NATURAL GAS DIPLOMACY OF RUSSIA WITH THE EU AND TURKEY: POLITICAL AND SECURITY VERSUS ECONOMIC AND ENVIRONMENTAL DIMENSIONS

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NATURAL GAS DIPLOMACY OF RUSSIA WITH THE EU AND TURKEY: POLITICAL AND SECURITY VERSUS ECONOMIC AND ENVIRONMENTAL DIMENSIONS

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ABSTRACT

NATURAL GAS DIPLOMACY OF RUSSIA WITH THE EU AND TURKEY: POLITICAL AND SECURITY VERSUS ECONOMIC AND ENVIRONMENTAL DIMENSIONS

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Energy relations among Turkey, Russia and the EU are very complex. In terms of natural gas, Russia wishes to secure its strong supplier status on Europe and Turkey, while the EU strives for diversity in gas pipeline routes and supply security. On the other hand, Turkey aims to strengthen its status as a transit country, at least preferably as a ‘hub’, and also seeks for diverse gas supplies. In recent years, Turkey was able to overcome difficult and sensitive political situations with successful maneuvers using its unique geopolitical advantages; and acceded to consent Russia to use its Exclusive Economic Zone in the Black Sea where South Stream Natural Gas Pipeline would cross. However, the EU blocked the South Stream Project and Russia has an intention to divert the route of the project towards Turkey. Moreover, Turkey has succeeded in converting the Turkish Section of the Nabucco Project into the Trans-Anatolian Pipeline Project (TANAP) together with Azerbaijan, to contribute to the energy security and energy supply diversification policy of the EU in order to decrease the dependence on Russia by including Caspian and probably Middle Eastern (Iraq) natural gas reserves. TANAP will be extended to Italy from Greece via the Trans Adriatic Project (TAP).

Contrary to the arguments which emphasize the importance of financial, economic and environmental feasibility of these gas pipeline projects, this thesis argues that political and security dimensions play a more influential role in determining the prospects of the realization of the projects. Therefore, this thesis is based on the 'political neoclassical realist approach to international relations' framework.

Keywords: Natural gas, gas diplomacy, Turkey, Russia, the EU.

ÖZ

RUSYA’NIN AB VE TÜRKİYE İLE DOĞAL GAZ DİPLOMASİSİ: SİYASET VE GÜVENLİK BOYUTLARINA KARŞILIK EKONOMİK VE ÇEVRESEL BOYUTLAR

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Türkiye, Rusya ve AB arasındaki enerji ilişkileri oldukça karmaşıktır. Doğal gaz açısından Rusya; Avrupa ve Türkiye üzerinde güçlü olan tedarikçi konumunu korumak istemektedir; AB ise, doğalgaz boru hattı güzergâhlarında çeşitlilik ve tedarik güvencesi elde etme çabasındadır. Diğer yandan Türkiye, transit ülke, ya da tercihen bir ‘hub’ olarak konumunu güçlendirmeyi amaçlamaktadır ve çeşitli doğalgaz tedarik imkânına sahip olmak istemektedir. Son yıllarda Türkiye, eşsiz jeopolitik avantajlarını kullanmak suretiyle, başarılı manevralarla zorlu ve hassas politik sorunları aşmayı başarmış; ve Güney Akım Doğalgaz Boru Hattının geçeceği, Karadeniz’deki kendi Münhasır Ekonomik Bölgeyi Rusya’nın kullanmasına rıza göstermiştir. Ancak AB, Güney Akım Projesini engellemiştir ve Rusya, projenin güzergâhını Türkiye’ye çevirmek niyetindedir. Buna ek olarak Türkiye, Hazar Denizi ve muhtemelen Orta Doğu (Irak) doğalgaz rezervlerini dahil ederek Rusya’ya olan bağımlılığı azaltmak için AB’nin enerji güvenliği ve enerji tedariki çeşitlendirilmesi politikasına katkıda bulunmak amacıyla Nabucco Projesinin Türkiye Kesimini, Azerbaycan ile birlikte Trans Anadolu Boru Hattı Projesine (TANAP) dönüştürmeyi başarmıştır. TANAP, Trans Adriyatik Projesi (TAP) sayesinde, Yunanistan’dan İtalya’ya doğru uzanacaktır.

Bu projelerin mali, ekonomik ve çevresel fizibilitesinin önemini vurgulayan savların aksine bu tez, söz konusu doğal gaz boru hattı projelerin hayata geçirilme olasılıklarının belirlenmesinde siyaset ve güvenlik boyutlarının daha güçlü bir rol oynadığını savunmaktadır. Dolayısıyla bu tez, 'uluslararası ilişkilerde neoklasik realist politik yaklaşım' çerçevesine dayalıdır.

Anahtar Kelimeler: Doğal gaz, doğal gaz diplomasisi, Türkiye, Rusya, AB.

To My Beloved Father who always longed for me to become a “Doctor” and
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LIST OF ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
AGRI	Azerbaijan-Georgia-Romania Interconnector
bcm	billion cubic meters
BOO	Build-Own-Operate
BOT	Build-Operate-Transfer
BP	British Petroleum Company
BTC	Baku-Tbilisi-Ceyhan
BTE	Baku-Tbilisi-Erzurum
Btu	British thermal unit
CCS	Carbon Capture & Storage
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
CO_2	Carbon dioxide
CO_2eq	Carbon dioxide equivalent
COMECON	Council for Mutual Economic Assistance
E&P	Exploration and Production
EBRD	European Bank for Reconstruction and Development
EC	European Commission
EEA	European Environment Agency
EEZ	Exclusive Economic Zone
EGAF	European Gas Advocacy Forum
EIA	U.S. Energy Information Administration
ENS	European Nuclear Society
EPA	U.S. Environmental Protection Agency
EPDK	Turkish Energy Market Regulation Authority
ETS	Emission Trading System
EU	European Union
EU-27	European Union with 27 Member States
EU-28	European Union with 28 Member States
EWEA	European Wind Energy Association
FIT	Feed-in Tariff
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GW	Gigawatt
GWe	Gigawatt electrical
GWh	Gigawatt hour
GWp	Gigawatt photovoltaic

IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IFCCC	International Framework Convention on Climate Change
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IR	International Relations
IRR	Internal Rate of Return
ISIS	Islamic State of Iraq and Syria
ITGI	Interconnector Turkey-Greece-Italy
İBB	Istanbul Metropolitan Municipality
km	kilometers
ktoe	kilotons of oil equivalent
kWh	kilowatt hour
LNG	Liquefied Natural Gas
MENR	Turkish Ministry of Energy and Natural Resources
METU	Middle East Technical University
MSc	Master of Science
Mtoe	Million tons of oil equivalents
MW	Megawatt
MWe	Megawatt electrical
MWh	Megawatt hour
MWp	Megawatt photovoltaic
NASDAQ	National Association of Securities Dealers Automated Quotations
NATO	North Atlantic Treaty Organization
NGCCPP	Natural Gas Combined Cycle Power Plant
NGO	Non-governmental Organization
NPV	Net Present Value
OECD	Organization for Economic Cooperation and Development
PCA	Partnership Cooperation Agreement
PhD	Philosophy of Doctorate
PKK	Kurdistan Workers Party
PPP	Purchasing Power Parity Rate
PV	Photovoltaic
RE	Renewable Energy
RES	Renewable Energy Source(s)
SEEP	South East Europe Pipeline
SGC	Southern Gas Corridor
SSNG	South Stream Natural Gas pipeline
TANAP	Trans-Anatolian Pipeline Project
TAP	Trans Adriatic Project
TAPI	Turkmenistan-Afghanistan-Pakistan-India Pipeline
tcf	trillion cubic feet

tcm	trillion cubic meters
TMMOB	Türkiye Mimarlar ve Mühendisler Odası Birliği
toe	tons of oil equivalent
TPAO	Türkiye Petrolleri Anonim Ortaklığı
TPES	Total Primary Energy Supply
TU	tons of Uranium
TWh	Terawatt hour
U.A.E.	United Arab Emirates
UK	United Kingdom
UN	United Nations
UNDP	United National Development Program
UNFCCC	United Nations Framework Convention on Climate Change
U.S. / USA	United States / United States of America
USD	United States Dollars
USSR	Union of Soviet Socialist Republics
VOC	Volatile Organic Compound
VVER	Water-Water Energetic Reactor
WRI	World Resources Institute
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

Natural gas is one of the most popular energy resources in the world. Trends show that it will have an increasing volume and share in the whole energy consumption in the future with an expected increase of 50% worldwide (BP, 2015) and it is estimated that the globally proven natural gas reserves will suffice for the next 250 years (EGAF, 2011). The main consumption areas can be listed as residential, power generation, industrial and commercial. Compared with the other energy sources, despite being a fossil fuel, it is the one of the most environmentally friendly type of energy source as shown in Figure 1-1 below (Gasunie, 2010; EGAF, 2011). Therefore, it is classified as a ‘transition fuel’ from fossil fuels (mainly coal andoil) to renewable energy sources as a general worldwide energy policy. Natural gas, like oil, has three components: Upstream, mid-stream and downstream. Upstream includes the exploration of natural gas, drilling and production; and this component is called ‘Exploration and Production (E&P)’. Mid-stream includes the transportation of the gas from upstream to downstream by pipelines or with Liquefied Natural Gas (LNG) tankers. Downstream refers to the distribution of the gas from transmission pipelines or from LNG tanks or gas storage tanks to distribution systems for residential, industrial and commercial areas. In this study, the main focus is the midstream component of natural gas pipelines in terms of political, security, economic and environmental perspectives.

The pipelines that are located as a whole within the borders of a country evidently will not require any discussion among the states; however cross-boundary pipelines lead to significant discussions and diplomacy among the states. Many issues need to be negotiated among the relevant states and they use this opportunity as a ‘pursuit of interest’ and as a tool to ‘maximize the power’. In these circumstances, the supplier country, the transit country and the consumer country all struggle to gain the most in this power game.

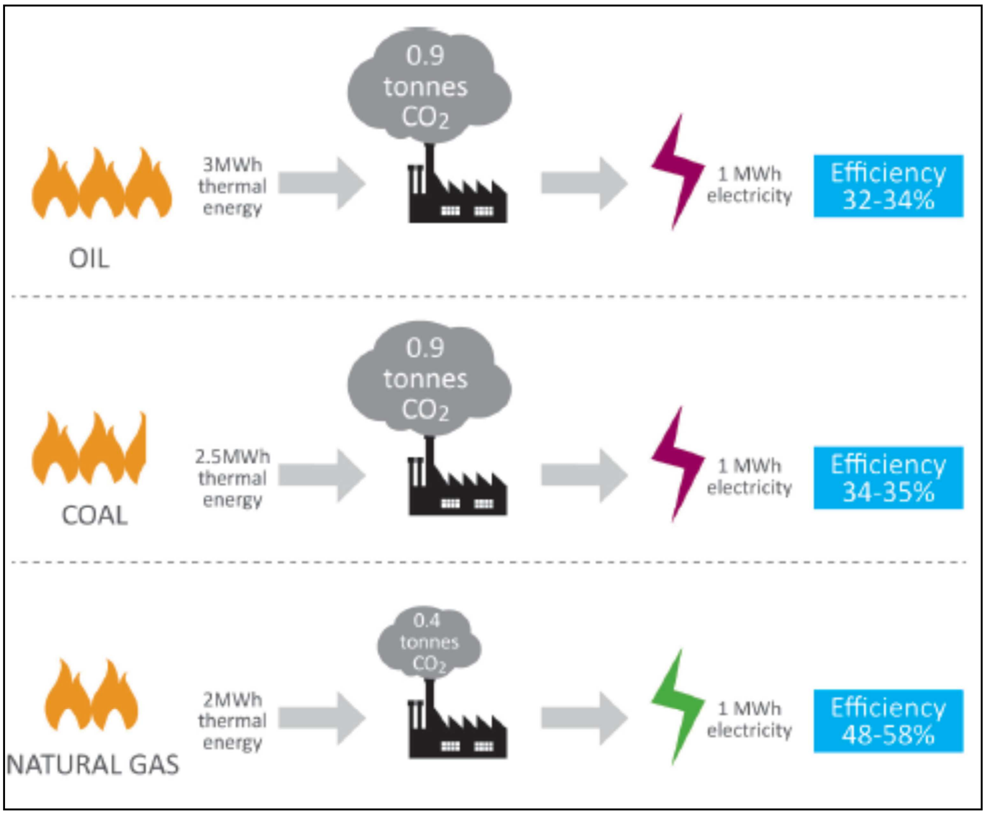
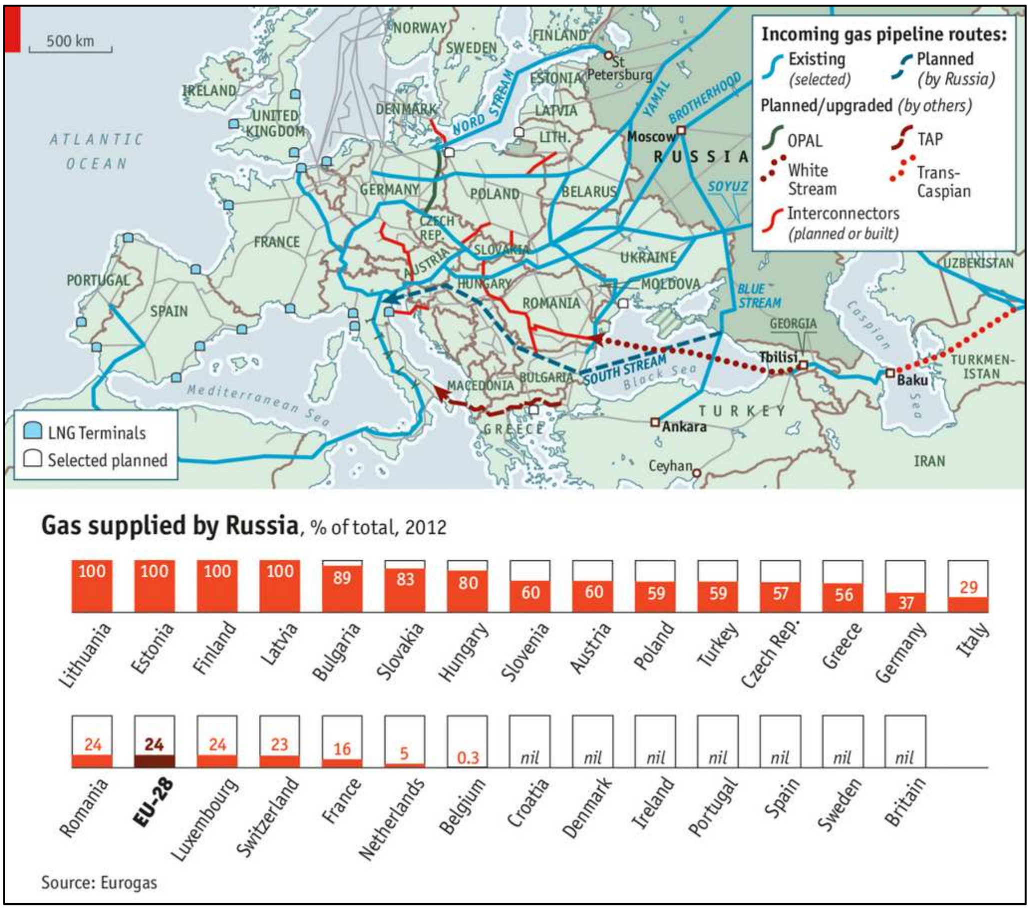


Figure 1-1. Environmental Performance Comparison of Power Plants Using Different Energy Sources (Gasunie, 2010; EGAF, 2011)

This thesis aims to clarify the aspect(s) which are deemed to be more dominant in making the final decision on the realization and implementation of natural gas pipeline projects. These aspects can be listed as security, politics/diplomacy, economical and environmental factors. In this thesis, it is argued that security-political aspects are much more influential compared with the economic and environmental aspects. In other words, political and security factors are claimed to be the main driving force for the realization of pipeline projects.

Russia holds the richest natural gas reserves with 51 tcm (trillion cubic meters), corresponding to approximately the one fourth of the world's total gas reserves (EIA, 2014a). Russia comes second in annual production capacity in the world just after the USA (Russia: 714 bcm (billion cubic meters), USA: 723 bcm) (Shadrina, 2014a). Russia is the main/top natural gas exporter to Europe and Asia, where Europe is the main consumer in the region (Westphal, 2014). As shown in Map 1-1, Russia is supplying 24% of whole EU's gas supply alone via pipelines between Russia and Europe (The Economist, 2014).



