[130]

On comparison, Turkish "political will" to become an important energy partner of the EU is clearly seen by the quick response after the South Stream project proposal, when it signed «a memorandum of understanding on gas deliveries from Turkmenistan and Iran via Turkey to Europe» on 13th of July 2007, while accelerated the plan to «open a gas pipeline with Greece connecting these gas fields from the Caspian with Europe, by passing Russia».[131]

Another aspect verifying Turkish political will for a closer cooperation with the European Union is the willingness to ratify the *Energy Charter Treaty* (ECT). Moreover, Tekin clarifies that Turkey is becoming more antagonistic and wins over Russian stiff position of not ratifying the ECT [132]. Additionally, the «advantageous interposition between major non-Russian supply regions places Turkey to serve as a potential acquis-compatible "Southern Energy Corridor"».[133]

These Turkey's energy ambitions and the apparent priorities set by the country, led Prime Minister Erdogan to visit Turkmenistan in November 2014. With Nabucco Pipeline completely abandoned, Turkey is promoting TANAP to be completed by 2019 and focuses on incremental flows of natural gas not only from Azerbaijan's Shah Deniz but also from Turkmenistan as well. This move will «undermine Russia's hold on Europe's energy market».[134] Consequently, this "Turkey-Azerbaijan-Turkmenistan triangle" would allow the EU to compete

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[129] MANKOFF Jeffrey, *op. cit*., pp 15.
[130] Interview with Dr. G. Filis - Professor at the American College of Greece
[131] MARQUINA Antonio (Ed), Energy Security. *Visions from Asia & Europe*, Palgrave-Macmillan, Basingstoke, 2008, pp 62-63
[132] TEKIN Ali, WILLIAMS Paul Andrew, *Geo-Politics of the Euro-Asia Energy Nexus. The European Union, Russia and Turkey,* Palgrave-Macmillan, Basingstoke, 2011, pp 3
[133] Id. pp 3
[134] ERIMTAN Can, *Putin in Turkey: Russian bear basking in Turkey's crescent*, TV Novosti, Autonomous Nonprofit Organization, 2 December 2014 [http://rt.com/op-edge/210771-putin-turkey-erdogan-gas/. Last accessed: 10/01/2015].

Turkey against Russia regarding the gas supplies and reach the best deals possible on Union's behalf.[135]

Ways of Influence

The most accurate way to examine the complementary nature of the Russian and Turkish pipelines for the EU's energy security is to analyze the various "ways of influence" that the Union has towards its Eastern partners. According to S. Haghighi, «diplomatic relations between energy consuming and producing countries is the most effective tool to guarantee energy security».[136] Especially in the case of gas, where transportation is rigid and should occur immediately since gas storage is difficult and dangerous, such relations are even more important. The Energy Charter Treaty gives a first response to such efforts of diplomacy and creates the first legal framework the EU can use as a "way of influence" towards its relationships with Russia and Turkey.

More precisely, ECT is the treaty that «governs the conditions under which investments in the energy sector can be made with minimum risk».[137] Specifically, the Energy Charter Treaty's most important characteristic is the fact that it provides the necessary guidance in order to promote investments in the energy sector with as little risk as possible. It has many energy-related provisions the most important being investment protection, free capital transfer and non-discrimination, prohibits interruption of flows or the creation of obstacles to the construction of new infrastructure,[138] compliance with WTO energy rules, energy transit freedom, dispute settlement and legal transparency improvement.[139]

Turkey has a winning point regarding these regulations that EU is trying to convey to its energy partners for achieving a more secure implementation of its energy strategy; because, Turkey has ratified the ECT and is now a member of it. On the contrary, Russia signed the Treaty in 1994 but did not ratify it yet[140] for two reasons. Firstly, because the *Transit Protocol* was threatening Gazprom's

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[135] ERIMTAN Can, *op. cit.*
[136] HAGHIGHI Sanam, *Energy Security. The external legal relations of the European Union with major oil & gas supplying countries*, Hart, Oxford, 2007, pp 32-33
[137] Id., pp 336
[138] - Energy Charter Treaty, *Trade and Transit – Treaty Provisions*, [http://www.encharter.org/index.php?id=610&L=0. Last accessed: 10/01/2015]]
[139] HAGHIGHI Sanam, *op. cit.*, pp 193
[140] BAHGAT Gawdat, *op. cit.*, pp 164-167

monopoly over the pipelines control[141] and lower cost gas from other Eurasian countries could potentially flow through them.[142] Secondly, because, in Putin's words private companies should be constrained to «a guardianship over energy resources while the true ownership remains in the hands of the state».[143]

Yet, the EU continued the negotiations with Moscow and created other documents and legal partnerships with which Russia could be influenced. A great example is the *Energy Dialogue*, aiming to secure and enhance more investments on Russian energy infrastructure (production and transportation)[144] and the *Partnership and Cooperation Agreement* that was signed in 1997 that initiated more economic cooperation between the two entities.[145]

On the contrary, negotiations with Turkey had a different approach. Turkey's willingness to abide with EU's regulations made it easier for the Union to provide more opportunities to the country. In 2006, the Council of Europe, the Development Bank, the European Investment Bank and the European Commission launched the *Energy Efficiency Finance Facility Initiative*. The main aim of this Initiative is the financial assistance to acceding and candidate countries like Turkey towards investment in their energy sector. Especially for Turkey, due to its important geopolitical position, the EC provides important direct economic support to the Turkish energy sector in the terms of its pre-accession period.[146] Moreover, a European Council Action Plan in the years 2007 until 2009 was adopted that promoted closer relations and cooperation between the EU and Central Asia, the Caspian Sea and the Black Sea regions, in order to secure a diversification of suppliers and transmission routes.[147]

Another energy link between Turkey and the EU is the *Baku Initiative* (BI). Established in 2004, aims to enhance cooperation in terms of energy between the EU and the Eurasian countries. Russia is only an observer in this initiative, while Turkey is a full participant. This means that Turkey (along with the rest of the participating countries) agreed on harmonizing its legal framework with EU's