Map 1-1. Natural Gas Supply by Russia to the EU (The Economist, 2014)

Where does Turkey stand among this relation between Russia and Europe? As it is geographically located between Europe and Russia, Turkey is an important transit country. At the same time, Turkey is also a major consumer country for Russia since it purchases 58% of the total consumed natural gas from Russia via pipelines (EPDK, 2013). Therefore, energy, and more specifically natural gas relations among Turkey, Russia and Europe pose a vitally important matter, definitely worth to make a research on.

The first question being sought in this thesis is which of the following coupled aspects can best describe, or is the driving force behind the gas pipeline relations among Russia, the EU and Turkey: security/politics or economic/environmental? As can be seen throughout the thesis, the defended argument in this regard is that security and politics are the motives behind the mentioned diplomatic relations.

Naturally foreign policy, including the gas pipeline politics, of Russia is generally associated with **Realism** (Lynch, 2001; Wieclawski, 2011). Moreover, although Europe is considered to be liberalist in many domestic and foreign matters, the relationship of Europe with Russia is also deemed to tend towards realism as well (Llana, 2014; Szabo, 2014). This leads to the second question being sought: What is the most suitable political realism IR (International Relations) theory to describe this gas pipeline diplomacy among Russia-EU-Turkey? The answer proposed is ***Neoclassical Realism***, which argues the necessity of considering specific internal factors in addition of other factors while defining the foreign policy of states.

This research and the thesis is unique not only in terms of its interdisciplinary approach utilizing security, political, economic and environmental aspects to the natural gas diplomacy, but it also covers the natural gas pipelines issues among Russia, the EU and Turkey, with the inclusion of the relevant geopolitical concerns in the Afro-Eurasia region. Additionally, it analyses again a unique project duo as a case study: ‘South/Turkish Stream Natural Gas Pipeline Project(s)’ which can directly represent a good example for the natural gas pipeline projects among Russia, Turkey and the EU. These projects also support the main argument of this thesis by claiming that the political and security issues are much more influential, compared to economic and environmental issues, regarding the decision-making in the natural gas pipeline projects.

The researchers who study on ‘Pipeline Politics’, ‘Natural Gas Policy’, ‘Energy Relations among Russia, the EU and Turkey’, ‘Climate Policy’, ‘Effect of Natural Gas on Climate Policies’, and ‘Factors Affecting Gas Diplomacy’ can benefit from this study. Additionally, researchers and academics alike may consider this thesis as a unique interdisciplinary study covering politics, security, economics and environmental aspects all together.

1.1. Scope of the Thesis

This thesis represents a general framework whereby the focus is the gas pipeline diplomacy/politics and projects among Russia, the EU and Turkey, with the inclusion of economic factors, environmental impacts, and the security and political issues involved in the natural gas pipeline diplomacy. All these aspects have been factored into the analysis, discussion and assessment thereof. Although Russia, Europe (the EU) and Turkey are located at the focal point of this thesis, this study also briefly explains the positions of other major relevant players, such as the USA, China, India, Japan, Korea, North African states, Middle Eastern states and Caspian countries.

In Chapter 1, the thesis begins with the Scope of the Thesis, giving an introductory overview of all the chapters to paint a backdrop of the whole picture of this study. The research objectives and the questions, for which answers are sought within this thesis are given. Research Background and Literature Review provides the resources and background of the research. The argument claimed and defended in this thesis takes place at the Thesis Argument, followed by the Methodology used throughout the thesis.

In Chapter 2, the Theoretical Framework explains what realism as a political IR theory is, how this theory branch has developed, together with its types and how neoclassical realism in particular can be associated with the foreign diplomacy of Russia with the EU-Turkey regarding natural gas pipelines.

Chapter 3 provides general background information on Russia focusing on the energy potential, then moves on to elaborate and discusses the natural gas policy of Russia and how this policy affects the energy supply security of the EU and Turkey.

In Chapter 4, the economic and environmental dimensions having an influence on this thesis subject are delved into, starting with the inverse trend of nuclear capacity in the EU (decreasing) and Turkey (increasing). Germany is shown here as an example as to how it has paced up its nuclear phase-out decision in the aftermath of the 2011 Fukushima nuclear disaster in Japan. The natural gas production decrease and reliance of imports in the EU is analyzed with current and projected values. The next section is related to the unconventional gas (also called as shale gas) development within Europe, as well as the new ‘shale boom’ in the USA. Then, the 20-20-20 EC Directive – aiming a 20% increase in renewable energy use, 20% increase in energy efficiency and 20% decrease in the greenhouse gas emissions by 2020 for the whole EU – is reviewed together with the impacts of all these targets provided that they are met (or even exceeded in some cases) and how these affect the gas diplomacy of the EU with Russia. For example, does a 20% achievement in energy efficiency directly mean a 20 % decrease in the import of gas (in general or from Russia)? The recent Paris Agreement of December 2015 is also discussed in terms of the impacts thereof. The last section of the chapter before the concluding remarks is concerned with the discussion of LNG imports of the EU and Turkey. In all of these sections, it is sought whether these dimensions have any (positive or negative or null) effect on the gas import from Russia and how (and if) the thesis statement is being supported in light of the information gathered.

Chapter 5 represents more in depth discussion on the security and political considerations surrounding the natural gas pipeline relations among Russia-EU-Turkey, the power politics applied by Russia on the Balkan and Eastern Europe states including a concise historical review to provide a better understanding of today's events. Then the EU legislation regarding the Energy Reform Packages, more specifically the 3rd Energy Package, is discussed together with the impacts thereof on the gas trade with Russia. The next section of this chapter elaborates the attitudes of 3 specific transit countries (Ukraine, Belarus and Turkey) against Russia and the evolution of their relations concerning gas pipelines. The recently escalated Syrian crisis is also addressed in terms of its impact on the gas pipeline relationship of Russia with the EU-Turkey and on the advancement of the Turkish Stream and Akkuyu Nuclear Power Plant Project. The chapter ends with a discussion on how the EU-Russia relations in general, gas relations in particular, have been affected after the Ukraine Crisis, including the effects of the most recent Crimea issue.

Then in Chapter 6, the position of other players that have an interest in the region or impact on the gas relations of Russia-EU-Turkey are discussed. The first major player is of course the USA and the first section after the introduction to this chapter elaborates the actions and motives of the USA in this scope. The next section is related to the producer groups of North African states (Nigeria, Algeria, Egypt and Libya), Caspian countries (Turkmenistan, Kazakhstan, Uzbekistan and Azerbaijan) and the Middle Eastern countries (Iran, Iraq, Qatar and others). Here, the reserves, production capacities and relations of these countries with Russia and the EU are all discussed to see whether these producers can constitute a strong-enough competitor against Russian gas sales to the EU and Turkey. The recent discoveries and developments regarding the potential gas reserves in the Mediterranean that concern Israel, Egypt and Cyprus are also elaborated. The chapter also covers the Eastern Gas importers (China, India, Japan and Korea) and whether any existing or potential gas (pipeline) relations thereof with Russia can have any impact on the gas sales towards the EU.

Chapter 7 provides the details of the Case Study of the thesis which best exemplifies the thesis statement to explain and confirm that politics and security are the main driving forces to shape the (natural gas) pipeline projects. The defunct South Stream Gas Pipeline Project, and the newly planned Turkish Stream (also called 'TurkStream') project are analyzed in terms of political, security, economic and environmental aspects. The applicability of neoclassical realism in this case study is verified in the final section of this chapter.

Chapter 8 provides an overall discussion and conclusion, taking into account all the factors described and analyzed throughout the thesis, such as explaining the reasons why Russia is currently facing difficulties to export gas to the EU and the geopolitical importance of Turkey within the whole process, as well attempting to provide an answer to, or at least a plausible estimate for, the specific research questions posed in Section 1.2. Moreover this chapter underlines the uniqueness of the perspective provided by this thesis, the future expectations, recommendations, and the reasons why the EU needs to export gas – particularly from Russia.

1.2. Research Objectives and Research Questions

The political, security, economic and environmental aspects of the natural gas pipelines in the triangle of Russia, Europe (the EU) and Turkey has been analyzed in this study and a case study 'The South/Turkish Stream Natural Gas Pipeline Project(s)' has been presented. In line with a geopolitical context within an interdisciplinary research, the objectives in this study are to identify;

- the security, politics/diplomacy of the natural gas pipeline dynamics, economics and environmental issues of the natural gas pipelines among Russia, the EU and Turkey. This objective covers the below sub-objectives such as:
    - security of Russia and the West (the EU and the USA: NATO)

    - the supply security for Europe and strategies on the diversification of demand (Europe) and diversification of supply (Russia) side,
    - the EU’s gas security problem and Russia’s attitude to use gas as a political weapon,
    - the role, geopolitics and gas pipeline policies of Turkey between Russia and the EU.

- Whether neoclassical realism as a political IR theory is suitable in defining the natural gas pipeline diplomacy among Russia, the EU and Turkey.

These two main research objectives are satisfied with very comprehensive and in-depth research results and they satisfactorily justify the thesis statement in this study.

Moreover, specific research questions of this thesis can be listed as follows:

- Are the pipeline projects, particularly gas pipelines, based on political-security or economic-environmental decisions? Which one of these two criteria sets is predominant during the decision-making process?
- As a theoretical perspective, can ‘Neoclassical Realism’ explain the natural gas politics as theory of international relations?
- Does Turkey really have geopolitical advantages for the gas pipelines among Europe, Russia, Caspian zone, Middle East and Africa? If so, how can this advantage are used efficiently?
- If gas pipelines are built, would this delay the implementation of other projects such as LNG, alternative energy, conservation, etc.? If the Russian-controlled system proves to be the only implementable option for Europe, will producers (e.g. in Central Asia) opt to send more of their gas to China or India instead?

The body of the thesis is structured with a macro-level approach. Nevertheless, the Case Study of The South/Turkish Stream Natural Gas Pipeline Project will represent a project-level approach to confirm the results of the macro-level approach.

1.3. Research Background and Literature Review

All the knowledge gained throughout the professional careers have amounted to a significant experience regarding project development and management of energy (power, oil and gas) projects, regulatory and governmental relations, environmental and social impacts perspectives of the projects, as well as collecting information on the politics and the economical evaluation of these projects in order to be able to view the whole picture.

Academic research, review of the relevant academic articles, books and press, utilizing especially the METU and Amsterdam Libraries, have all been conducted and the utilized references are listed in the Bibliography chapter. Moreover, some of the most relevant theses, both in Master of Science (MSc) and Philosophy of Doctorate (PhD) degrees have been reviewed to gain an understanding in how to construct the backbone, to provide a coherent development of ideas, discuss the topics and to sum up all the findings in the form of a Conclusion chapter.

Some of the main periodicals/journals utilized in this research were ‘Energy Policy’, ‘International Journal of Energy Economics and Policy’, ‘Energy Economics’, ‘Contemporary Security Policy’ and ‘Renewable and Sustainable Energy Reviews’.

Moreover, as usual, internet is one of the major sources of the information especially to follow the most recent press announcements and the news regarding the natural gas pipelines and diplomacy among Europe, Turkey and Russia.

Mostly primary data were used in this thesis where applicable, in order to provide an original analysis and to contribute more information by the thesis. However, when primary data were unavailable or inaccessible, secondary data were also utilized to ensure that the quantitative foundation of the findings is not left unsupported.

1.4. Thesis Argument

The thesis argument in this study is that security and politics, mostly in unison, are the main driving force(s) for the trans-boundary gas pipeline projects, especially for the gas pipeline projects among Russia-Turkey-EU, and that these two dimensions prevail over economic or environmental aspects of natural gas pipeline projects. Furthermore, it is argued here that realism, and more specifically neoclassical realism, is the political International Relations theory that best describes the recent relations of Russia with the EU and Turkey regarding gas pipeline transport.

1.5. Methodology

Descriptive Analysis was utilized for providing the background information in this thesis for the political, security, economic and environmental aspects of the (gas) pipeline projects and detailed discussions have been conducted within these descriptive analysis. Within this scope, journal articles, books and reports were used to provide a perspective for the topics discussed in this thesis and it was tried to present both the defending and opposing arguments regarding the thesis statement to give an objective view as much as possible. Since this thesis subject contains very current topics (such as the Russian aircraft being shot down by Turkey in November 2015, Paris Summit in December 2015), and the publication of a book or an article takes at least a few months; trustworthy newspaper articles and reliable web information were also utilized in order to provide a very up-to-date thesis content with the most recent developments.

Moreover, **Quantitative Method** was used to provide the data in a more visual form, rather than a text-only format, with numeric data, comparative and summary tables, graphs, pie charts, projections, maps, etc. to justify the thesis statement with strong evidence.

And, finally, **Case Study** method was used to present the details, history and background information on the South Stream and Turkish Stream projects, providing the political and security dimensions, together with economic and environmental dimensions thereof to reinforce the thesis argument with a recent and related case study example.

CHAPTER 2

THEORETICAL FRAMEWORK

2.1. Introduction

Following an overall introduction to the thesis, putting forth the research objectives and questions, thesis scope, main argument and methodology; the first action required is to lay the foundation of the IR theory of Realism, which is commonly accepted as the international policy approach of Russia. The forefathers of this IR theory need to be briefly discussed here to portray the evolution of realism within itself and which realist theory has come to be perceived as the dominant international policy approach of Russia, the EU and Turkey.

However, realism has many sub-categories that are utilized to describe small intricacies differentiating the realist approach of various states or to combine realism with other political IR theories, such as liberal realism, constructivist realism, neorealism, neoclassical realism, etc. This thesis argues that the best type of realism as a foreign IR policy to describe the gas pipeline politics among the triad of Russia-EU-Turkey is 'neoclassical realism'. Thus, the next step in this chapter concerns the detailed description and discrimination of neoclassical realism, followed by the discussion on the applicability of this type of realism for this thesis as a whole.

2.2. Relevant International Relations Theory for the Thesis Subject

In the discipline of International Relations, 'security' issue is assessed as 'high politics' (Merlingen, 2011). This means that it is the most important issue in the discipline and accordingly, in diplomacy. Even as individuals, our first priority and the most important concern is a 'secure' environment to survive. Although energy issues were formerly not classified as 'high politics', it is perceived as in this class in the recent years (Eikeland, 2011). In other words, international energy relations can be classified as 'high politics' and evaluated within 'security' issues rather than low politics such as economics, environmental or other issues.

In order to analyze energy relations among states, not only security issues – or in general, political issues – but also economic and environmental issues are interrelated and sometimes it is not easy to differentiate these issues from each other. Thus, these items are deemed to form a type of 'complex interdependence'. As a general tradition, economic and political ('political economy') issues are assessed together (Gilpin, 1987). This approach is rather expected and probably a very common method in the IR discipline. On the other hand, as expressed above, energy politics can be assessed as high politics and as a state security, it can be considered as apart from economy due to two major reasons. First one is the direct reason: Energy resources may be the main target of other states in scarcity of energy resources for supply security and that may cause the latter to attack the states abounding in energy resources in order to gain access thereto. For example in recent times, both Iraqi Wars (1991 and 2003), according to some scholars (Miller, 2003) and reporters (Juhasz, 2013), have been started to gain access to the oil and gas resources in Iraq and this is the most important reason of the U.S. invasion. Secondly, there is the indirect reason: Inadequacy of energy supply will lead to direct security (and political) weakness (and also decrease in the living, i.e. economic, standards). As a result, the approach where economy and politics/security are handled separately seems more relevant to this thesis, considering the fact that the position and importance of energy security in the international political arena is on the rise and classification thereof as 'high politics' is much more proper.

In this thesis subject, it is aimed to classify and compare the major factors of energy politics (in this situation; ‘natural gas diplomacy’), i.e., political and security versus economic and environmental dimensions. As a proper PhD thesis, a strong theoretical framework needs to be set up to analyze and/or explain how the gas pipeline diplomacy works. As the term ‘politics’ is a perfect match for the expression ‘struggle for power’, it can be argued that a broader approached **Realism** can explain the gas pipeline diplomacy among Russia, Europe (EU) and Turkey properly. Since there are many types of realist approaches, first a general outlook of the development of realist approaches will be given and then the type of Realism that can best describe our issue at hand will be selected.

As an ‘International Relations Theory’, Realism is the one of the major theories of IR since the conception of the discipline. It argues that the ‘States’ are the main actors in the world politics (Jackson and Sorensen, 2007). Realism argues that the sovereign states are the major actors in an international anarchic system where states are unitary actors without an authority above them and the behaviors thereof are based on the ‘human nature’, which is assumed to be essentially ‘bad’. States act accordingly, as looking for ‘struggle for power’, in a ‘selfish’ mode and with ‘limited cooperation with other states (only where the benefit of the State outweighs the benefit of other state(s))’. Realism argues that this is ahistorical and was not different in the past, still the same now and the future will not change either as human nature is assumed more-or-less constant throughout time. It is based on three “S” elements as described shortly below: Statism, Survival and Self-help (Çiçek, 2004):

Statism: States are the main political actors in the anarchic international system.
Survival: The first priority of a state is to ‘survive’ in this system and thus, the struggle for power is the main aim of the self-indulged states in order to survive.
Self-help: States are responsible for their security to survive and cannot rely on other state(s) for security issues (Çiçek, 2004).