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[141] MANKOFF Jeffrey, *op. cit.*, pp 32
[142] HAGHIGHI Sanam, *op. cit.*, pp 348
[143] MORALES Javier, *Visions from Asia and Europe, Russia as an Energy Great Power: Consequences for EU Energy Security*, Palgrave-Macmillan, Basingstoke, 2008. pp 28
[144] BAHGAT Gawdat, *op. cit.*, pp 164-167
[145] HAGHIGHI Sanam, *op. cit.*, pp 348
[146] BAHGAT Gawdat, *op. cit.*, pp 51
[147] MARQUINA Antonio, *Visions from Asia and Europe, The Southeast-Southwest European Energy Corridor*, Palgrave-Macmillan, Basingstoke, 2008. pp 55

regulatory indications enhance the safety and security of energy supplies and extend and modernize the existing infrastructure among others.[148] This shows clearly how the EU is dictating the conditions that the energy sector of Turkey should meet and is providing concrete legislative and economic support to all the BI countries, something that according to INOGATE is an urgent priority towards a comprehensive energy security for the Union. [149] Here it should be noted that INOGATE could be another possible tool to push Turkey to align with the EU energy needs; because Turkey is an INOGATE Partner and can follow INOGATE activities but is not a direct beneficiary for technical assistance under the program.[150]

However, besides the legislative structure, the EU has also economic ways of influence. The Union uses its soft power on playing Russia against Turkey through its ability to provide financial assistance. Such an ability derives from the Union's participation in many international bodies like the IMF, the EIB, the EBRD (European Bank for Reconstruction and Development) or its close cooperation with institutions like the G8 or the World Bank.[151] Thus, in the case of Russia, EU is a very important source of income for the country, regarding trade, investment and aid.[152] In energy economic terms, European countries rely on Russia for approximately 23% of their imported gas, while this percentage corresponds to three-quarters of the total Russian gas export[153], explaining in numbers the dependence in forms of revenue Russia has on the EU and the power the later acquires in the formation of policies and negotiations.

What is more, Russia's energy production «remains imperiled by inefficiency, underinvestment, politicization, high taxes, and falling prices».[154] Gazprom is a state-run company that produces about 74% of Russia's total natural gas output,

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[148] BAHGAT Gawdat, *op. cit.*, pp 51

[149] - INOGATE, *Ministerial Declaration on enhanced energy co-operation between the EU, the Littoral States of the Black and Caspian Seas and their neighboring countries*, 30 November 2006. [http://inogate-tag.org/inogate/pdf_files/INOGATE_Policy_Final_Conclusions_Astana_EN.pdf. Last accessed: 10/01/2015].

[150] INOGATE, *Strengthening of the INOGATE Technical Secretariat (ITS) in support of the Baku Initiative*, March 2012. [http://www.inogate.org/documents/ITS_Final%20report%20EN.pdf. Last accessed: 10/01/2015].

[151] TEKIN Ali, WILLIAMS Paul Andrew, *op. cit.*, pp 87.

[152] MORALES Javier, *op. cit.*, pp 29.

[153] PASCUAL Carlos, ZAMBETAKIS Evie, *The Geopolitics of Energy. From Security to Survival*, Brookings Institution, Washington, 2010

[154] MANKOFF Jeffrey, *op. cit.*, pp 8.

controls more than 65% of the proven Russian gas reserves[155] while at the same time is not open for scrutiny and its administration is not always transparent.[156] In addition, former deputy energy minister Vladimir Milov supports that Gazprom's production will be reduced significantly by 2020, while the company's commitment to build expensive new pipeline infrastructure makes any modernization of production or exploration of new fields economically impossible.[157] Consequently, as Bahgat in an assiduous way supports, Russia needs European technology and investments (except from guidance and legislative knowhow) for securing reliable energy supplies, especially ahead of an EU rising demand for gas and a simultaneous rise of domestic demand.[158]

Continuing, as Dr. Filis stresses, one may detect a complementary role of the EU towards Russia and Turkey, especially due to the huge energy deficit European Union is facing. «Russia exports only 1/3 of the gas it drills while uses the 2/3 for its internal energy needs».[159] In addition, Russia's gas production has stagnated in recent years, with at least four reasons contributing to this stagnation. First, most of the easy reachable gas fields have been producing for a long time and are showing signs of aging, while other reserves are geographically distant and in harsh environments. Second, the new gas discoveries require investment and advanced technology that Russia is unable to provide. Third, the gas sector is overwhelmingly dominated by the state monopoly Gazprom. Thus, there is no economic incentive for smaller and private companies to produce natural gas; Kremlin's consolidation of ownership has pushed them out of the energy sector;[160] and as a result, gas-flaring incidents are very common. Fourth, low domestic gas prices leave the gas industry unable to increase efficiency.[161] «So, even if the EU would like to be more depended on Russia, this is not feasible. Russia doesn't have the capacity to continue supply the EU and Maghreb cannot cover up».[162] Data

[155] U.S. Energy Information Administration, *Russia - Analysis*, Last revised 12 March 2014. [http://www.eia.gov/countries/cab.cfm?fips=RS Last accessed: 10/01/2015].
[156] MANKOFF Jeffrey, *op. cit.*, pp 17.
[157] *Id*. pp10.
[158] BAHGAT Gawdat, *op. cit.*, pp 48-50.
[159] Interview with Dr. G. Filis *op. cit.*
[160] MANKOFF Jeffrey, *op. cit.*, pp 8.
[161] BAHGAT Gawdat, *op. cit.*, pp 161.
[162] Interview with Dr. G. Filis *op. cit.*

and analysis provided by Eurostat also supports this point of view.[163] So EU needs an alternative; And Turkey could take the place of this alternative.