Realists define the international system as ‘anarchic’, which means there is hierarchy or no central authority (Waltz, 1979). In this system, state power is the key factor utilized by the states to defend themselves and survive. ‘Power’ may be in the form of military, economic and/or diplomatic which mainly determine the international politics among great powers. As Mearsheimer (1994) suggests, there are four assumptions held by Realists:

1. Survival is the ultimate goal of every state and security is their first priority. ‘Self help’ is obligatory, thus every state has to provide its own security and cannot rely on the other states in this regard.
2. States are rational actors and act to maximize their existence.
3. States have military capacity but they cannot know the intention of other states. The international system is dangerous and unpredictable in terms of aggression.
4. The international system is shaped by the actions of the Great Powers where stories and games are realized by them.

Realists can be divided into two main approaches: First group is Offensive Realism who are aggressive, look for more power to survive, try to maximize power (i.e. “power maximizers”) and mainly seek for the expansion of the controlled territory. Hegemony is the ultimate aim to pursue – not that it is the ‘good’ way but the only way to ensure survival. On the other hand, domination is not a virtuous strategy to survive and also this may bring significant extra load (e.g., military, economic, etc.) for the state. Therefore, Defensive Realists put more emphasis on stability; which is the ‘balance of power’ (“security maximizers”). They argue that their excessively power-driven acts might be punishable by the system in general. ‘Polarity’, is a key concept for the Realists and can be defined as the distribution of the power among Great Powers (Mearsheimer, 2001).

Other principles of Realism can be briefly listed as below (Korab-Karpowicz, 2013; Miller, 2014):

- There is no authority in the international system therefore bad behavior cannot be punished.
- Morality is very unacceptable among the states and may bring security risks. Statesmen may have moral values but these values should not lead them to act accordingly.
- International organizations and international law have no effect on the states, unless states accept them.

Furthermore, another duality related to power for Realists is the Relative Power vs. Absolute Power (Slaughter, 2011). Absolute Power approach is only concerned with the absolute amount of power held by a state and strives to achieve the most, or as much as possible; thus there is no comparison among the states. In Relative Power; assuming a situation in which two states conclude a trade or military agreement, where the economy of one state benefits more than the other's economy, the latter (in other words, the 'weaker state') should remain vigilant and skeptical towards the former (in other words, the 'stronger state') since the stronger state has gained a relative upper hand compared to the weaker state and can still could attack the weaker state. Thus, it is not merely important as to how much power a state has; but it must also be measured in the context of how powerful another state is.

As an IR theory, Realism contains several approaches, and especially the twentieth-century classical realism, is gradually being replaced by neorealism where a more scientific approach is adopted. However, to gain a better perspective, a few paragraphs are needed to look into the origins of Realism which is deemed to be founded mainly by Thucydides, Machiavelli and Hobbes.

Thucydides (460–411 B.C.) was an Athenian historian who considered that politics encompassed moral issues and norms of justice, which can be, and in fact needs to be, utilized to guide the power relations among the states in order restrain the uncontrolled 'hunger' for power. His realism includes traditional ethics but does not overlook moral issues either. He can more or less be compared to Hans Morgenthau, Raymond Aron, and other 20th century classical realists (Donnelly, 2000).

The Italian philosopher Niccolo **Machiavelli** (1469–1527) had an innovative approach to IR, criticizing the proximity of widely accepted moral traditions to politics. In other words, Machiavellianism considers moral and immoral values as mere tools on the path to success and power, whereas a “higher” morality needs to be adopted in power politics. This amoral, or rather immoral, perspective became more and more prevalent in the Western politics after him, and the proverb “the end justifies the means” became a political view, overlooking any ‘evil’ actions being deemed as legitimate in attaining the end-target, which is ‘power’. The influence of this thinking can be observed in the bloodlust wars and battles of modern Europe disregarding justice norms and creating a socially-disrupting dual ethics concept between personal and societal ethics (Korab-Karpowicz, 2013).

The English philosopher Thomas **Hobbes** (1588–1683) claims than human beings, as individuals rather than together as a society, live with “a perpetual and restless desire of power after power, that ceases only in death” (Hobbes and Hay, 1999). He is considered to lay the foundations of many IR realist conceptions, suggesting that states are mainly concerned with expanding their dominance over their weaker neighbors. Especially his following arguments have paved the route to the current neorealism:

- Mankind can simplistically be described as egotistic;
- International arena can be seen as an anarchy-driven individualistic environment where “war as is of every man against every man” (Hobbes and Hay, 1999). Since there is no ‘government’ in nature, no restrictions apply on any behavior of the individual in its endless strife for acquisition, gains and power.

- The power-struggle instinct of men laying the foundation of politics can be rationalized and scientifically studied.

The **Twentieth Century Classical Realism** emerged with the idealist IR perspective prevailing in the aftermath of the World War I. This idealist approach, however, was started to be criticized even by the 1930s by Reinhold Niebuhr and then by E. H. Carr. Several “classical” realists such as John H. Herz, Hans Morgenthau, George Kennan, and Raymond Aron in the post-war era influenced the IR discipline.

Edward Hallett **Carr** (1892-1982) claims that the idealists are utopians and criticizes their senseless belief in reason, harmony and moral righteousness, which, according to him, definitely do not form the founding columns of state politics in real life (Carr, 2001; Korab-Karpowicz, 2013). He argues that there are no “universal values/interests”, and the ones talking about such concepts are actually referring to the interests of their own, simply declaring that “what is best for them is the best for all”. Thus, the world is power politics arena with interests of groups or individuals , leading to a universal conflict of interests driven by power. Similar to Hobbes, Carr sees morality as a product molded and shaped by the ruling power’s legal system imposed on other states and defends realism as offering the bare truth: “the naked struggle for power … makes any kind of international society impossible” (Carr, 2001).

Hans **Morgenthau** (1904-1980) was another realist influenced by Hobbes, who emphasized the effect of the insatiable lust of men for power and dominance as a driving force in the international conflicts. He systematized IR realism approach under six principles (Morgenthau, 1954):

1- Despite his opposition against the scientific approach, Morgenthau states that realism is based on an objective code rooted in the “unchanging human nature”
2- Political leaders act according to their “mainly power-driven” interests

3- The interest of power can be associated with many items depending on the circumstances
4- In terms of the relationship among realism and ethics, Morgenthau claims that although the realists acknowledge the moral influences of their political actions, they are also aware of the frequent conflicting positions of morality and successful political attempts and thus they tend to apply some kind of filter to act with a level of prudence.
5- When this prudence is applied, the state can be able to pursue its own interests while respecting the interests of the other states.
6- As long as power is accepted as the concept defining politics, politics can be deemed as an autonomous sphere that cannot be surpressed to ethics, nevertheless ethics still forms a part thereof.

A final note to be mentioned here is that, although Carr and Morgenthau mostly focus on international relations, their classical realism concepts do apply to domestic politics as well.

Following Carr and Morgenthau, the 1950s and 1960s witnessed the challenge posed by several scholars against classical realism (Brown and Ainley, 2005), by aiming to bring about a more scientific approach into the study of international politics. The realists based their arguments placing the states as the key actors and core in the IR politics. However, several international groups, multinational corporations and NGOs (non-governmental organizations) started to surface in the arena during the regression of the Cold War in the 1970s, which brought back neoliberalism (pluralism). This new trend established a notion, known as “complex interdependence”, within the bigger picture of global politics. Then the 1980s transformed the classical realism into a new trend in the IR – the **Neorealism** or Structural Realism mainly based on scientific approach.

Kenneth Waltz was among the eminent realist responders challenging the liberalists and he sought to repair some defects in the classical realism put forth by Morgenthau with more of a scientific approach, leading to the formation of neorealism. As opposed to Morgenthau who bases his conceptions on mere human nature and the instinctive lust for power, Waltz resorted to formulate his theory based on microeconomics, creating an analogy between companies and states, having the common denominator of the “will to survive” (Waltz, 1979). Although the neorealist approach of Waltz provides an explanation as to why states with differing ideologies and governmental structures tend to behave similarly, the major drawback is that it is not applicable to the domestic politics. Another aspect of his approach is that he does acknowledge the existence of non-state actors but prefers to consider them as insignificant (Guzzini, 1998). In short, neorealism defends that the foundation principle of IR is anarchy; the states can intermingle based on the necessities of self-help but this does not necessarily lead to cooperation owing to the insecurities inherent to the states and the fear of establishing a dependence on another state (Waltz, 1979).

The type of realism that is considered as a theory that can best explain the Russia-EU-Turkey gas pipeline diplomacy (Valeriu 2009; O’Donoghue, 2011; Wieclawski, 2011) and elaborated below in Section 2.3, is **Neoclassical Realism.** It has been first used by Gideon Rose in an article back in 1998, and is considered to “update and systematize” specific aspects of classical realism. It claims that the foreign policy of a state is guided with its relative power capabilities within the international arena, but that the effect of such capabilities on the foreign policy is rather indirect and complicated, with many variables involved therein (Kitchen, 2010).

2.3. Selected Relevant Theory: Neoclassical Realism

The word ‘politics’ is a perfect match for the expression ‘struggle for power’. In this study, the aim is to argue that ‘**Neoclassical Realism**’ is the best matching theory of international relations for the natural gas pipeline politics of Russia with the EU and Turkey. Thus, first of all Neoclassical Realism will be described in general in the following paragraphs, followed by the Russian foreign policy and gas policy being described in the framework of Neoclassical Realism.

Within the context of neorealism coined in by Waltz as explained in Section 2.2, some ties with the conventional (classical) realism were severed. However, dominated by the assumption of 'systemic determinacy', neorealism seems to oversee certain 'domestic-level variables' that should also be factored in while describing the foreign policy of a state (Omar, 2013). Thus, more and more academics (Wohlforth, 1993; Zakaria, 1998; Schweller, 2004) have commenced to intermingle systemic and domestic-level variables. In other words, neoclassical realism takes on to "open the black-box of the state" and describe the foreign policy of a specific state rather than establishing a generalized, one-size-fits-all theory (Baylis *et al*, 2008).

The best example to such a domestic-level variable is the statesmen and their perception of power (Zakaria, 1998). For example during the Cold War, the USA and the USSR had differing perceptions of their capabilities, and thus responded to the situation in differing manners (Wohlforth, 1993): This actually contradicts with neorealism which states that 'units with a similar position in the system would react the same way to systemic pressures' (Waltz, 2000). On the other hand, neoclassical realism also takes into account other variables such as the aspirations and interests of the states (Schweller, 2004), ideology, culture and economics (Omar, 2013), as well as society-government relations. Neoclassical realism can be considered at the midpoint of a line with traditional realism theories at one end and liberalism, neo-institutionalism and constructivism on the other end (Romanova, 2012). In fact, neoclassical realism rejects that security is the mere target of the states (Taliaferro, 2006), and argues that the '*states attempt to use their power to direct the international system towards their own goals and preferences*' (Rose, 1998). Thus, neoclassic realists need to examine the history of the state before reaching a conclusion on the foreign policy analysis.

When we come to Russia, it can be seen that the evolving domestic scene and the interactions among state institutions definitely have a deep influence on the foreign policy thereof (Romanova, 2012). Back in the 1990s, during the initial stages of post-Soviet times, there were three trends observable in Russia: pluralism, Westernization and isolation which came as a reaction to the too-fast Westernization (Andrei and Pavel Tsygankov, 2005). The resultant choice of IR theory applicable to Russia was selected as neorealism owing to the strong power-driven state that did not pay much regard to the voices coming from within its nation, placing the state's interests above (ethical) values (Romanova, 2012). In fact, considering the first two terms of presidency of Vladimir Putin, the neorealist theory was still considered applicable with the unprecedented trust placed by the Russian people in Vladimir Putin, in spite of the small tensions developing within the nation's sectors owing to competition, rise in modernization and somewhat liberalistic opinions of the Economic Development and Trade Ministry (Trenin and Lo, 2005).

However, recently the neorealist approaches started to falter in explaining the contemporary and possible future Russian foreign policy applications. First of all, Russia seemed to be wavering in defining itself as a European/Western nation or a more isolated Eurasian nation (Kropatcheva, 2012). Secondly, Russian foreign policy has started to lean on both targets instead of only the former: the first target being 'focusing more on hard power security', which necessitates increased military and defense capabilities, and the second target being 'focusing more on soft power security aspects' such as economics, environment, etc. Nevertheless, these two sets of targets should not be considered as derogatory. Then, there are some indications showing that part of the society is not showing full support to Vladimir Putin's every move; thus the Russian state has started to display slower reactions to 'outside challenges'. A recent example is the street protests in State Duma regarding certain bills. Although the current opposition is seen mostly for domestic matters, it is foreseen that it will not be long before voices are started to be raised concerning the international position and orientation of Russia as well.

Thirdly, the energy sector, especially oil and gas, have commenced a new area of consolidation and a certain level of pluralism despite domination of Rosneft in the oil sector and Gazprom in the gas sector (Romanova, 2012).

As a result, neoclassical realism was started to be sought as the best option of IR realist theory that applies to Russia and especially its energy relations with the EU and Turkey. One reason for this was argued to be the weakening in the display of “crude military power” (Chikharev and Kosorukov, 2010). Another factor is the fluctuating weight given to fortifying political power and obtaining maximized economic benefits. Security is still visibly the most important element, and Russia accessing the World Trade Organization (WTO) in 2012 can be considered as a tendency for the former interest. On the other hand, it has been pointed out that, when the energy sector of Russia is concerned, it would be highly inaccurate to oversee the effects of the domestic determinants on the international politics (Wieclawski, 2011). These energy trade businesses, though still far from free market conditions, are becoming somewhat more liberal (Romanova and Pavlova, 2011). Russia works hard to gain higher profit from gas and oil sales, as well as export of nuclear technologies. In fact, it has been pointed out that sometimes Vladimir Putin is more concerned with the “oil and gas prices” as compared to “the number of warheads” in a particular state (Trenin, 2007).

Another aspect in neoclassic realism is the polarity concept. Some argue that the world is unipolar, with the U.S. directing the international arena, using the help of some multinational bodies such as NATO, G8 or even the EU (Bogaturov, 2001). The more popular assumption is multipolarity, where the states compete with each other to take over dominance. It can be said that the U.S. is “counterbalanced” by another state/bloc depending on the field (economy, military, geopolitics, etc.) (Primakov, 2001) or sometimes Russia becomes the pole with its domination in energy (gas, oil, etc.) reserves (Romanova and Pavlova, 2011).

In summary, many have argued their preference to use a neoclassical realist approach in trying to understand the actions of Russia towards the USA and the EU (Orban, 2008; O'Donoghue, 2011; Wieclawski, 2011; Varol, 2013). In fact, the attitude and strategies of Russia towards the CIS (Commonwealth of Independent States) after Vladimir Putin's presidency is also classified as a neoclassical realist approach (Valeriu, 2009).

2.4. Concluding Remarks

In this thesis, the "domestic-level variable" influencing the foreign energy (gas) policy of Russia towards the EU and Turkey in particular is no other than Gazprom itself. Gazprom is the monopolistic state-owned company that handles all the gas pipeline affairs of Russian gas in the international arena. In fact, when talking about the present and potential trans-boundary gas pipelines transmitting Russian gas, the subject of the sentences is mostly Gazprom, rather than Russia. This clearly shows the strong impact of Gazprom in directing the foreign IR gas pipeline diplomacy of Russia. The formation and the relevant influential status of Gazprom is discussed in detail at Section 3.2.

After the selection of the most proper political IR theory to be used in this thesis, the evident next step is to discuss the natural gas (pipeline) policies of Russia with the EU and Turkey to gain a better understanding on the applicability of the selected IR theory and also move on to the next argument of the thesis regarding the prevalence of security-politics dimensions over economy-environment dimensions in the mentioned policy of Russia with the EU and Turkey.

CHAPTER 3

NATURAL GAS AND RUSSIA

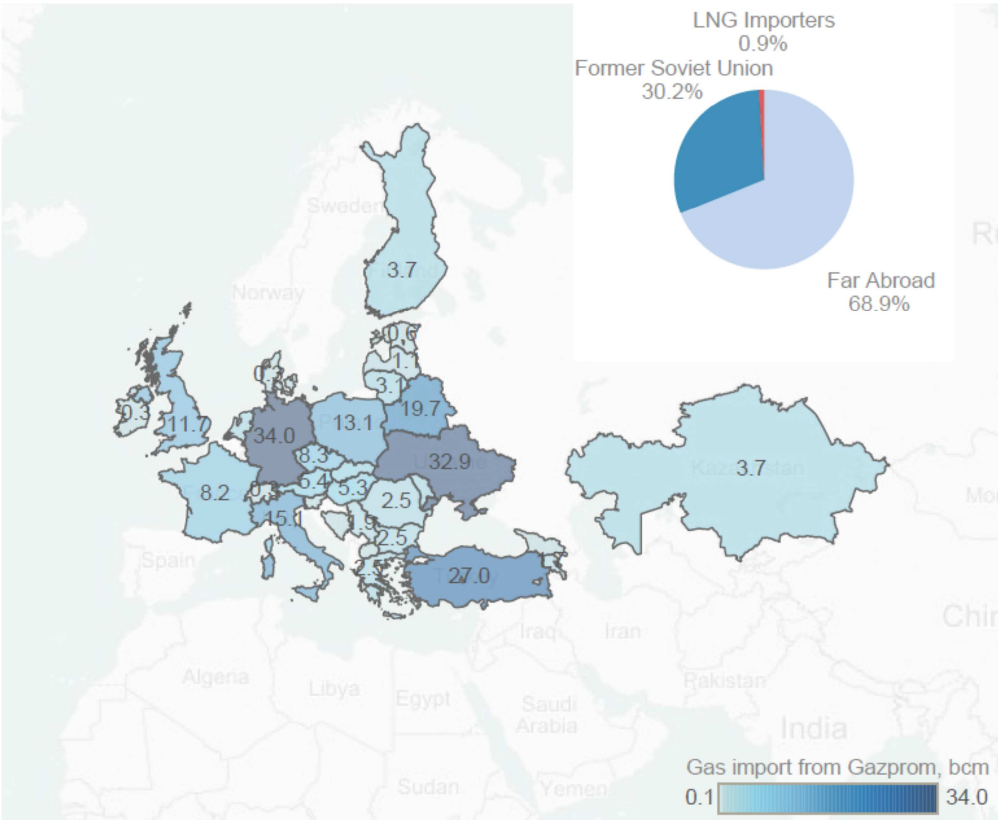
3.1. Introduction

Before elaborating the political, security, economic and environmental aspects surrounding the gas pipeline policies of Russia with the EU and Turkey, the first thing to do is to clearly define the current natural gas policy of Russia, as well as discuss the future plans and aspirations of Russia. While detailing this policy, the dominating activities of Russia throughout the former USSR states regarding natural gas are also briefly discussed.

It should be kept in mind that there are many current and planned gas pipelines that (plan to) transmit Russian gas to the EU and/or Turkey. Thus there is an obvious interdependency among these three entities which creates a security concern in the eyes of the EU, especially after the Ukrainian gas crises and the recent Crimea annexation. On the other hand, although security and diversification is located among the governmental policy goals, Turkey was striving to keep warmer relations with Russia. However, the recently escalated Syria Crisis brought some complications on this intention of Turkey as discussed in Section 5.6.

3.2. Natural Gas Policy of Russia

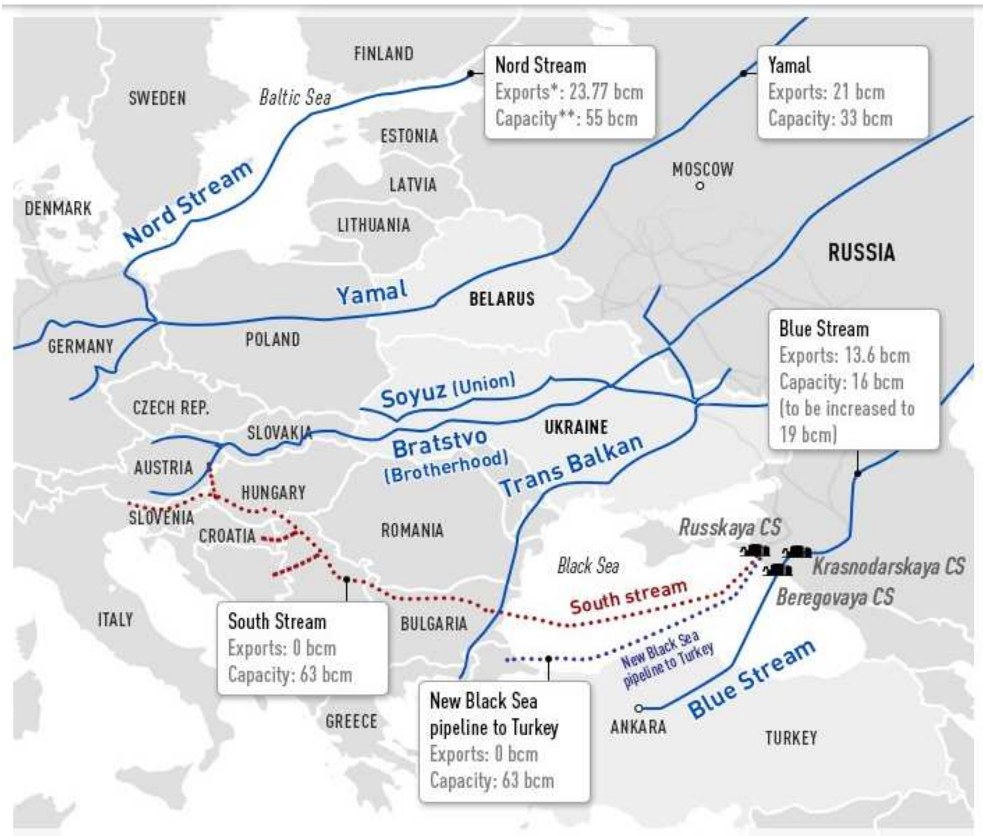
Russia can be considered as a vast and giant reserve of minerals and resources with nickel and natural gas (Rank no. 1), oil (Rank no. 2 after Saudi Arabia), coal (Rank no. 3 after USA and China), gold (Rank no. 3 after South Africa and USA), and many others (Putin, 1997; EIA, 2014a). Oil and gas exports corresponded to over 60% of the total exports and 25% of Russian economic activity in 2007 and these figures rose up to over 70% and 52%, respectively in 2012 (Kuchins *et al*, 2008; EIA, 2014a). The proven reserves of Russia are estimated to be 47,800-48,800 bcm (CIA, 2014, Opec Library, 2014). The gas production of Russia was 579 bcm in 2014 (BP, 2015b), which is projected to increase up to 750 bcm according to IEA's World Energy Outlook 2010 (IEA, 2010) and even to 885-940 bcm by 2030 (Ministry of Energy of the Russian Federation, 2010; Grama, 2012), while Russia's dependence on gas is expected to increase up to 80% (Hober, 2009).



Map 3-1. Russian Gas Exports in 2012 (Russian Sphinx, 2014)

Currently Russia exports pipeline natural gas only to Europe, Turkey and the former Soviet Union states. The gas exports of Russia in 2012 are shown in the map above (Map 3-1) (Russian Sphinx, 2014). The total exports in 2012 add up to about 220 bcm, and the first in line is Germany at 15.5%, followed by Ukraine (15.0%), Turkey (12.3%), Belarus (9.0%) and Italy (6.9%). In 2013, the total gas exports to the EU and Turkey was at 134.44 bcm and 26.69 bcm, respectively (Gazprom, 2015a).

Russia exports natural gas mainly (99%) by pipelines. As shown in Map 3-2, the major current, planned and cancelled pipelines towards Europe and Turkey, destinations, commissioning dates and capacities are as follows (Gazprom, 2015b):



Map 3-2. Current and Cancelled Gas Pipelines to Europe (Gazprom, 2015b)

- **Blue Stream:** Turkey, commissioned in 2003 (16 bcm/year)
- **Bratstvo (Brotherhood) Pipeline Group:** please see Map 3-2 for the route; commissioned in 1967 (over 100 bcm/year)

- **Nordstream:** through the Baltic Sea to Germany; 2 parallel lines, commissioned in 2011-2012 (55 bcm/year)
- **S**outh Stream (cancelled): please see Map 3-2 for the route (63 bcm/year)
- *Turkish Stream (planned):* Turkey; replacement of South Stream (decreased from 63 to 31.5 bcm/year)
- **Yamal-Europe Pipeline:** Belarus, Poland, Germany; reached its design capacity of 33 bcm/year in 2006.
- *Yamal-Europe 2 (planned):* from Belarus border to Poland and Slovakia (minimum 15 bcm/year)

Russia's energy policy, as with any other country, is driven by its national interests which are physical security, autonomy, economic well-being and collective self-esteem (Sharples, 2011). Russia's energy policy can be better understood when Vladimir Putin's dissertation (1997) is examined. In this thesis titled "Mineral and Raw Materials Resources and the Development Strategy for the Russian Economy", Vladimir Putin clearly emphasizes the importance of raw material and mineral resources in accelerating the economic growth rate and strengthening the political force of Russia. Moreover, the same dissertation can be said to foresee the reinforcement of Gazprom since there is a mention of "creation of large financial-industrial corporation(s) which span several industries on the basis of resource-extracting enterprises, which could compete as equals with the transnational corporations of the West". Vladimir Putin also mentions how these resources can form the basis of the defensive strength of the country. This approach of Vladimir Putin to the international relations clearly shows how security and politics overweigh the economic and environmental dimensions, and how neoclassical realism is becoming embodied as the IR approach of Russia towards countries abroad, which are both supportive of our thesis argument(s).

The 2003 Energy Strategy of Russia, setting goals for 2020, has the form of a government decree and linguistically has a military structure, which again puts forth that energy policy is perceived by Russia as closely related to national security (Hober, 2009). Another document containing energy strategies of Russia, "The Concept of Long-term Socio-economic Development of the Russian Federation" was published in 2007 and it has four main vectors: 'innovation and energy efficiency, change in the structure and scale of energy production, development of a competitive market environment, and integration into the world energy system' (Ministry of Energy of the Russian Federation, 2010). This document also contains noteworthy shifts in export priorities (Kuchins *et al*, 2008). First of all, Russia aims to diversify its export markets (just like the EU aims to diversify its import markets) and extend towards non-EU markets. Oil exports to the Asian-Pacific Region are targeted to reach from 3% to 30% by 2020 with the share reaching the EU is estimated to decrease from 80% to 64%. In terms of gas exports, it is aimed to export 15% of total gas exports to the Asian-Pacific Region which currently is nil. These are highly ambitious plans with significant uncertainties surrounding them, including the necessity to build expensive infrastructures towards the South East region, development of Siberian oil and gas resources (Campaner, 2006). The ultimate target of Russia is to take its place among the worldwide top five economies (Kuchins *et al*, 2008).

These diversification targets of Russia do not seem to have a downside to threaten EU's energy security at present since the potential exports to the East would mostly utilize Eastern Siberian reserves (Western Siberian fields are used for the exports to the EU). Gazprom had hinted in 2006 the possible use of the Western Siberian fields for exports to China through the proposed Altai pipeline system (Campaner, 2006) however, this project's future is currently unknown (Siberian Times, 2015) as the relatively cheap shale gas in China is foreseen to change the expectation in the Asian markets (Paltsev, 2014). Nevertheless, Russia is also pursuing to increase LNG sales to Asia, which is projected to reach to minimum 150 bcm/year by 2030 (Shadrina, 2014a).

In Russia's Energy Strategy to 2030, declared in 2010 (Ministry of Energy of the Russian Federation, 2010), Russia puts forth its goal to reduce its heavy reliance of raw material exports and utilize its energy advantage to encourage investment in other sectors, paving the way to the diversification of economy (Sharples, 2014). Moreover, as innovation and energy efficiency component of the 2020 Strategy could not be fully met, the 2030 Strategy aims to achieve these goals, as well as putting the domestic needs and economy to the foreground. In this strategy, Russia clearly puts forth its goal to increase the imports from the CIS as a means of increasing its exports to Europe, as well as to the eastern direction (China, Japan, the Republic of Korea) (Ministry of Energy of the Russian Federation, 2010).

Russia currently follows a security-oriented and highly politicized approach in its energy policy, utilizing its energy reserves as a means to attaining its political grandeur (Nygren, 2008). Makarychev (2006) suggests that transparency is also needed as well for the benefit of external security since transparency brings about a level of predictability, without which there can be no security of energy supply.

Russia is perceived by the West as a threat to security as the former seems to use energy as a weapon to fortify its international stance (Stegen, 2011). Thus, the short (24-hour) interruption in the gas delivery to Europe as a result of the Russia-Ukraine gas dispute in 2006 heightened the alert status in Europe. According to Russia's view, Ukraine was stealing Russian gas and Russia simply did not fathom why Europe decided to side with Ukraine in this crisis. But it should not be forgotten that every coin has two sides and in the European way of thinking, the parties, especially neighbors, need to first try to resolve any differences with mutual negotiation rather than an abrupt closure of a pipeline, and any affected parties that are not part of this conflict – in this case the end customers being the EU – should also be consulted before resorting to such a stern act. As a result, this action of Russia made the EU question its relations with Russia hereafter (Perovic and Orttung, 2007). This tension between Russia and EU is elaborated under Sections 3.3 and 5.5.

In its natural gas policy, Russia plays aggressively, attempting and mostly securing controlling stakes in gas pipelines, buying gas from neighboring states to pay off the debts of the latter, ensuring that any exports, especially to Europe either passes from its own pipelines or through the pipelines it has a share in. Russia also acts offensively in many situations by cutting of or threatening to cut off energy supplies to the states that it has any economic or political issue with, thus using gas as a "tap weapon" (Nygren, 2008; Woehrel, 2009). It can be said that the earnings obtained from oil and gas exports in the recent decades ($14 billion in 1999 to $140 billion in 2006 just for oil) has made Russia more assertive towards the West and gave Russia the courage to venture into other markets as well (Perovic and Orttung, 2007).

Vladimir Putin has repeatedly made statements regarding the possible formation of a cartel among the world's the largest gas exporting countries, including Russia, Qatar and Iran. Although this idea is deemed as unrealistic and to the disadvantage of Russian economic interests by many energy experts, including some senior Russian officials, these announcements has added on to the already-accumulated uneasiness of Europe against Russia (Perovic and Orttung, 2007).

The gas giant of Russia, being **Gazprom,** was founded with the semi-privatization of the former Soviet Ministry of Gas during 1992-1995 (Quast and Locatelli, 1997; Sharples, 2011). In June 2006, Russian federal law allowed the exclusive right of Gazprom to export gas to Europe and consequently, blocked any efforts of the EU regarding competition in the Russian gas industry (Tsygankova, 2010). This in turn, fortified the opinions that Gazprom is not just a commercial company but a corporation that acts for the benefit of Russia since Russian state is an actual shareholder in Gazprom with 41% in the 90s, increasing up to 50.002% controlling interest since 2005 (Sharples, 2011). In fact, the domestic pricing strategy of Gazprom requires approval from the Russian Ministry of Economics (Quast and Locatelli, 1997). As stated section 2.4, the role of Gazprom in the transboundary gas pipelines clearly underlines the claim of this thesis as to how neo classical realism approach, as an International Relations theory, fits best in the scope of the gas pipeline relations of Russia with the EU and Turkey.

Within the domestic gas market of Russia, the main issue is the high amount of gas consumption, being the highest in the world (414.1 bcm in 2010) mostly owing to the extreme cold weather conditions somewhat throughout the year (Goodrich and Lanthemann, 2013). Thus one of the essential domestic gas policy targets of Russia is to replace gas with nuclear power or coal so that the remaining amount can be diverted to exports that have much higher profit as compared to domestic sales of gas (Perovic and Orttung, 2007). Although Gazprom holds the monopoly for the export of gas, there are domestic gas producers other than Gazprom, though they are currently relatively at a very low percentage (20%). However, these non-Gazprom gas producers, such as Novatek and Rosneft, have succeeded to double their share in the domestic market during 2000-2010 and are foreseen to reach a share of 25-30% by 2030 (Lunden *et al*, 2013).

In an analysis made to explore whether Russia would benefit in case other independent gas producers/traders in Russia were allowed to export gas to Europe (no domestic sales), it was suggested that such a model would decrease the Gazprom profits from export but could provide profits to both the domestic and foreign sales of Russia. In this model, the domestic consumers of Russia are to suffer the most due to part of their supply being sold to abroad countries and they would be getting less gas at higher price owing to liberalization (Tsygankova, 2010).