Another economic aspect where the EU can use the competition between Russia and Turkey for its own advantage is gas pricing. In comparison with Russia, Turkish energy legislation is more EU-aligned[164], as showcased above. Moreover, the efficient gas reserves located in Central Asia, the Caspian, Iran, Iraq and Egypt can be transported to Europe via Turkey at reasonable costs. Thus, these two factors can pressure efficaciously Russia and Gazprom to restrain the overall price they demand for its supplies.[165] According to Chazan, Gazprom is already under pressure from many European customers to end oil-indexation.[166]

Furthermore, in the same time when Turkey's energy policy is approaching the western partners, the Russian one becomes more introvert. While Yeltsin tried to consolidate a Russian partnership with the West, Putin and Medvedev «brought Russia's economic assets back under state control and pursued a more nationalistic foreign policy abroad».[167] Under the same pace, Gazprom is a company that explicitly states the political dimensions its pricing decisions have[168] and at times becomes «indistinguishable from a foreign government».[169] Thus, for maintaining its ways of influence, EU can follow a deeper and more essential domestic integration, where a common European framework for the gas sector will be adopted by all the EU member states and by extension the level of dependence on Russia and Gazprom will not differ incomparably among them.[170]

A final tool that the EU can use as a way of influence by being one of the strongest economic players globally is that of *sanctions*. The recent events of the cancellation of South Stream pipeline shows the important political pressure this

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[163] - European Commission, Eurostat, *Trade in Energy Product – Statistical analysis of EU trade in energy products with focus on trade with the Russian Federation*, 2014, Table 2. [http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Trade_in_energy_products. Last accessed: 10/01/2015].

[164] - Energy Charter Treaty, *Decision of the Energy Charter Conference, Adoption by written procedure of the Recommendations of the In-depth Energy Efficiency Review of Turkey*, Brussels, 28 May 2014. [http://www.encharter.org/ntc_admin/dev_extranet/files/CCDEC201400_1402056740.pdf. Last accessed: 10/01/2015].

[165] TEKIN Ali, WILLIAMS Paul Andrew, *op. cit.*, pp 164-165.

[166] CHAZAN Guy, *op. cit.*

[167] BAYLIS John, SMITH Steve, OWENS Patricia, *The Globalization of World Politics*, New York, Oxford University Press, 2001, 2nd Edition pp 73

[168] ELKIND Jonathan, *Energy Security. Economics, Politics, Strategies & Implications, Call for a Broader Agenda"* Brookings Institution, Washington, 2010

[169] MANKOFF Jeffrey, *op. cit.*, pp 7.

[170] Id. pp 26

tool can apply and the results it can bring. U.S. and EU sanctions due to Russia's role in the secession and subsequent absorption of Crimea, denied Russia access to advance technology and financing, and prevent international energy companies from partnerships with the country.[171] Mr. Oettinger, the top energy official of the European Union said in an interview regarding the Ukrainian crisis that «the E.U. will hit the brakes on further negotiations to bring the planned South Stream pipeline into compliance with EU regulations» and that further conversations over the pipeline will be delayed.[172] Following the escalation of the crisis and the downing of the *Malaysian Airlines* flight the majority of the international companies along with French *Total*, «which had been among the most committed to Russia» frozen its cooperation and current initiatives.[173] Of course, along with the sanctions against Russia, the US in cooperation with the EU played an important role in the huge drop of oil prices globally. According to OPEC, the price of oil in 1st of July 2014 was 108.68[174] dollars a barrel while in 11th of December 2014 had fallen tremendously to only 60.50[175] dollars a barrel. This move created many internal problems for Russia since it is exporting its natural gas using oil indexation.[176] For this being the main reason, along with other minor ones, -for example the fact that competitive Nabucco pipeline project is now inert- Russia «acknowledged that European sanctions all but torpedoed the financial prospects of the massive project while continued pushback from the European Union and some key member states, such as Bulgaria, sealed its doom».[177]

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[171] U.S. Energy Information Administration, *Russia looks beyond West Siberia for future oil and gas natural growth*, 19 September 2014 [http://www.eia.gov/todayinenergy/detail.cfm?id=18051

[172] Foreign Policy, *Emptying the tank -Russia's invasion of Ukraine is accelerating Europe's search for alternatives to Moscow's energy,* by JOHNSON Keith, 11 March 2014 [http://foreignpolicy.com/2014/03/11/emptying-the-tank/

[173] REED Stanley, *Energy companies rethink Russia after new round of sanctions, New York Times* , 30 July 2014. http://www.nytimes.com/2014/07/31/business/energy-environment/energy-companies-rethinking-russia-after-new-sanctions.html?_r=0

[174] Organization of the Petroleum Exporting Countries, *OPEC Basket Price.* [http://www.opec.org/opec_web/en/data_graphs/40.htm

[175] - Organization of the Petroleum Exporting Countries, *OPEC Basket Price on 11 December 2014*. [http://www.opec.org/opec_web/en/923.htm

[176] Interview with Dr. G. Filis *op. cit.*

[177] http://foreignpolicy.com/2014/12/02/putins-pipe-dreams-south-stream-russia-turkey-natural-gas/ - Foreign Policy, *Putin's Pipe Dreams - The South Stream Pipeline becomes a casualty of the Ukraine crisis and its demise shows the limits of Moscow's energy bullying,* by JOHNSON Keith, 2 December 2014

Conclusion

This in depth analysis of the four selected codes was critical and necessary for my research to reach some fruitful results. As shown from the comparison of the pipeline projects of the two countries at stake, their competitive nature is giving a lot of political space to the Union to act in a complementary way and use both energy sources at its best convenience. The same derives from the analysis of the "national gains" and "political will" codes. An unmistaken competitive political agenda both in foreign and energy policy on behalf of Turkey and Russia showcases that each country tries to maximize its gains while minimizing the gains of its competitors. Last but not least, the code "ways of influence" depicted the methods and the tools that the EU is using towards shaping the most advantageous energy policy for its member states.

All these four aspects analyzed, depict the full picture of the energy reality of the European Union and its fast growing energy needs; and clarify the importance -in regards with energy security- of Turkey and Russia as countries in the geopolitical map of the eastern European borders. Finally, a strong and carefully designed energy policy should be shaped in a unified manner and be supported and underpinned from all EU member states. For this is the one-way road to ensure sufficient and uninterrupted energy supply and stem the external hindrances adequately.

General Conclusions

This dissertation examined the subject of the gas pipelines of the Eastern partners and specifically the Russian and Turkish ones from the scope of the European Union's energy security.

I examined my hypothesis through a comparative analysis between the Russian and Turkish pipelines. My initial hypothesis was that the Russian and Turkish pipelines are competitive to each other and complementary with regards to the EU energy security, in the sense that the EU is able to use a set of soft power tools and thus be the one who decides when and how it draws its necessary resources from the two suppliers.