Gazprom exported 281 bcm of gas and sold 287 bcm in the Russian domestic market in 2008. The prices in the domestic market somewhat provides less profit for Gazprom and are actually subsidized with the profits from export business which are much higher thanks to its monopoly. In 2008, the gas prices for CIS &

Baltic state customers were 2.2 times higher than Russian domestic price and this figure was 4.7 for the EU (Sharples, 2011). Moreover, Gazprom enjoys lower taxes as compared to the oil producers (Aslund *et al*, 2010). In 2014, the sales of Gazprom to the domestic market was 217.2 bcm and exports corresponded to a total of 207.5 bcm showing a total decline but almost no change in terms of the near-equivalence of domestic-abroad gas sales volume (Gazprom, 2015) In short we can say that the implementation of the export policy of Russia is Gazprom itself (Sharples, 2011) which is a solid evidence of the applicability of neoclassical realism in the foreign gas pipeline diplomacy of Russia, painting a clear picture as to how an internal factor (Gazprom) of a state (Russia) can directly influence the relevant export policy.

Gazprom’s aim seems to be able to hold control of the whole supply chain: from production to transportation and distribution, establishing dependencies via constructing export pipelines, securing long-term contracts and worrying about filling the pipelines later. Gazprom CEO Alexei Miller’s expression is smart: “Gas will not be produced until it is sold” (Perovic and Orttung, 2007). It is worthwhile to mention that of the 178.6 bcm gas exports to the EU, more than 166 bcm was bound with long-term contracts and in 2020, the EU will still need to buy at least 125 bcm of gas or be ready to pay stern penalties to Russia (Beckman, 2014b).

Another aspect of Gazprom’s activities is the venture of gaining control over the gas pipeline infrastructure in Ukraine, Belarus and Moldova. In 2008, 80% of Russian gas exports to Europe were transited over **Ukraine** and 20% via Belarus (Nygren, 2008). In fact in April 2010, Vladimir Putin has proposed a merger between Gazprom and Naftogas of Ukraine (Sputnik News, 2010-04-30) however; Ukraine’s president has expressly said that this issue was not being considered (Sputnik News, 2011-09-03).

Following the 2007 Russia-Belarus energy dispute, Gazprom has agreed to purchase 50% share in Beltransgaz of **Belarus** (Gazprom, 2010). Beltransgaz also operates the Belarusian section Yamal-Europe pipeline.
In **Moldova**, Gazprom owns 50% share in Moldova Gaz SA (Sharples, 2011). Moldova transits 16 bcm per year of Russian gas corresponded to 7% of Russia's export to the EU in 2012 (Sobjak, 2013).

The natural gas producers in the Central Asia are dependent upon Russia for using the latter's vast pipeline system for exports to Europe. In fact, Gazprom and **Kazakhstan** have established joint ventures in developing two fields in Kazakhstan and in gas transport network. Moscow and Tashkent has signed a 15-year production-sharing contract at one **Uzbek** gas field (Shaklpakhty field) and Russia's Lukoil signed another 35-year long contract to work on Uzbekistan's Kandym gas field. The case of **Turkmenistan** is not much different: This state is also bound to Russia for its exports and Russia has become a partner in the transit of Turkmen gas. The difference in Turkmenistan is that this time, Turkmenistan used (more accurately, 'attempted to use' several times) its natural gas supplies (proven reserves at about 10,000 bcm as of 2013 (Opec Library, 2014)) as a weapon against Russia to try to avoid being abused by Russia who was aiming to buy the former's gas at lower prices (Nygren, 2008). Nevertheless, Russia has accomplished to guarantee an almost exclusive right to buy gas from Turkmenistan earlist until 2028 (Perovic and Orttung, 2007). All these accounts definitely show the political power Russia still has on them despite collapse of the former Soviet Union.

Russia is also considered to be using its energy resources as a foreign policy tool, as a "weapon", against some of the energy consumer CIS members and Central Asian states. (Again for the theoretical level, neoclassical realism is the best option to explain the relations here) For example, the ally-states of Russia like **Armenia** and **Kyrgyzstan** are being awarded with discounted prices whereas the other states like **Georgia**, with whom Russia has less-friendly relationships, are somewhat punished. **Tajikistan** has possible large gas reserves (Collins and White, 2013) and has signed a 25-year cooperation contract with Gazprom in 2003 for the development of new Tajik gas fields. Armenia is a problematic state in terms of energy deliveries due to the Azeri and Turkish export boycott due to the Nagorno-Karabakh war. Thus the oil and gas have to be transited via Georgia, which has no reserves on its own and unable to pay for the imported energy. Thus, Armenia, just like Tajikistan, had to sell electricity to Russia to partly resolve the problem. Armenia attempted to reduce its gas dependency to Russia by buying gas from Iran through a pipeline commissioned in 2007, but Russia also bought part of this pipeline to ensure that the leash on Armenia is not cut loose. Gazprom has also purchased the Georgian gas trunk line as pay back of a debt of Georgia to Russia. Georgia luckily is partially free of the Russian gas monopoly thanks to the commissioning of BTE and BTC pipelines importing gas from Azerbaijan. The situation of Kyrgyzstan is actually a bit graver since it is currently unable to pay its energy debts or deliveries. Thus, this state has resorted to sell its gold mines and hydroelectric power stations, as well as exploration rights for oil and gas to Russia (Nygren, 2008).

In short, Russia relies heavily on its mineral resources (oil and gas) in its energy policy and uses energy as a political and security-related “weapon”, using its own resources as well as the resources of the former Soviet Union states as “ammunition”. Europe is trying to free itself from the strong dependence on Russian gas with energy efficiency measures, increasing the imports of LNG, utilizing more renewable resources and shale gas. Although Russia might expect some recession in the demands from Europe (however, there are many forecasts (see Chapter 4) suggesting that Europe will not be able to reduce its gas demand, and thus dependence on Russia), it has set its goal to expand to China and Japan. If the past is any indication of the determination of Russia, and Vladimir Putin in particular, it can be said that this goal shall be attained, if not sooner, then definitely later.

3.3. Natural Gas Supply Security by Russia to the EU and Turkey

Supply security of a country is related to the management and minimization of supply risks from indigenous or exogenous sources leading to disruption or delay of supply (Neumann, 2003). In the case of natural gas, supply security depends on the diversity (e.g., domestic gas reserves, LNG, pipeline transport and shale gas), quantity, price and the quality of the infrastructural connections (Loskot, 2005; Spanjer, 2007). An important aspect in gas supply security via pipelines is also the position of the transit countries which will be elaborated in Section 5.4.

As will be described in Section 4.2, the major natural gas proven reserves in the EU are held by Netherlands (0.9 tcm), U.K. (0.2 tcm), Italy, Germany, Poland and Romania (each 0.1 tcm) as of the end of 2012 and the total gas reserve reduction in the EU amounts to about 55% drop in the period 2003-2012. The production-to-reserve ratio range was recorded at 6-27%, resulting in a total gas production of the EU at 150 bcm in 2012 (BP, 2014). Considering the fact that the annual natural gas consumption of the EU was approximately 400-450 bcm in 2012, importing gas seems inevitable.

In 2013, the EU received about 38% of its pipeline natural gas from the Russian Federation, 28% from Norway, the remaining from the domestic pipelines (Netherlands, U.K.) and some little portion from Algeria, Qatar, Nigeria and Libya (BP, 2014). According to 2010 World Energy Outlook (IEA, 2010), the gas demand of the EU is expected to grow at 0.4% from 2008 to 2035 (from 536 bcm to 598 bcm) whereas BP Energy Outlook (2014) foresees an increase at about 10-12% for the same time range.

The relations – especially gas trade – between Russia and EU were formerly stable in 1970s and 1980s but since mid-1990s, this situation has been destabilized (Boussena and Locatelli, 2013). At the onset of 1990s, the EU commenced to establish a European Energy Charter with the goal of harmonization of laws regarding investment in the energy sector within the former Soviet bloc states, especially Russia. The actual aim of this charter was long-term energy security for the EU. However, Russia has refused to ratify this agreement due to provisions requiring 3rd party access to Russia’s pipelines and to continue to enjoy its freedom and monopoly in this regard (Finan and Locatelli, 2007). In 1997, Russia and EU signed the Partnership and Cooperation Agreement (PCA) with a 10-year duration (European Parliament and the Council, 1997), underlining the aims to advance investment, promote Russian reforms and establish a free trade platform between the two (Georgieva, 2009).

In the meantime, due to rising concerns within the EU regarding energy security, the European Commission developed a Green Paper called “Towards a European Strategy for the Security of Energy Supply” in 2000 (European Commission, 2010a). In this Green Paper, it was foreseen that energy imports, being at 50% at that time (40% gas from Russia), would rise to 70% by 2020-2030 if no action was taken. This situation was deemed as a security weakness which necessitated a long-term strategy to decrease foreign dependence, increase efficiency, combat climate impacts and secure new import routes for oil and gas. What EU desires is a more liberalized approach in the Russian gas supply for the sake of diversification and supply security (Gromadzki, 2002).

Another facet of these relations is that, following the 2004 and 2007 Eastern European enlargements, Russia has practically become a neighbor of the EU which increased the security dimension of their relations. However, although the PCA came to an end in 2008, it could not be renewed since then owing to the refusal of Russia (Beatty, 2004), which accumulated into the tension among these two powers (Georgieva, 2009).

First of all it should be kept in mind that natural gas is deemed to be more than a mere economic commodity for Russia and EU; it is rather a strategic commodity, strongly influenced by politics and influences security of the states (Sharples, 2011). Although EU is seeking to reduce its strong ties with Russia, it is expected that Russia will continue to be the backbone of Europe's gas supply, at least in the medium term (Westphal, 2014).

Secondly, although EU is dependent on Russia for gas exports, it should not be overlooked that Russia is also dependent on Europe in the short to medium term (2020-2030) since a significant portion – almost 70% (Westphal, 2014) – of the Russian budget depends on the sales of oil and gas to Europe (Gromadzki, 2002; Spanjer, 2007). Thus, this strong mutual interdependency should pave the way for mitigation of political disagreements so that neither side would take a significant blow to its economy (Westphal, 2014).

A third aspect is the current state of the infrastructure and technology in the Russian pipelines and gas extraction methods which definitely require modernization. Gazprom is actually seeking and in need of investment and technology from European companies in order to compete with the current state of technology and increasing threats from LNG and shale gas. As an example, Gazprom has granted the shares of two German companies (BASF Wintershall and E.ON) the right to participate in the development of Yuzhno-Russkoye gas field and Gazprom in return received 49% share stake in Wingas (BASF-Gazprom JV) and again 49% share stake at Gerogas, which is an E.ON subsidiary (Sharples, 2011). In order for Russia to meet its 2020-2050 goals, modernization and innovation are obligatory, which is an area that Europe can help (Kuchins *et al*, 2008).

Another issue in supply security is the fact that Gazprom is also entering the transmission and distribution market in some CEE states to increase its monopolistic status and EU is on the alert to make sure that these activities of Gazprom conform to the EU energy policy and market liberalization. For example in Bulgaria, Estonia, Latvia, Slovakia and Lithuania; Gazprom has taken a role in the privatization of the state-owned gas sectors. Especially the case of

Slovakia is significant since it owns a major pipeline (the Brotherhood) transporting Russian gas to Western and Southern Europe (Gromadzki, 2002).

Russia is bound to play an important role in the long term not just due to its own gas deposits but also as a transit country for the future transits to the EU from Central Asian states and possibly Azerbaijan (Gromadzki, 2002). Gazprom takes many actions to keep the gas exports from Central Asia under control and to make sure that the export from this region to Europe passes through Russia without a direct link (Loskot-Strachota, 2006). Therefore Russia is currently orienting in purchasing cheap gas from Central Asia and selling them at a higher price to the EU which definitely means a higher monopolization of Russia and reducing supply security to the EU due to over-dependence on Russia (Gromadzki, 2002). Gazprom as a domestic factor is driving the Russia's international gas diplomacy very successfully and as a selected IR theory, neoclassical realism is strongly supporting our argument here.

In the case of Turkey, the country's annual energy demand increase rate is 8%, among the highest in the world. Moreover, natural gas consumption is on the top of the list in terms of growth as a primary energy source (Kılıç, 2006). Turkey's natural gas production amounts are recorded at 0.63 bcm as of 2012 (EPDK, 2013) which is definitely insufficient to meet the annual consumption at 45.2 bcm recorded in 2012.

The gas trade between Turkey and Russia started back in 1984 and despite the Cold War going on in the background; the two countries have enjoyed a smooth relationship during the 80s and early 90s. By the end of the 90s, "Blue Stream" project was launched (Akramova, 2014). As of today, there are three long-term (20-25 years) natural gas supply agreements that Turkey has signed with Russia totally amounting to 20 bcm/year which will expire (and probably be renewed) during 2021-2025 (BOTAŞ, 2015). The other pipeline gas suppliers of Turkey are Turkmenistan, Azerbaijan and Iran. LNG is being purchased from Nigeria and

Algeria. The total imported gas amount was 45.9 bcm in 2012. Accordingly the gas supply percentages as per the countries are given in the following pie chart as Figure 3-1 (EPDK, 2013).

The import dependency of Turkey is recorded as 98% and the total increase of gas imports from 2005 to 2012 was about 73%. It is expected that the annual natural gas consumption of Turkey to reach 78-82 bcm by 2020 (Kılıç, 2006; Topçu, 2013).

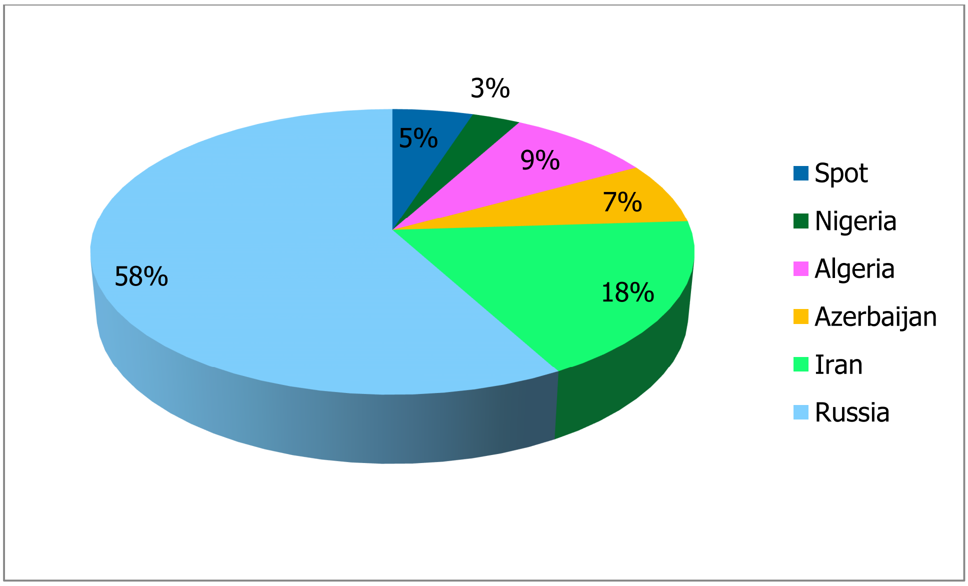


Figure 3-1. Natural Gas Imports of Turkey by country as of 2012 (EPDK, 2013)

Turkey buys some 1-2 bcm LNG from Russia as well in addition to the pipeline gas (Kılıç, 2006). With these figures, it is clear that pipeline transport and especially Russia (58%) plays an important role in the gas supply security of Turkey, as well as of the EU due to the transit country position of Turkey (Pala, 2007). Natural gas is especially important for Turkey as it can be used to replace the more carbon-intensive fossil fuels in power generation and other purposes (Demirbaş and Balat, 2008).

As a result it can be definitely said that Russia plays an important role in the supply security for the EU and Turkey and is foreseen to do so in the near future. Although the EU is struggling to reduce its Russian dependency, this goal may not be achieved as soon as the EU official desire considering the phasing out of nuclear power plants and coal-fired plants which are most easily replaced by natural gas plants – at least in the first phase. Moreover, as discussed in Section 4.5, the increase in the utilization of renewable sources does not ensure a full freedom from other energy sources owing to the intermittent supply nature of these systems. Turkey also has an aspiration to diversify its energy sources and in fact, it has taken a huge step with the groundbreaking ceremony of Akkuyu Nuclear Power Plant on April 14th 2015 (Habertürk, 2015). As described in Section 4.2, the first phase of Akkuyu nuclear plant is planned to be commissioned in 2023 with a gross output of 1200 MWe. Considering the fact that the installed coal-based power of Turkey was 12,563 MW as of the end of 2013 (MENR, 2015), that Turkey is first and foremost struggling to ban coal-fired systems due to several environmental concerns; it can be said that this nuclear power is primarily aiming to replace coal, not natural gas (Milliyet, 2015). And even if nuclear power does reduce natural gas demand from Russia, the dependency on Russia will not be diminished considering that the enriched uranium will be bought from Russia (Akkuyu Nükleer A.Ş., 2015).

3.4. Concluding Remarks

The gas policy of Russia is comprised of two evident main dimensions: the gas export policy and the domestic gas policy. Russia is the greatest gas producer and exporter, whereas the EU has declining gas production despite the fact that it is definitely in need of imports. However, this statement alone does not form the whole picture among Russia and the EU since actually Russia does need the export revenues received from the EU to be able to modernize its aging gas pipeline infrastructure and start extraction in harder-to-reach fields so that Russia’s goals to expand into other markets such as China and Korea – while still being able to meet the demands of Europe – can become a reality.

Nevertheless, the Ukraine gas crises, Crimean annexation and other expansionist-aggressive actions of Russia has created a security-threat perception by and elevated the reservations of the EU regarding gas imports received from Russia and the EU has started to seek other options such as resorting more to LNG, possible shale gas utilization, Southern Gas Corridor projects, etc. which are described in detail in Chapter 4. However, just as Europe is eager to release its dependency on Russia, Russia has also started to show clear intentions to reduce its dependency on Europe as well, as described in Section 6.4.

Another key factor in the foreign natural gas policy of Russia is to gain more and more control of the Central Asia gas for sales to Europe, Turkey and any other potential markets. This ambition of Russia definitely shows the highest security concern for the EU since it has the ability to compromise and even collapse the future Southern Gas Corridor projects (see Section 6.3).

Turkey's situation is more grave as it has near to none production and is almost completely dependent on gas imports from Russia. Although Turkey did not perceive Russia as a security threat like the EU, this situation has recently changed as evidenced with the downing of a Russian aircraft on the 24th of November 2015 by Turkish jets. Despite having increased its diversification efforts, especially towards the purchase of additional LNG from Qatar, Turkey is anyhow trying not to sever its ties with Russia, especially considering the new Akkuyu Nuclear Power Plant being built as described in Section 4.2.

The next goal of Russia is to eliminate the risks caused by the transit countries, especially Ukraine. Thus Russia is targeting to abandon gas transit from Ukraine altogether until 2020 at the latest by exporting more gas to the EU via existing and future planned pipelines such as the Turkish Stream.

Despite the stated efforts of the EU as a whole to decrease its dependency on Russian gas, Russia is resorting to conclude bilateral agreements with individual

European states such as Greece and Austria. In response, the EU has increased its activities for the formation of an Energy Union within the EU to prevent such bilateral agreements and increase the interconnectivity among states to ensure that gas demand of more dependent states can be met from more independent states such as the U.K. and the Netherlands.

An interesting matter to mention here is that EU presses on Russia to apply a unified gas pricing towards the EU. However, this option would not be economic for Russia. Moreover, this option would not be good for the EU as well in terms of energy security since in case of a possible unified pricing strategy, export to the EU would be rendered less advantageous for Russia as compared to domestic sales or export to other countries and areas.

In terms of its domestic gas policy, the first target needs to be replacing gas with nuclear power or coal so that the remaining amount can be diverted to exports, which provides much higher profit as compared to domestic sales of gas. Two other possible areas of improvement that Russia should focus in the domestic gas policy is the increase of efficiency and decrease of transit losses due to the archaic infrastructure. For these last two areas Russia can actually cooperate with the EU for the modernization of its pipeline infrastructure, adopt the European ways for increasing efficiency and cutting losses. This cooperation can then pave the way to decreasing the tensions among Russia and the EU.

As an important note, neoclassical realist approach as a theoretical framework supports the argument in this thesis: Gazprom is a very effective actor and policy maker for the Russian foreign energy and especially gas (pipeline) policy.

The next step in this thesis is to describe the economic and environmental dimensions of the natural gas relations among this triad that are argued to have a lesser effect as compared to the security and political dimensions described in Chapter 5.

CHAPTER 4

ECONOMIC AND ENVIRONMENTAL DIMENSIONS

4.1. Introduction

After the discussion of the Russian natural gas policy and a brief outlook on the natural gas supply security of Russian to the EU and Turkey, now one of thesis arguments, i.e., that “security and political dimensions prevail over economic and environmental dimensions in the natural gas pipeline diplomacy of Russia with the EU and Turkey”, has to be broken down into its sub-items for detailed analysis.

A first issue to explain here is that, in general, economy and politics are intertwined and interdependent concepts which mutually affect each other profoundly. Economy can be defined as a system comprised of the production, trade and consumption of certain goods and services by different entities in a specific area (Economy Kingdom Magazine, 2015) whereas politics refers to the distribution of power and resources within a state as well as the interrelationships between states (Held and McGrew, 2007). However, since this thesis is based on “high politics” approach wherein ‘national and international security concerns are deemed to prevail in all matters that are vital to the very survival of the state’ (Suhrke, 1999); economy and politics concepts have been evaluated under separate chapters (Chapter 4 and 5).

In this thesis, ‘economic’ and ‘environmental’ concepts are addresses in an IR perspective, not in the form of a detailed economic analysis and environmental assessment of the factors affecting gas diplomacy of Russia with the EU and Turkey. For example, ‘Nuclear Power Capacity Decrease in Europe and Increase in Turkey’ has both economic and environmental dimensions in Europe and in Turkey, its consequences will be economic and environmental - not so much security-related and political in terms of natural gas diplomacy. Therefore, this is the reason why this topic, given as an example, is discussed in this chapter. The same approach is valid for ‘Climate Targets of the EU’, ‘Increase in the Share of Renewables in the EU and Turkey’, ‘Unconventional Gas in the EU and Turkey’ and ‘Energy Efficiency. The remaining two sections of this chapter titled ‘Decrease in the Domestic Natural Gas Production and Reliance on Imports in the EU’, and ‘LNG export of the EU and Turkey’ can be considered as only topics reviewed in terms of economic factors.

Environment is of course all the living and non-living things surrounding us. The natural gas pipelines themselves have certain environmental impacts such as flaring, leaks of CH_4 and possible impact on the marine life for the offshore sections thereof. However, the main issue at hand here in this thesis is the possible environmental considerations that might have an impact on the natural gas trade among Russia and the EU / Turkey. But as an indirect effect, use of natural gas may have an important positive impact on the GHG emissions.

In Section 4.2, it will be analyzed as to how (and if) the nuclear capacity decrease in Europe and increase in Turkey will affect the natural gas trade of Russia with the EU and Turkey. The answer of the following question is being sought: “As expected, due to the phase outs, will the countries with nuclear power plants import more gas from Russia to recover their power demand or not?” and for Turkey, construction of nuclear power plants will decrease the natural gas (and/or energy) dependency to Russia? In Section 4.3, it will be discussed as to whether the decrease in the domestic natural gas production in Europe will lead to additional gas import from and higher dependency on Russia or not. Section 4.4 will elaborate the possible effects of unconventional gas production on the gas imports from and dependency on Russia by the EU and Turkey. Section 4.5 will delve into the details of the impact of renewable energy developments in the EU and Turkey on the import of Russian gas. Section 4.6 will discuss the effect of energy efficiency and its impact on the Russian gas trade. For example, the answer to the question “If 20% energy efficiency is achieved until 2020, will the gas consumption decreased at the same rate, i.e. 20%?” will be sought. Additionally, with the 20-20-20 targets of the EU, Section 4.7 will discuss whether the necessity of lesser carbon emission will cause an increase in natural gas import from Russia to achieve the climate targets. Finally, Section 4.8 will aim to explain and analyze how LNG imports will affect the trade of Russian gas with the EU and Turkey. The main aim of this chapter is to review the economic and environmental factors that may increase or decrease the gas import from Russia by the EU and Turkey.

4.2. Nuclear Power Capacity Decrease in Europe and Increase in Turkey

Nuclear power has many advantages against its competitors as follows:

- A potential source of high quantities of carbon-free power production as compared to the high global greenhouse gas (GHG) emissions resulting from coal and other fossil fuel-fired power plants.
- More reliable and lacks the intermittency problems common to the wind and solar energy facilities as the latter are dependent upon climate and weather conditions (Joskow and Parsons, 2012).
- Much more efficient and powerful due to the energy amount released during the fission of the radioactive Uranium.
- Lower fuel cost and overall cheaper electricity.
- Better supply reserve as compared to coal, oil and natural gas (Conserve Energy Future, 2015a).

The disadvantages on the other hand can be summarized as below:

- The generated wastes are radioactive and may be hazardous on land and aquatic life alike. Thus, it requires a safe long-term storage.
- Requires much more delicate and meticulous operation and safety-security measures. In case of an accident from negligence, catastrophe,

etc. (such as Chernobyl and Fukushima) or vandalism, terrorism, etc., the consequences are devastating.

- Even in the lack of an accident, the nuclear radiation emitted during plutonium breeding, inadvertent leaks, long-term exposure, etc. can still cause significant health issues and thus faces severe public and sometimes political opposition.
- High investment costs and very tiresome legal formalities.
- Low fuel availability and non-renewability (Conserve Energy Future, 2015b)

Nuclear power currently provides a significant share of the U.S. (20%) and global (13.5%) carbon-free electricity generation and is foreseen to continue its growth for the future mitigation of GHG emissions (Joskow and Parsons, 2012).

The Fukushima accident led to changes in the nuclear policy of many countries such as Italy, Belgium, Switzerland and most notably Germany (Joskow and Parsons, 2012). The increasing trend of building nuclear power reactors, which had begun in the 1960s, slowed its pace after the 1986 Chernobyl accident, stagnated around 350-420 during 2000s (IAEA, 2009), and as of June 2015, there were 438 operational nuclear power reactors worldwide and 67 were under construction (see Table 4-1) (ENS, 2015a). Nuclear power generated dropped significantly in 2013, with less than 11% of total worldwide power generation, a record-low value since 1982. The RES share is still on the rise, with 2% biomass-municipal solid waste use, 3.45% wind-solar-other RES and 16.1% Hydropower generation as of 2013, but fossil fuels, especially coal (40.8%), is still the global fuel of choice (IAEA, 2014).

Table 4-1. Nuclear power plants worldwide, in operation and under construction (June 2015) (ENS, 2015a)

Country	**In operation**		**Under construction**	
	Number	Electrical net output (MW)	Number	Electrical net output (MW)
Argentina	3	1,627	1	25
Armenia	1	375	-	-
Belarus	-	-	2	2.218
Belgium	7	5,921	-	-
Brazil	2	1,884	1	1,245
Bulgaria	2	1,926	-	-
Canada	19	13,500	-	-
China	27	23,025	24	23,738
Czech Republic	6	3,904	-	-
Finland	4	2,752	1	1,600
France	58	63,130	1	1,630
Germany	9	12,074	-	-
Hungary	4	1,889	-	-
India	21	5,308	6	3,907
Iran	1	915	-	-
Japan	43	40,290	2	2,650
Korea, Republic	24	21,667	4	5,420
Mexico	2	1,330	-	-
Netherlands	1	482	-	-
Pakistan	3	690	2	630
Romania	2	1,300	-	-
Russian Federation	34	24,654	9	7,371
Slovakian Republic	4	1,814	2	880
Slovenia	1	688	-	-
South Africa	2	1,860	-	-
Spain	7	7,121	-	-
Sweden	10	9,651	-	-
Switzerland	5	3,333	-	-
Taiwan, China	6	5,032	2	2,600
Turkey	-	-	8	9400
Ukraine	15	13,107	2	1,900
United Arab Emirates	-	-	3	4,035
United Kingdom	16	9,373	-	-
USA	99	98,639	5	5,633
World Total	**438**	**379,261**	**67**	**65,482**
EU-28 Total	**127**	**119,273**	**3**	**2,510**

It is still quite uncertain whether the Fukushima accident will prove to have increased negative global effects on the operation of existing and building of new nuclear plants. However, it can be said with a level of certainty that some adverse influence will be observed on the future of nuclear power compared to the "no Fukushima" former status-quo (Joskow and Parsons, 2012).

Map 4-1. Nuclear power plants in operation in Europe (June 2015) (ENS, 2015b)

The number of nuclear power plants in operation as of June 2015 in Europe is shown in Map 4-1 (ENS, 2015b) and the electricity generation of EU-28 from nuclear power over the years is given in Table 4-2 (Eurostat, 2015a). In terms of state-wide generated electricity via nuclear power, France is in the lead with 76.9% followed by Slovakian Republic (56.8%) and Hungary (53.6%). In terms of net capacity, France is again by far the highest producer (63,130 MWe) followed by Germany (12,074 MWe) as of June 2015 (ENS, 2015a). In the EU, the member countries have mutually agreed to subject all the nuclear plants to certain inspections and tests based on what has been learned from Fukushima (Joskow and Parsons, 2012).

Table 4-2. Production of nuclear heat in EU-28 (Eurostat, 2015a)

the figures in the table are in thousand toe	**2009**	**2010**	**2011**	**2012**	**2013**
EU-28	**234,178**	**234,079**	**232,009**	**224,540**	**223,009**
France	106,857	111,612	115,209	110,863	110,415
Germany	34,733	36,201	27,807	25,619	25,052
Sweden	12,881	13,994	15,252	15,632	15,996
United Kingdom	15,229	13,947	15,626	15,206	15,443
Spain	13,783	16,135	15,045	15,991	14,785
Belgium	12,304	12,492	12,568	10,499	11,111
Czech Republic	6,975	7,293	7,369	7,901	8,036
Finland	5,762	5,565	5,627	5,526	5,694
Slovakia	3,783	3,853	4,027	4,050	4,111
Hungary	3,878	3,963	3,965	3,986	3,870
Bulgaria	3,878	3,849	4,105	4,020	3,668
Romania	2,980	2,923	2,979	3,009	2,922
Slovenia	1,355	1,335	1,471	1,308	1,251
Netherlands	980	917	959	920	656
Lithuania	8,800	0	0	0	0

A striking case within the EU is Germany who has decided to phase-out its nuclear reactors until 2023 following the Fukushima disaster. Germany entered the nuclear energy market with U.S.-designed nuclear reactors in 1960, resulting in the construction of 31 reactors by the late 1980s. 1986 Chernobyl nuclear accident ignited the opposition against nuclear power among the Social Democrats, who were formerly pro-nuclear advocates. In 2000, the nuclear phase-out became a priority with an expected conclusion by 2025. Japan's Fukushima nuclear accident on March 2011 was the last straw that fortified the position of Germany against nuclear power soon after which a moratorium was imposed on nuclear capacities. The final approval to nuclear phase-out in Germany was given by the Parliament in June 2011 and it received the full support of all the political parties. In this decision, closure dates were fixed for the remaining reactors for December 2015 – December 2022 and the former ban on newly built nuclear power plants was confirmed (See Figure 4-1) (Kunz and Weigt, 2014).

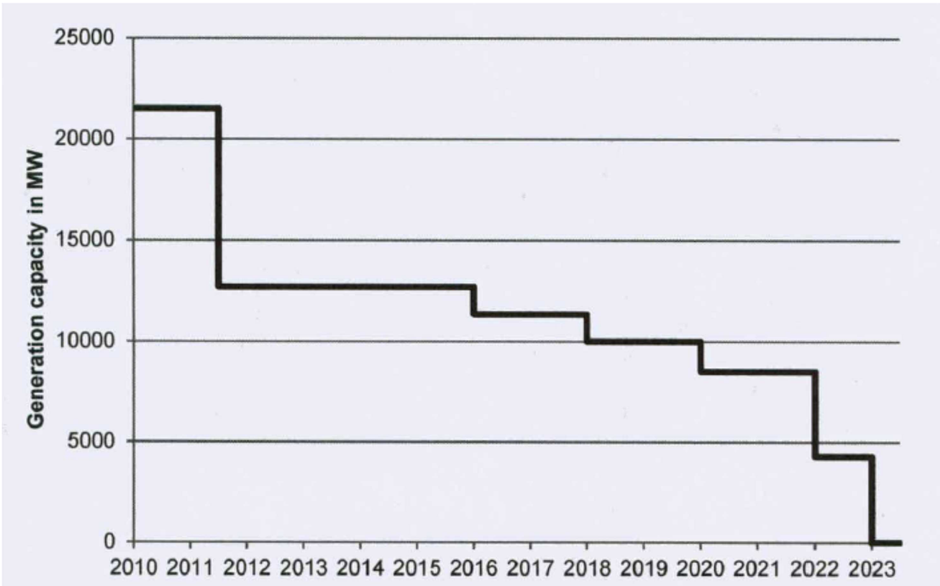


Figure 4-1. Path of Nuclear Phase out in Germany, 2010-2022 (Kunz and Weigt, 2014)

Several studies were made for projecting the implications of this moratorium and phase-out for the German electricity market. In a full-fledged European model (Kunz *et al*., 2011); it was estimated that Germany would compensate most of the capacity reduction through increased generation from coal and gas fired units which proved to be the case where the decommissioning of the oldest nuclear power plants induced a short-term shift from nuclear to fossil fuel and renewable energy generation (Kunz *et al*, 2013). The total dry gas import of Germany has shown a steady but slow rise of around 5% each year from 2000 (~75 billion m^3) to 2013 (~95 billion m^3) (EIA, 2015b). Despite a projected net decrease in exports with some expectancy of imports from neighboring countries such as France for seasonal fluctuations in supply-demand and during extreme situations, it seems that there will not be any significant observable changes neither in the generation nor in the import patterns thanks to the strong position of Germany in terms of renewable energy (especially solar) generation (Kunz and Weigt, 2014).