In order to measure in a tangible way the importance of the current and projected pipeline networks as well as the energy relationship between Russia, Turkey and the Union, I employed four codes to help my research conceptualization. The first one was the "pipelines", where their number and performance was depicted and compared. Following was the code of "national gains", namely political and economic gains for Russia and Turkey in utilizing their pipelines. I used "political will" to measure how eager Russia and Turkey are in promoting their gas reserves to the EU market and lastly the "ways of influence" code was delineating the power European Union enjoys on Russian and Turkish energy policy.

My research and my comparison results confirm the veracity of my initial hypothesis. The comparison over Turkey and Russia using the pipeline code showed that many of the pipeline projects - current and projected - are antagonistic with each other while some of them were even designed with exactly the same transmitted gas volumes and the same reaching point when entering the Union. The national gains along with the political will codes showcased the direct competitiveness between Russia and Turkey. The economic, energy and foreign policy of the two countries were constantly present in this analysis, since in such important issues every state is trying to maximize its own gains against the rest of the actors. Finally, the analysis of the code ways of influence explained and clarified in a detailed way, how the EU can use this antagonism between the two counterparts for its own avail. A number of soft power tools like EU legislations, initiatives and bilateral agreements along with a leverage of financing and providing advanced technology through the organizations and institutions the EU

is participating in, proved the disadvantageous position Russia and Turkey are in, regarding their ability to structure, decide and implement their own energy policy as production and transit countries.

This in depth comparison under the umbrella of the four codes used, showed that Russia is a more aggressive player when it comes to national gain in comparison with Turkey. The conservative and nationalistic political agenda that has been adopted the last years in both domestic and foreign policy is present in Russia's energy policy as well. Using the energy leverage that is deriving from the country's vast gas reserves, Russia is politicizing the supply and the transmission of these reserves in order to gain more power and maintain its dominant position in the Eurasian region. Turkey on the other hand, compared with Russia is a more flexible actor. It orients its national gain goals not on a direct economic boost in the present but more towards a possible EU accession in the future. Thus, in comparison with the energy producing Russia, the energy transit Turkey has to anticipate more political advantages when following a low profile energy policy. Regarding the political will, Turkey is also winning the "competition". Russia's state run companies that control the majority of the country's gas resources, along with a stiff foreign policy and an overprotection of their monopolistic markets ahead of capitalism leaves little or no room for maneuver. On the contrary, Turkey is more willing to sign agreements and ratify treaties that are indicated and proposed by the EU. In general, Turkish energy policy appears to be flexible and eager to become EU aligned. This gives the Europeans an extra motive to include Turkey in the future energy projects of the region and address it as an important energy partner.

All in all, this antagonism with Turkey was seen as a serious threat on behalf of Russia; and this was one of the biggest reasons why Russian energy policy diverged towards Turkey and tried to address the country not competitively but influence it in economic terms.

To conclude, this dissertation showcases the role that Russia and Turkey (the two contemporary major players of the region) play in the reshaping of the EU energy security policy. Future research will be needed in order to provide answers to the interesting questions that arose during the writing of this paper. To this end, future researchers must clearly begin by establishing a strong grasp of the Eurasian

geopolitics along with examining the legal bilateral and institutional energy trade policy framework.

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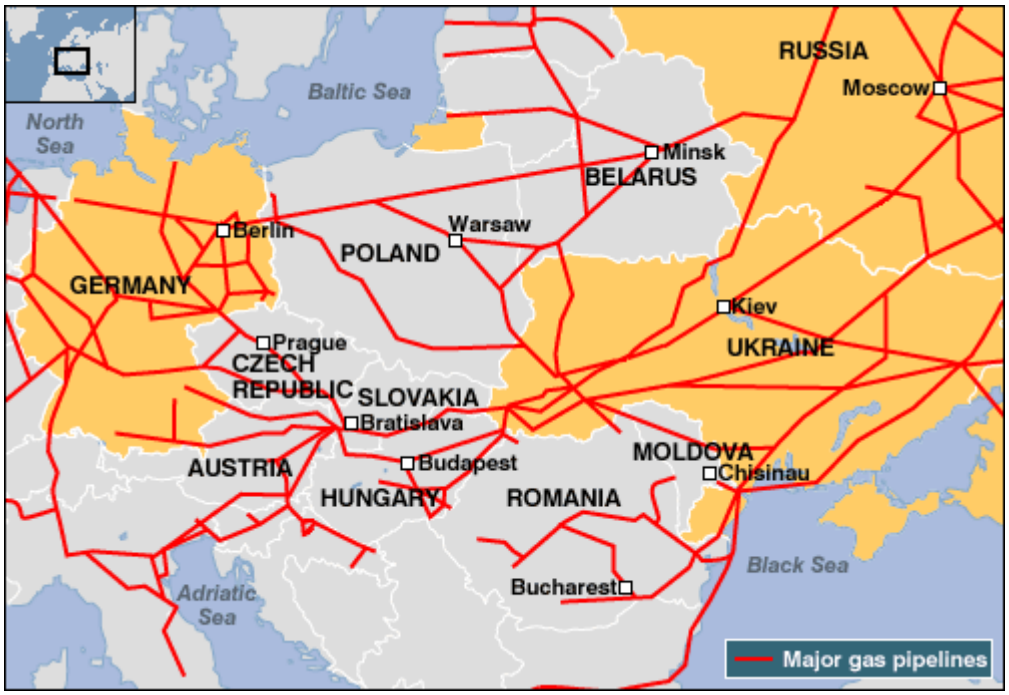
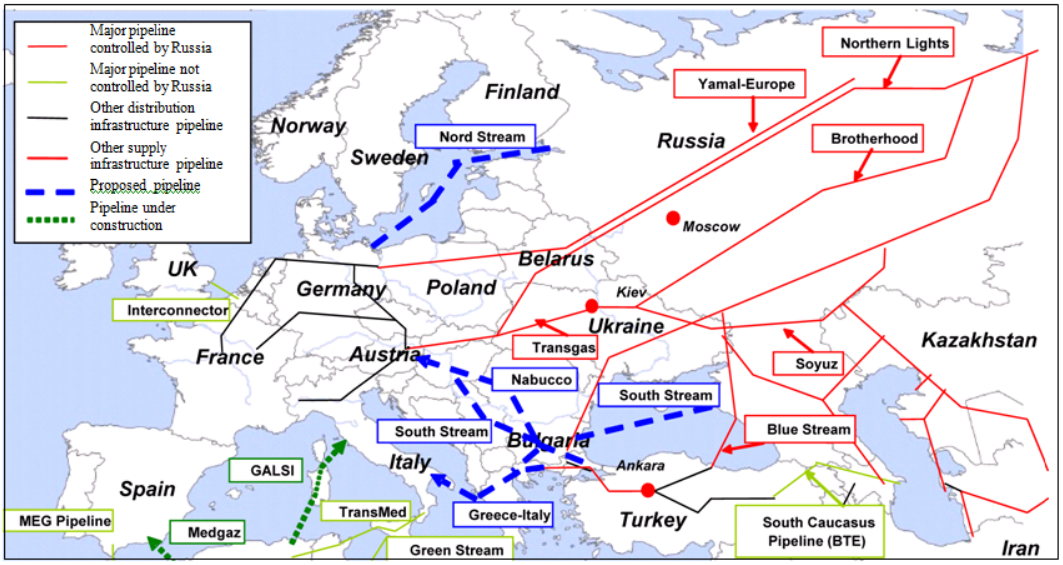
Annexes

I. Maps



Eastern and Central Europe's major gas pipelines

Source: Inogate (EU oil and gas transport co-operation programme) - www.inogate.org

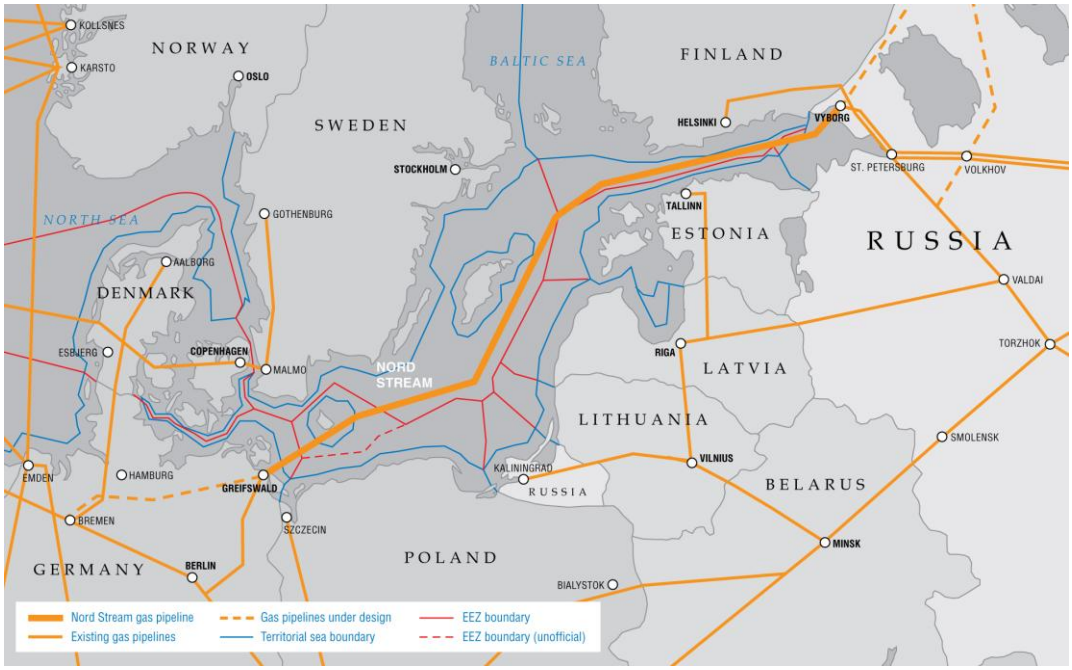


Russian controlled pipelines and alternative pipelines.

Source: JBC Energy GmbH. www.jbcenergy.com

Murmansk – Volkhov (future pipeline project)