There have been some rumors where Germany has been alleged to import electricity from France, the biggest nuclear energy producer in the EU who does not share the nuclear phase-out ambition of Germany, placing Germany in a somewhat hypocritical status – banning nuclear energy within its boundaries but importing nuclear-generated electricity from another state (Hall, 2011), however this allegation has been refuted by Germany (Morris, 2014).

Returning back to the situation throughout the EU, despite the strong and ambitious nuclear phase-out plans of Germany on its own, it can be seen from Table 4-2 that the overall decrease in EU-28 is merely around 4-5% during 2009-2013. However, there are plans to decommission up to 150 plants by 2030 (Edie, 2012). In another scenario by Leveque (2011), the Fukushima disaster will result in 10-12% of the nuclear power plants being shut down by 2020 as compared to 2010. BP (2015) estimates that Europe will witness 0.2% annual decrease in nuclear energy generation until 2035. Although the Germany case might lead to the conclusion that none or very little extra gas will be required in the future to substitute the energy demand gap to be left by nuclear phase-out, the case in the whole EU is not forecast to be the same. In fact, it has been argued that the EU will have to resort to natural gas in the near term especially considering the RES technology installation takes time (and money) and increase of coal use would be against the environmental policies of the EU (BP, 2015; World Nuclear Association, 2015a). However, some figures show that some EU states have increased the use of coal instead of natural gas which is definitely in violation of the GHG emission targets of the EU (Silverstein, 2013) and with the aim of decreasing dependency on Russian gas (World Nuclear Association, 2015a). Nevertheless, it can be concluded that the nuclear energy decrease in the EU has a high potential of increasing, or at least not decreasing, the dependency of the EU on Russian gas.

Despite the decrease in the nuclear capacity of the EU, the approach of the non-EU and non-OECD countries towards nuclear energy is more positive, both in the short- and long-term. The major actor is China with plans to build 10 GWe plants by 2020 (Joskow and Parsons, 2012). Belarus and Russia have already started the construction of new units and with the proposition of further units ahead. Switzerland and Ukraine also heave near-term plans for building new reactor units. On the other hand, Turkey, Saudi Arabia, Vietnam, and Abu Dhabi, despite having no nuclear reactors in the past, have taken some firm steps towards establishing their own nuclear power base, but due to several regulatory, technical and environmental deficiencies, there are several challenges that need to be overcome (World Nuclear Association, 2015a).

Coming to **Turkey**, it can be seen that this country is highly dependent on imports with 98% of natural gas and 92% of its oil being imported as of 2012. The electricity generation in 2013 came 44% from gas (two thirds thereof imported from Russia), 27% from coal and 25% from hydro-power generation. The growth in demand is among the highest worldwide with an annual 8% increase (World Nuclear Association, 2015b).

Turkey is recently making statements indicating nuclear energy to be an indispensable energy generation option for the country in terms of energy diversification efforts (Enerji Enstitüsü, 2015-05-11a). In fact, Turkey's plans for building nuclear power plants date back to the 1970s. Currently, these plans seem to have received momentum, in order to reduce some dependency on Russian and Iranian gas for electricity. In other words, nuclear capacity-building has become a target for economic growth. Russian Rosatom took the lead to be awarded the tender to finance and construct 4800 MWe (4 x 1200 MWe) nuclear capacity at Akkuyu-Mersin as BOO (Build-Own-Operate), amounting to around 20 billion

US$. The inter-governmental agreement for Akkuyu nuclear power plant was signed on the 12th of May 2010 (World Nuclear Association, 2015b), the EIA report was finally approved on the 1st of December 2014 (CnnTurk, 2014) and the ground-breaking ceremony of the Coastal Structures (port, cooling water intake and discharge structures) of the Nuclear Power Plant took place on the 14th of April 2015 (HaberTurk, 2015).

Another plant is foreseen to be built in Sinop and the preliminary studies thereof have been underway since 2008. The Sinop nuclear power plant is planned to be built as BOT (Build-Operate-Transfer) by a consortium comprised of Mitsubishi Heavy Industries, Areva, GDF Suez and Itochu, the power generation is estimated to be at 4600 MWe, amounting to a total cost of about 16 billion US$ (Enerji Enstitüsü, 2015-06-22a). The inter-governmental agreement with Japan was signed on the 3rd of May 2013. The operator of the plant is foreseen to be French GdF Suez, who operates several nuclear reactors in Belgium (World Nuclear Association, 2015b).

As a part of the total 100 GWe commitment of Turkey by 2030, China plans to build the third plant possibly in İğneada-Kırklareli or Akçakoca-Düzce, with US-derived technology. Ankara, owing to its low seismic risk, and Tekirdağ have also been mentioned as possible sites. Although the invitations for expression of interest have not yet been issued, it is considered to start construction around 2019. Table 4-3 summarizes the plans of the proposed Nuclear Power Plants in Turkey (World Nuclear Association, 2015b).

Furthermore, the Turkish government has announced its intentions to build two additional nuclear power plants, each having four reactors, all to be operational by 2030 (World Nuclear Association, 2015b).

The environmental impacts of the potential increase in the nuclear capacity of Turkey can be considered positive as these new nuclear plants would have the potential to replace the old coal-fired power plants which are definitely a serious cause of GHG and other environmentally unfriendly emissions (İşeri and Özen, 2012). Moreover, as nuclear power plants are significantly much more efficient than hydro- and coal-plants in terms of environmental issues, this will definitely provide economic benefits as well, despite the high investment costs of nuclear plants in general. Of course the main drawback would be the identification of a suitable site and safe means of transport to that site for the nuclear wastes unless repatriation to Russia can be arranged.

Table 4-3. Planned and Proposed Nuclear Power Reactors in Turkey (World Nuclear Association, 2015b)

	Type	**MWe gross**	**Start construction**	**Start operation**
Akkuyu 1	VVER-1200	1200	late 2016	2022
Akkuyu 2	VVER-1200	1200	2017	2023
Akkuyu 3	VVER-1200	1200	2018	2024
Akkuyu 4	VVER-1200	1200	2019	2025
Sinop 1	Atmea1	1150	2017	2023
Sinop 2	Atmea1	1150	2018	2024
Sinop 3	Atmea1	1150		2025
Sinop 4	Atmea1	1150		2026
Third site	AP1000x2, CAP1400 x2	2x1250 2x1400	2019?	

The main issue to be considered here is the potential amount of decrease in gas imports from Russia when these two (Akkuyu and Sinop) nuclear power plants (4800 + 4600 = 9400 MWe) will finally be commissioned. The expected power generation from these two plants can be calculated by first multiplying this capacity with a capacity factor. Capacity factor is a percentage indicating how much of the time a power plant is operating during the year. For example, the capacity factors for Russian nuclear power plants currently are in the range of 80-90% (World Nuclear Association, 2015c), whereas this factor is about 90% for

U.S. nuclear power plants (Nuclear Energy Institute, 2014). To be on the safe side, this capacity factor is here assumed to be 85%, in other words:
9400 MWe x (24 x 365) hours/year x 0.85 ≈ 70,000,000 MWh.

Then, this energy figure has to be converted into m^3 or bcm (billion cubic meters) which is the standard measure used for natural gas. Based on a conversion factor of 1 MWh = 94.73 m^3 natural gas (Abraxas Energy Consulting, 2015):
70,000,000 x 94.73 = **6.63 bcm**

This 6.63 bcm is the natural gas volume corresponding to the energy generated by the two prospective nuclear power plants to be built in Turkey, i.e., assuming that such volume of natural gas is used to generate power. The price of natural gas can be taken as 425 USD/1000 m^3 (Yeniçağ, 2014) which results in the following:
6,630,000,000 m^3 x 425 USD/1000 m^3 = **2,817.75 Million USD/year.**

Accordingly, this means that when the two nuclear power plants start operating, approximately 2,82 billion USD/year will be saved by not spending such money on importing gas for power generation. This can be considered as a very important positive financial result for Turkey.

As the concluding review, the natural gas consumption and import figures of Turkey should be examined. It has been reported the total natural gas import was 26,5 bcm back in 2005, which almost doubled to reach 45,9 bcm in 2012 (58% from Russia and 18% from Iran). The total natural gas consumption of Turkey was recorded at 45 bcm as of 2012 and 48% thereof was reported to be belonging to power generation (EPDK, 2013). In a recent thesis by Topçu (2013), it is estimated that the increasing trend of natural gas imports and consumption at about 6% will continue, resulting in about 78 bcm annual gas consumption by 2020. In another paper (Akgül and Yıldız, 2013), the gas consumption is estimated to be a more conservative 62,4 bcm/year by 2019. Accordingly, the consumption and import of natural gas can be assumed to continue in its increasing course in the future nevertheless, but due to the commissioning of

Akkuyu and Sinop nuclear power plants by 2020-2030, the share of natural gas utilized for power generation is destined to decrease. Anyhow, since natural gas will continue to be used in heating due its lower cost and lesser environmental impacts as compared to electricity, it can be said that dependence on gas might decrease in terms of power generation however dependence on Russian gas will not.

4.3. Decrease in the Domestic Natural Gas Production and Reliance on Imports in the EU

Natural gas is considered as an important source of energy that has the potential to decrease the dependence on coal and nuclear power (The Oil Drum, 2010). Natural gas used to correspond to 18% share within the energy mix of the EU back in 1990 (EGAF, 2011), but now it comprises 25% of the primary energy supply where the energy is supplied to sectors such as power generation, heating, transport and industry (Flouri *et al.*, 2015). During the same period, the share of gas in electricity generation has risen from 8% to 20%. Natural gas emits only half as much CO_2 as compared to coal utilization for power generation and it is considered as a significant factor in aiding the limitation of the GHG emissions of Europe which has been resolved and targeted by the European Council to be lowered to at least 20% below 1990 levels by 2020. In fact, thanks to the gas-fired plants replacing its oil- and coal-fired counterparts, Europe was able to obtain 8% decrease in CO_2 emissions in spite of 14% absolute growth in the power generation sector (EGAF, 2011). Moreover, the renewable energy sources such as solar radiation and wind requires complementary and/or supplementary power generation aides due to their intermittent structure and natural gas is considered as the most efficient option (Söderbergh *et al*., 2010).

The extraction and consumption of natural gas in Europe was around 100 bcm back in 1970 and most of the gas used was produced within the EU at that time. Although production doubled by 1980, the consumption neared 300 bcm. This situation forced the imports to rise at a rate of about 5 bcm/year which has been the case until 2005 and after this date, the imports reached a quasi-steady-state around 200 bcm. In terms of production, the EU reached a peak in 1996 and there was almost a stand-still for about 8-10 years after which it has since been on a slow but definitely decreasing trend (Aleklett, 2014). Nevertheless, the demand for natural gas continued its rise still after 2004 (Flouri *et al*., 2015).

As of 2011, 33% of the EU's net natural gas consumption consisted of domestic production (the Netherlands and the UK), whereas the remaining demand was met from Russia (24%), Norway (19%), Algeria (9%) Qatar (8%) and 7% came from countries such as Nigeria, Egypt, Trinidad and Tobago, Libya, etc. (Flouri *et al.*, 2015).

Russia has about 17% of the world natural gas resources, the natural gas production in Russia corresponds to 18% of the global production and nearly 30% of Russian is being exported (Eurogas, 2013). More detailed information regarding the reserves and description of Russian natural gas can be found in Chapter 3. Within Europe, although not an EU member, Norway contains the largest natural gas resources and it is the third largest exporter of natural gas in the world following Russia (Russia: 196 bcm, Qatar: 114 bcm, Norway: 107 bcm) (The Oil Drum, 2010; CIA, 2015).

The main natural gas producers within the EU are the Netherlands followed by the UK. The others are Denmark, Germany, Italy, Romania, Hungary, Poland and a few more (Eurostat, 2014a). Netherlands has recoverable reserves estimated at 2.8 trillion m^3 however, due to some reported earth tremors, the Dutch government has announced to cut production from 54 bcm/year in 2013 to 40 bcm/year by 2017. Based on the figures of the last decade, it is also observed that there is a decline in gas production in the UK (8-20% per year), Denmark (6.5% per year), Germany, Italy, Poland and Romania (all at about 3.5% per year) (Mearns, 2014).

Several future projections were made by many researchers regarding the production of gas in the EU. For example according to IEA World Energy Outlook (2010), it is estimated that the natural gas extraction in the EU will drop by 33% down to 210 bcm within 2008-2035 due to the decreases in the British and Dutch production capacities despite possible growth in Norway (IEA, 2010). Due to the decline in the European natural gas production, there is an increase on dependence of imports, which was around 64% in 2011 and is estimated to reach a level of 85% by 2030 (Flouri *et al.*, 2015). Figure 4-2 displays the arithmetic mean of the past, current and projected future of gas production, imports and consumption in the EU according to the values of several resources (IEA, 2008; IEA, 2010; IEA, 2013; Aleklett, 2014; Eurostat, 2014a; BP, 2015b; CIA, 2015; EIA, 2015a; EIA, 2015b; Eurostat, 2015b).

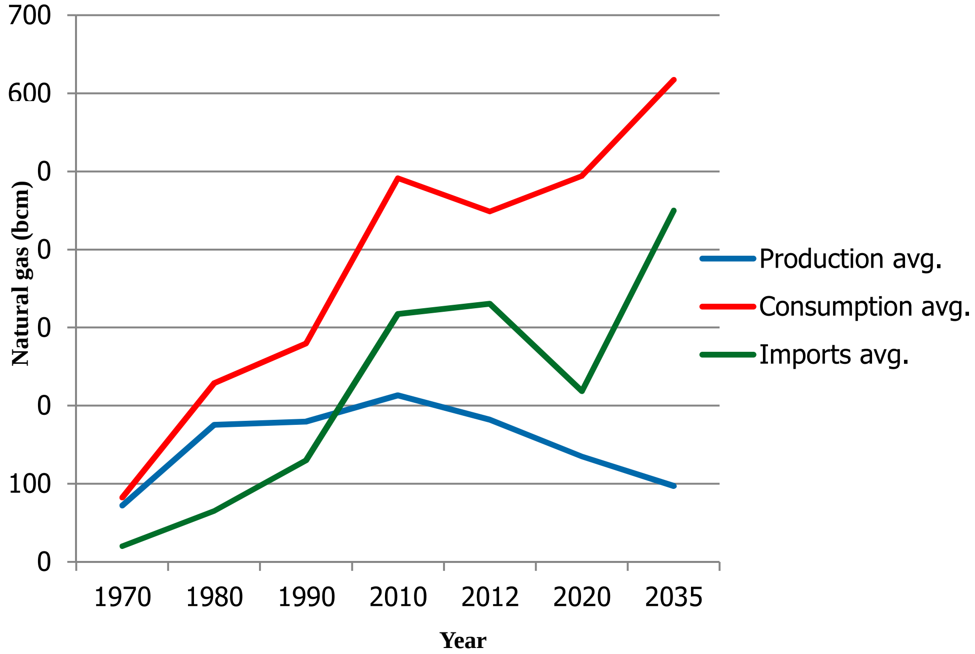


Figure 4-2. Past, current and projected future of gas production, imports and consumption in the EU (IEA, 2008; IEA, 2010; IEA, 2013; Aleklett, 2014; Eurostat, 2014a; BP, 2015b; CIA, 2015; EIA, 2015a; EIA, 2015b; Eurostat, 2015b).

As can be seen in Figure 4-2, despite some variances in the values of different sources, a general trend and pattern can clearly be observed where production in the EU has been on the rise until a few years after the second millennium and is forecasted to decrease. In terms of consumption, the increasing trend is obvious in all the references cited above and elsewhere, despite a slight glitch between 2010-2012. The growth of the EU from 6 members back in 1970 to 27 states as of 2010 and finally 28 in 2013 inevitably had its toll in terms of increasing the demand and thus forcing imports to rise.

The gap between the production and consumption is being handled mostly by imports where Russia is the main supplier, which is the focal concern of the EU in terms of energy security and lack of diversification. The options that the EU seeks in reducing this dependence on Russia are the possible use of shale gas (Section 4.4), increasing the renewable energy production (Section 4.5), increasing energy efficiency throughout Europe and building of a possible EU Energy Union – Internal Energy Market (Section 4.6), giving more weight to LNG imports within total gas imports (Section 4.8) and finding alternate gas suppliers such as North Africa, Caspian states and Middle Eastern countries (Chapter 6).