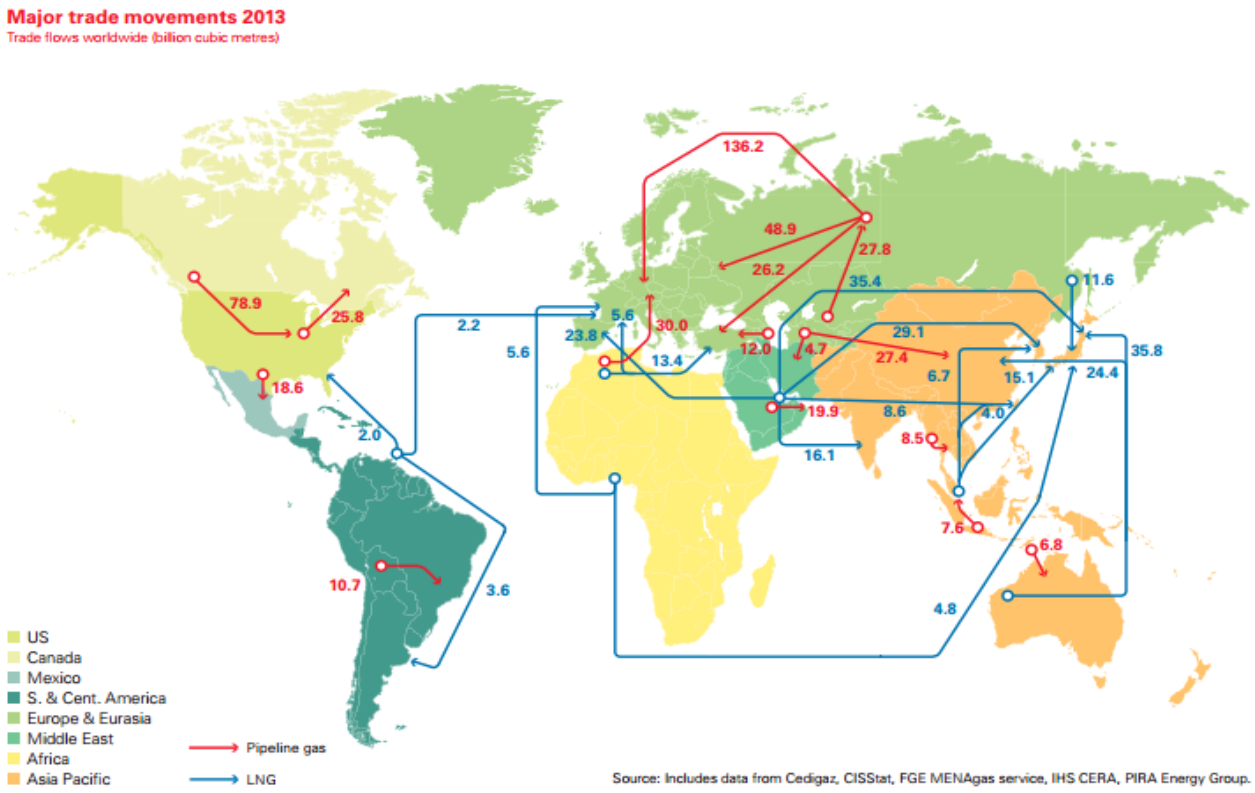
Source: Gazprom



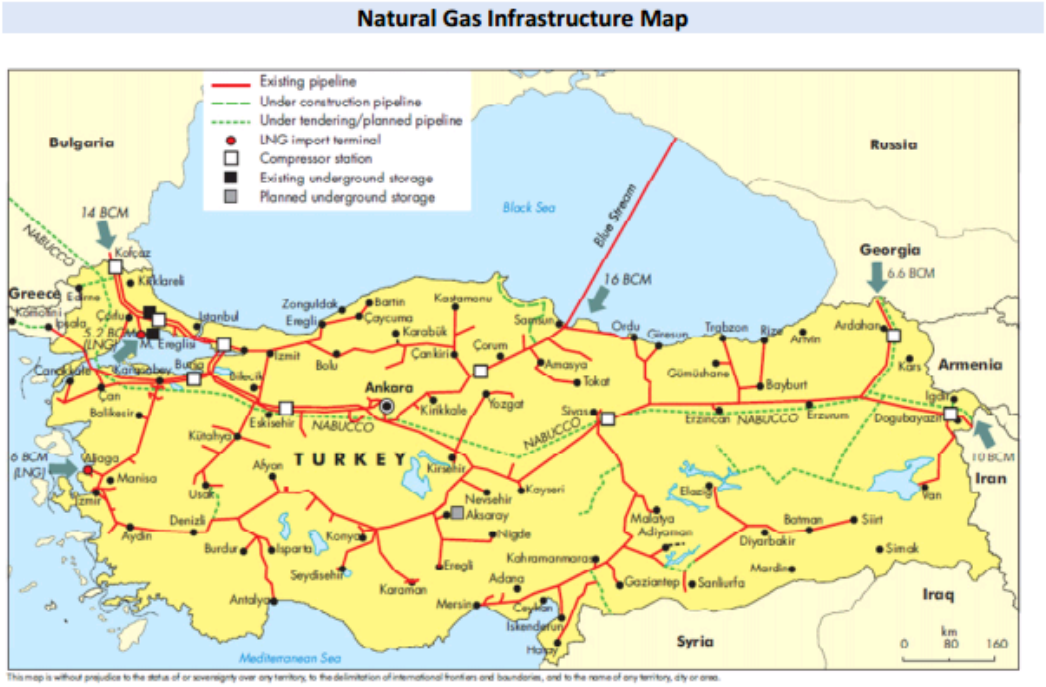
Nord Stream Pipeline
Source: Gazprom

Gryazovets – Vyborg Pipeline
Source: Gazprom

Yamal – Europe Pipeline
Source: Gazprom



Source: BP
http://www.bp.com/content/dam/bp/pdf/Energy-economics/statistical-review-2014/BP-statistical-review-of-world-energy-2014-natural-gas-section.pdf, pp 29



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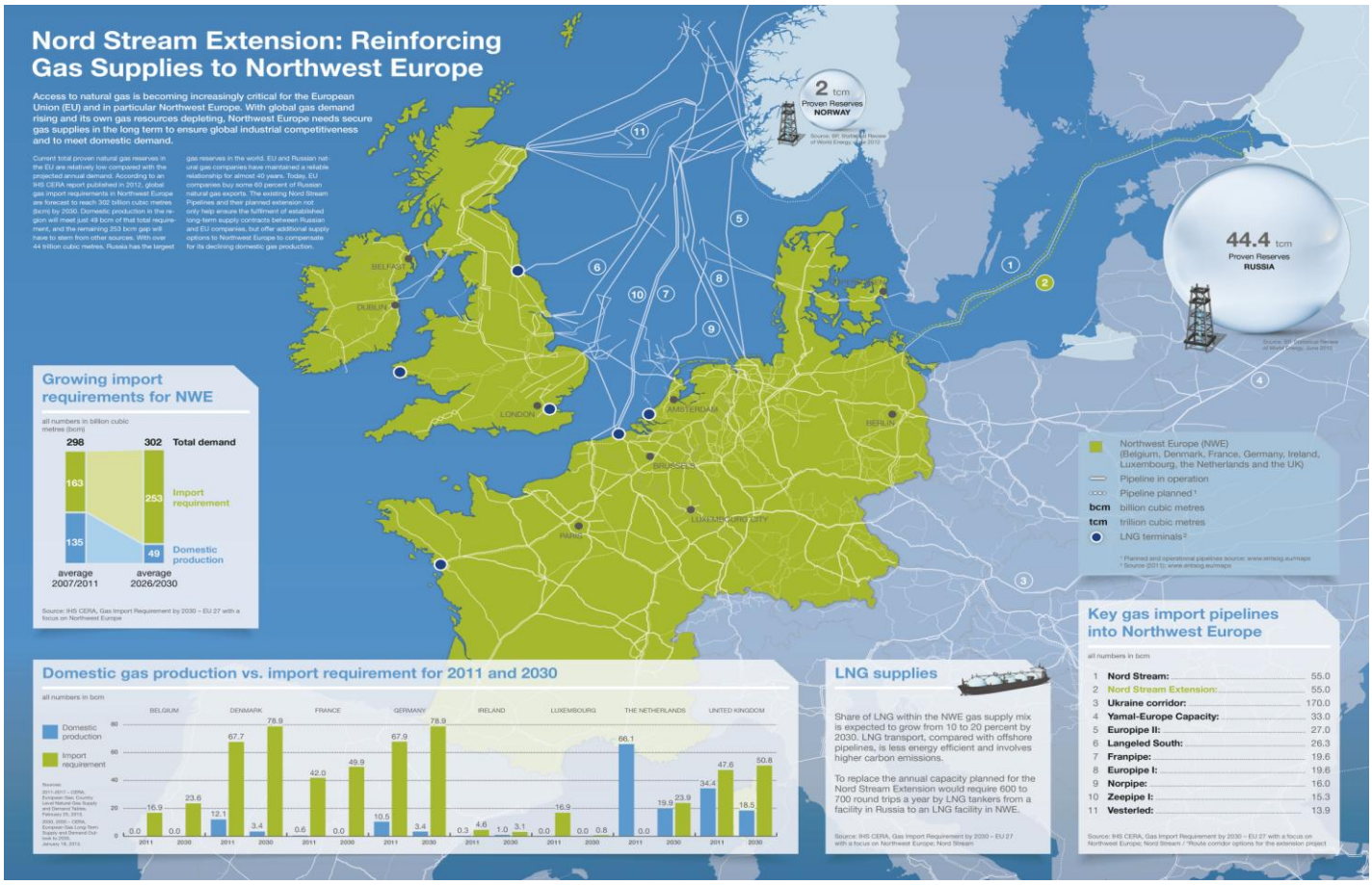
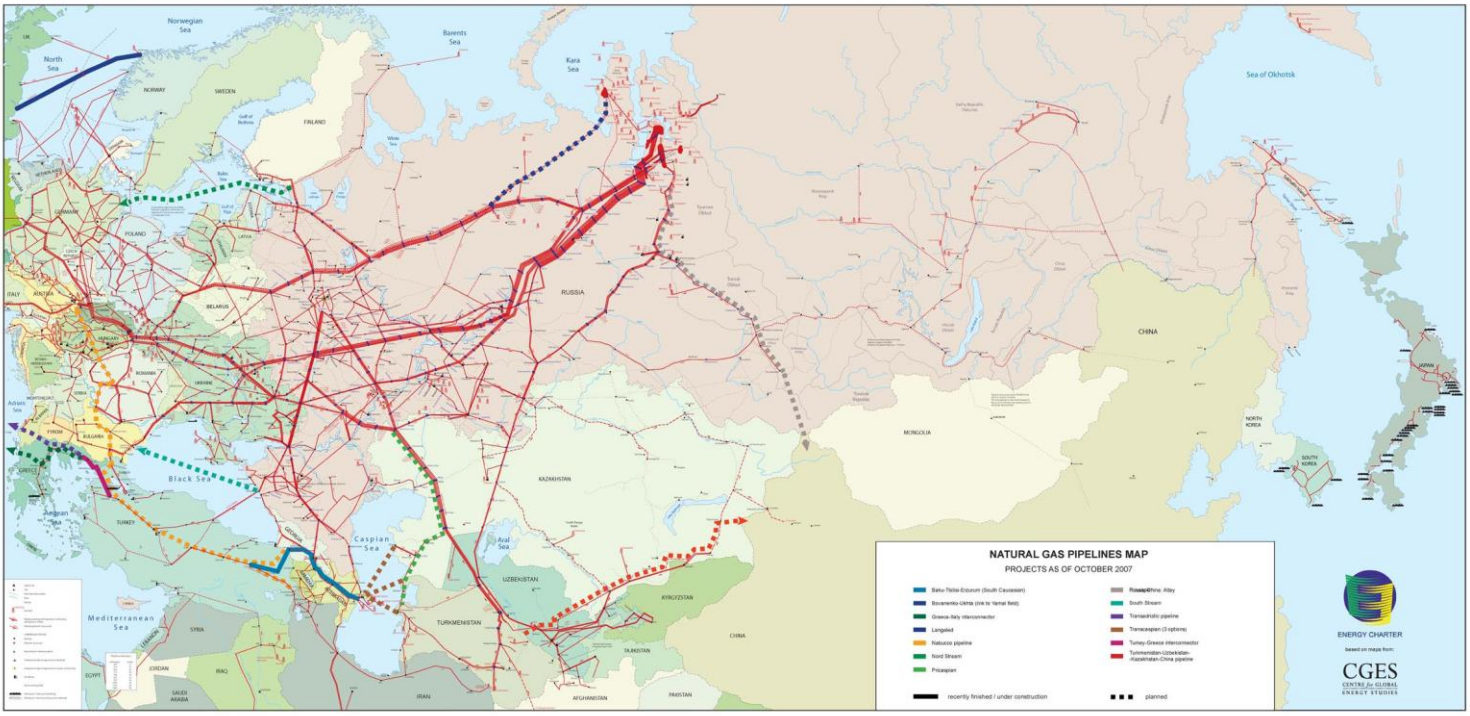
http://www.iea.org/publications/freepublications/publication/2013_Turkey_Country_Chapterfinal_with_last_page.pdf, pp 17



Source: Gazprom



Source: Energy Charter Treat

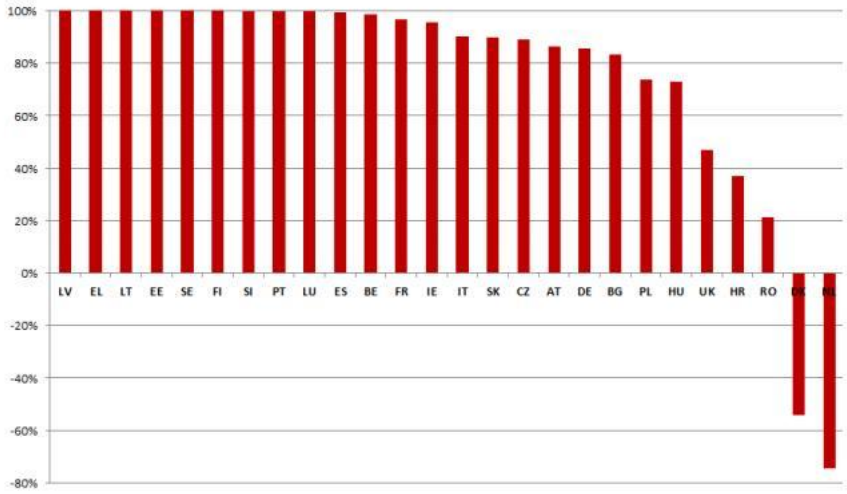
II. **Tables**

TABLE 6-1. Energy Security: Elements, Components, and Potential Threats

Elements	*Components*	*Potential threats*
Availability	Physical endowment of producer-countries	Exhaustion of reserves that can be extracted cost effectively
	Ability of producers, transit countries, and consumers to agree on terms of trade	Limits on development opportunities (such as resource-nationalist policies and state-to-state contracts)
	Technological solutions for production, transportation, conversion, storage, and distribution	Problems in siting infrastructure—for example, the "not in my back yard" (NIMBY) syndrome
	Capital investment	Financial, legal, regulatory, or policy environments that are not conducive to sustained investment
	Viable legal and regulatory structures	
	Compliance with environmental and other regulatory requirements	
Reliability	Robust, diversified energy value chain	Failure of energy systems due to severe weather, earthquake, and so forth
	Adequate reserve capacity for entire value chain	Failure due to poor maintenance or underinvestment
	Short- and long-term protection from terrorist attacks, extreme weather, and political interruptions	Attack (or threat of attack) by military forces or terrorist organizations
	Adequate information about functioning of the global energy market	Political interventions (such as embargoes and sanctions)
Affordability	Low price volatility	Exhaustion of reserves that can be extracted cost-effectively
	Transparent pricing	
	Realistic expectations for future price—affordability is not simply a matter of absolute cost of energy but also a matter of expected future price compared with current price	Excessive demand resulting from high energy intensity and/or failure to institute sound pricing and other desirable policies
	Prices that reflect full costs, as a matter of short-term incremental cost and over the full lifecycle	Failure to incorporate an environmental dimension into concepts of energy security, resulting in need for an even more urgent response to climate change or other threats to sustainability
Sustainability	Low emissions of greenhouse gas and other pollutants	Policy responses to narrow definition of energy security (for example, support for increased use of coal before carbon capture and storage technologies are commercialized)
	Minimal contribution to local, regional, or global threats to environmental quality	
	Protection of energy systems from impacts of a changing climate	Impacts of a changing climate (such as sea-level rise, storm surges, and severe weather events)

Table 1
Source: ELKIND Jonathan (Eds.*), Energy Security. Economics, Politics, Strategies & Implications*, Brookings Institution, Washington, 2010

Figure 33. Natural gas import dependency by Member State (intra+extra-EU imports), 2012, %



Source: Eurostat, energy. European Commission calculations

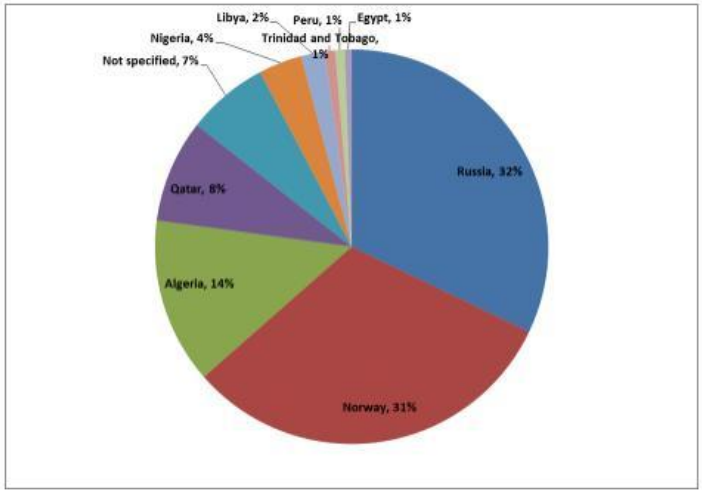
Table 2
Source: European Commission
http://ec.europa.eu/energy/doc/20140528_energy_security_study.pdf, pp 44

Table 2. Extra-EU imports of natural gas, by main trading partners (share in monetary value and in mass in 2013)

Partner	VALUE (Share %)	NET MASS (Share %)
Russia	41%	39%
Norway	32%	34%
Algeria	14%	13%
Qatar	7%	7%
Libya	2%	2%
Nigeria	2%	2%

Source: Eurostat, Comext

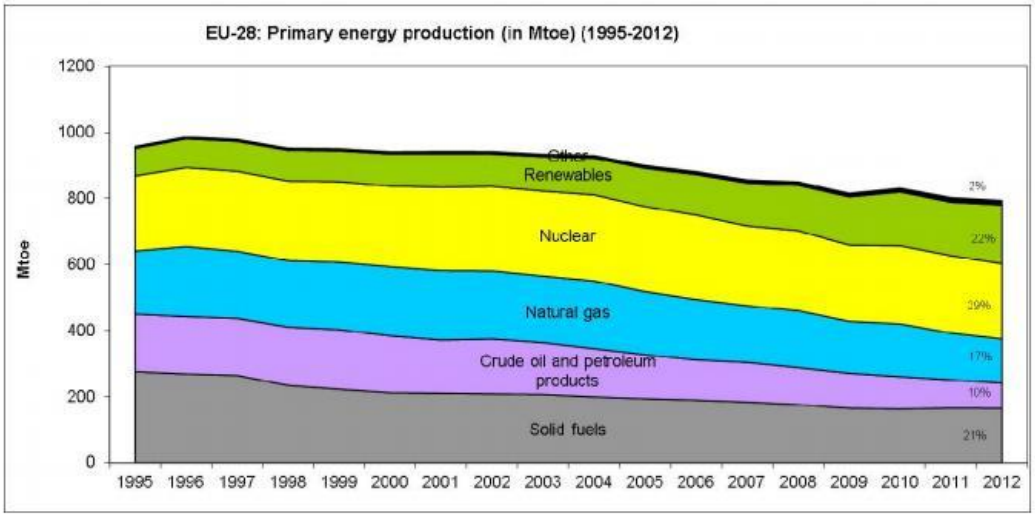
Figure 34. Extra-EU imports of natural gas, by main trading partners (share in energy terms in 2012)



Source: Eurostat, energy

Table 3
Source: European Commission
http://ec.europa.eu/energy/doc/20140528_energy_security_study.pdf, pp 45

Figure 8. EU-28 Primary energy production (in mtoe) (1995-2012)



Source: Eurostat (preliminary data for 2012)

Table 4
Source: European Commission
http://ec.europa.eu/energy/gas_electricity/doc/2014_iem_communication_annex1.pdf, pp 9