In addition to the decrease in production of gas in the EU, the recent decade has witnessed many gas supply disruptions which were a rare case until 2006. The reasons of the disruptions following 2006 were mostly related to non-European geopolitical, interstate conflicts, especially the problems between Russia and Ukraine. Then in 2011, the political uprising in Libya made a severe impact on the supply of gas to Europe since the pipeline from Libya, that was supplying 9 bcm/year of gas to Italy, was halted for almost 8 months (Flouri *et al*., 2015).

Oil can be considered as a global commodity whereas natural gas is more of regional in character, where local purchasers and distributers have the more upper hand (Ratner *et al*, 2012). The gas import structure of the EU is comprised of

75% natural gas import by pipelines and 25% in the form of LNG (Eurogas, 2013). As Russia is the biggest natural gas producer and exporter to the EU via pipelines, the reliance of the EU on Russian gas expected and forecasted to increase (IEA, 2010; Ratner *et al*, 2012; BP, 2015b) or at least stay in the same range (Dieckhöner, 2012) in the upcoming decades.

4.4. Unconventional Gas in the EU and Turkey

There are several types of unconventional fossil fuels such as tight gas, shale gas, tight oil, shale oil, etc. (European Commission, 2014a). Unconventional gas, also termed as shale gas, is the natural gas trapped inside shale formations. The main methods of extracting shale gas are horizontal drilling and hydraulic fracturing (ShaleTEC, 2015). However, the extraction of unconventional fossil fuels is generally considered to be more difficult as compared to conventional sources. For example hydraulic fracturing is, simply put, breaking rock by using large quantities of water and other chemical additives under high pressure to aid in releasing the trapped gas (European Commission, 2015a).

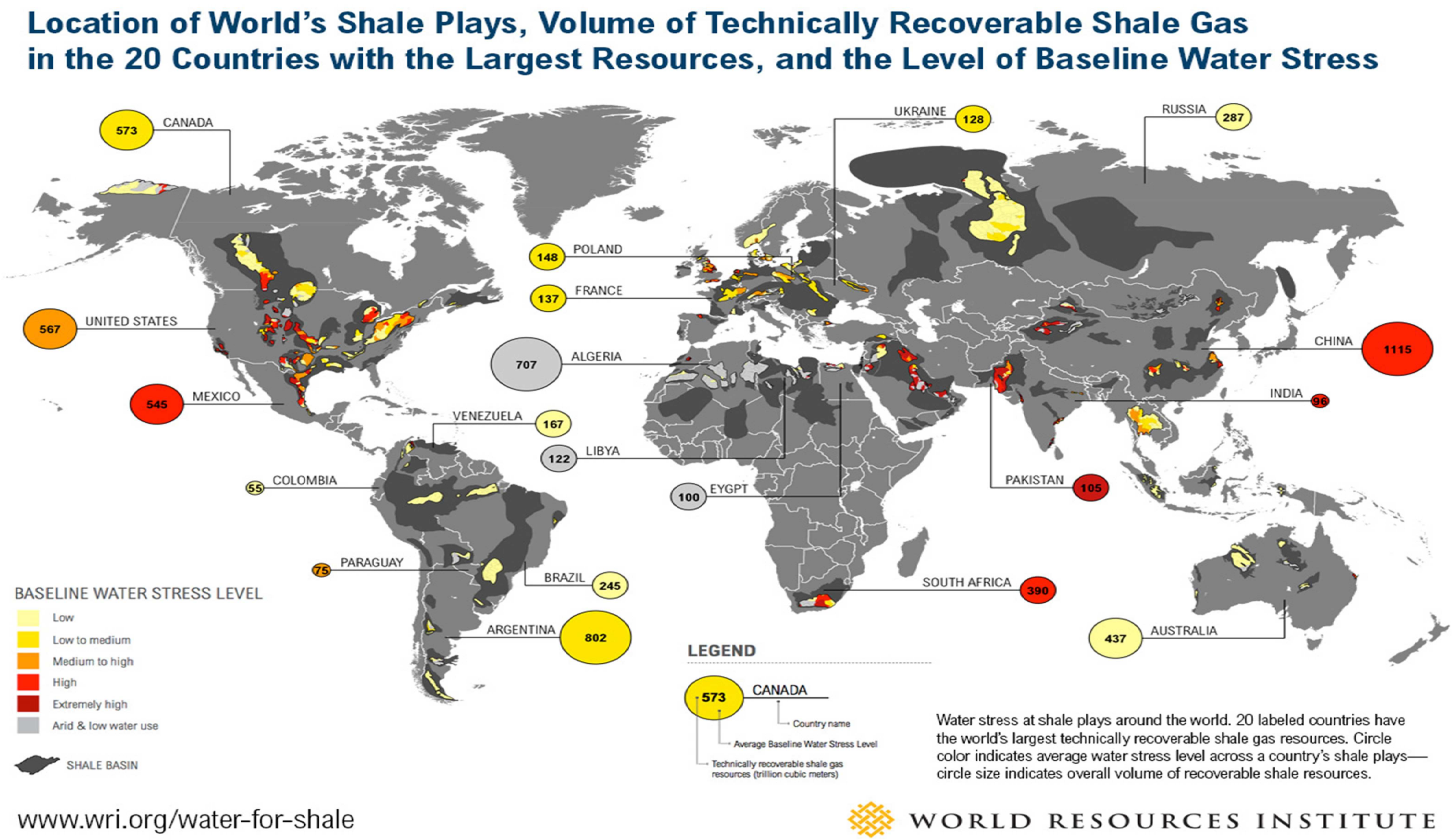
Table 4-4. Top 10 countries in terms of technically recoverable shale gas (EIA, 2013)

Country	Technically recoverable shale gas (tcm)	Percentage of World Total
US	32.86	15 %
China	31.55	14 %
Argentina	22.70	10 %
Algeria	20.01	9 %
Canada	16.22	7 %
Mexico	15.42	7 %
Australia	12.37	6 %
South Africa	11.04	5 %
Russia	8.07	4 %
Brazil	6.93	3 %
Others	*43.43*	*20 %*
World Total	***220.60***	***100 %***

In terms of technically recoverable shale gas reserves, the top 10 countries of 2013 with the largest capacities worldwide are shown in Table 4-4 (EIA, 2013). In Map 4-2 (Reig and Maddocks, 2014), the top 20 countries with the highest amount of recoverable shale gas are shown together with the water stress level where the circle color indicates average water stress level across a country's shale plays and the circle size indicates overall volume of recoverable shale gas resources in tcf (trillion cubic feet). The analysis of WRI (World Resources Institute) showed that almost half of the shale gas-bearing countries had significant levels of water stress or arid conditions (Reig and Maddocks, 2014).

As can be seen in Table 4-4 and Map 4-2, the lion's share belongs to U.S. at 15% and it can be said that shale gas production has renewed the natural gas industry in the United States (ShaleTEC, 2015). The shale gas revolution was actually considered as an unexpected development by the American and global energy industries alike – although there are no major gas export facilities in the U.S. yet, international gas markets have already been influenced by the present and future potential unconventional gas production in the U.S. (Chyong and Reiner, 2015). Actually the U.S. has become a world leader in integrating shale gas into its economy since the 2000s and this has brought about a significant market advantage to the U.S. both in the internal and external energy market. Another important thing to mention here is that, although Russia cannot be counted among the countries with serious investments in the shale gas field, it still is located at the 9^{th} place as per the EIA (U.S. Energy Information Administration) figures of 2013 (Bozdemir, 2014).

According to a Communication issued by the European Council regarding the exploration and production of hydrocarbons (such as shale gas), shale gas appears to be the unconventional hydrocarbon with the greatest potential for development in Europe, with activities at prospection or exploration stages already underway in some Member States. On the other hand, there have been licenses given, which



Map 4-2. Volume of Technically Recoverable Shale Gas in Top 20 Countries (tcf) with the largest resources and the level of baseline water stress (ShaleTEC, 2015)

were later withdrawn owing to the enforcement of laws banning hydraulic fracturing. As yet, there is no commercial production of shale gas in Europe, despite a limited number of experimental and exploratory drils such as in Poland (European Commission, 2014a) and in the UK (European Commission, 2015a). For example in Denmark, recently the French energy company Total has announced that it has stopped shale gas exploration since “only a limited amount has been found” (Jacobsen, 2015). On the other hand, it was also announced that, in spite of the presence of a certain level of opposition by environmentalists, hydraulic fracturing would be permitted at some areas within the U.K. for shale oil and gas exploration (The Guardian, 2015).

Technically recoverable shale gas reserves for OECD Europe is estimated at about 16 trillion cubic meters (tcm) (European Commission, 2014b), and this value for Europe alone was estimated to be in the range of 4.5 to 5.5 tcm (150-200 tcf) (Weijermars *et al*, 2011). On the other hand, Cambridge Energy Research Associates (CERA, 2009) has provided a larger range, from 3 to 12 tcm, and the US Department of Energy provided a higher estimate at 13.5 tcm (EIA, 2013). WRI estimates the world’s technically recoverable shale gas inventory at about 220 tcm, of which Europe accounts to only 4% (approx. 9 tcm) thereof (Reig and Maddocks, 2014).

Within the EU, the largest reserves are located in France and Poland , with 4-5 tcm, according to the US Energy Information Administration (EIA, 2013) (see Table 4-5). However, the European geology is more complex as compared to the U.S. soils due to more fragmented and older underground formations, leaving less room for technical or economic feasibility of gas extraction (Simon, 2014). Germany was also formerly considering the extraction of shale gas despite the possible environmental risks, however, the fact that the amount of shale gas that is foreseen to be extractable being at 20 bcm until 2030 (corresponding to only one fourth of what Germany has consumed in 2014), is forcing Germany to accept that shale gas in Germany does not have the potential to form an alternative to the Russian imported gas neither in the short term nor in the long term (Enerji Enstitüsü, 2015-05-11b). In fact it has been pointed out that hydraulic fracturing would cause "severe environmental impacts and contaminate drinking water" not only in Germany but throughout Europe (Sagener, 2015).

Table 4-5. European shale gas assessment by EIA (2013)

Region – Basin	**Technically Recoverable shale gas (tcm)**
Poland	4.19
France	3.93
Romania/Bulgaria	1.07
Denmark	0.92
UK	0.75
Netherlands	0.75
Germany	0.49
Ukraine/Romania	0.29
Sweden	0.29
Spain	0.23

As for Turkey, the site surveys conducted by TPAO (Turkish Petroleum Incorporated Partnership) have determined that Diyarbakır, Erzurum and Thrace region contains geological formations from which shale gas can be extracted and certain drillings have been commenced which is foreseen to result in some shale gas extraction within the next decade if everything goes according to the plan (Bozdemir, 2014). According to the EIA (2013) Report, Turkey potentially has 0.7 tcm of technically recoverable shale gas. However, considering the fact that even this amount might not be "economically" recoverable (Weijermars, 2013) and when we compare this figure with the values worldwide, it can be said that shale gas alone should not create any change in terms of dependence on Russian gas imports for Turkey.

The main regulatory and environmental concerns and risks of shale gas extraction can be listed as follows:

- Limited experience in the EU regarding the use of shale recovery techniques
- Lack of adequate and comprehensive regulation to tackle with the resulting environmental impacts and risks
- Use of typically hazardous chemicals, waste volumes and characteristics
- Large use of water, part of which is not recovered
- Air emissions including volatile organic compounds (VOC) and methane (CH_4, which is a GHG) emissions
- Impacts by and on geological structures (aquifers, groundwater, surface water, etc.)
- Possible induction of seismicity
- Noise, traffic, land use, biodiversity impacts, etc. (European Commission, 2014a)
- Possible negative impacts on soil quality due to possible leaks and spillage
- Necessity to drill more wells as compared since productivity of shale-gas wells are often considered to be lower than conventional wells (European Commission, 2014b).

Some of these mentioned threats and adversities can even have cross-border implications, with the pollution of air, water (surface and underground) on a larger scale. The options considered by the European Commission to address these issues range from the issuance of a recommendation and guidance to encourage voluntary commitments by sector operators, to the issuance of a binding directive for the overall European Union (European Commission, 2014a).

On the other hand, shale gas can be used as a substitute of more carbon intensive fossil fuels to bring about environmental benefits provided that the relevant emissions are kept under control. Although the price of power generation from shale in the EU is foreseen to be 1-5% higher that from gas, the generated emissions would be about 40-50% and 7-10% lower than coal-generated and LNG-generated electricity (IEA, 2012; European Commission, 2014b).

According to the results of a public consultation on “Unconventional fossil fuels (e.g. shale gas) in Europe”, more than 35% of the EU members consider that this technology should not be developed in the EU at all, about 30% consider that it should be progressed in Europe only if proper health, safey and environmental policies are in place and less than 30% consider that it should be developed in Europe anyway (European Commission, 2013). When the European states are taken separately, the most prominent proponents of this technology are Poland, Norway and Slovenia (above 70% positive opinion). Lithuania, Portugal and Hungary have an average opinion (50-60%), whereas almost all of the remaining EU-28 states are opposed to this technology (less that 40% positive opinion) due to lack of experience, high environmental concerns and risks (European Commission, 2013). In fact, many NGO representatives in the EU have expressed their strong opposition to this technology (Simon, 2014).

In spite of moderately sized reserves, many EU states, such as Bulgaria, France, Germany and the Netherlands have opted to forgo shale exploration due to significant public, environmentalist and NGO opposition (Patel, 2013). Although these countries could potentially support shale gas production in an economic sense, concerns over environmental risks dominate and energy security has not yet risen to a level that would change policy (Chyong and Reiner, 2015).

Meanwhile, energy security has caused is a major driver of shale gas development in some countries with smaller markets such as Poland, Baltic States, and some central and southeastern European states where liberalization is lower and gas pricing is mostly driven by oil indexes (International Gas Union, 2014a). The UK seems to be in a better position to develop shale gas. It is the largest and most liquid market in Europe. Although, the UK does not depend on

Russian gas at all (i.e., no physical deliveries), it does depend on Norway, the gas coming from the continental Europe and overseas LNG, which, has become an increasing concern for British policy-makers. The UK government is leaning more positively towards shale resource development, particularly supporting private investment with tax incentives (Cha, 2013) but its population is dense and water stress is a major problem for almost one third of the shale plays (Reig and Maddocks, 2014). Germany, as in the case of nuclear power, approaches shale gas development with significant reservation. However, there are proponents as well; who suggest that the exploitation of the technically recoverable shale gas reserves would provide some liberty from Russian gas imports. Reversing a previous decision, Romanian authorities have begun explorations for shale gas with the energy giant Chevron and Ukraine has concluded an agreement with Shell to develop a shale gas field (Patel, 2013).

In terms of the economic aspects of shale gas, the lower volumes and higher overall exploration and production costs in the European market is expected to result in a moderate direct price effect (European Commission, 2014b). In fact, Gény (2010) concluded that cost of developing shale gas plays in Poland and Germany is about 2-3 times higher than in the U.S. and that costlier compared to conventional gas in Europe.

In terms of indirect economic impacts, shale gas advancements are foreseen to place a downward pressure on gas prices in the world (Stevens, 2012), which might cause additional financial difficulties for Gazprom in the EU (Kropatcheva, 2014).

Global demand for energy is forecast to rise by more than 30% until 2040 and shale gas has the capability to affect the world's recoverable natural gas reserves by 47%. According to a report prepared by the European Commission (EC) Joint Research Centre, the U.S. will take on the lead role (70%) in shale gas production by 2020, but it will soon lose its leader status to East Asia (especially China) until

2040 where Europe is foreseen to only reach up to 8% (EC Joint Research Center, 2013; Patel, 2013).

According to the same report, under a best case scenario (considering the environmental concerns), future shale gas exploitation in Europe has the potential to aid the European Union (EU) maintain (important to notice here that it does not say "reduce") a stable dependency on energy imports, keeping them at the current 60% of total EU energy consumption. However, hydraulic fracturing requires up to 25 thousand m^3 of fresh water per well, meaning shale reserves can be difficult to develop where fresh –surface and/or ground – water is hard to find (Reig and Maddocks, 2014). Thus, the recoverable volumes and any future (publicly and environmentally acceptable) technological improvements are still yet uncertain (Patel, 2013).

As it is evident that the EU will not be able to become self-sufficient in natural gas, shale gas has the potential to decelerate the reliance of the EU on imported gas, although to a limited degree (IEA, 2012). Even under the most optimistic scenario, the share of shale gas in the overall energy mix of the EU would be around 10-11% by 2030-2035 (IEA, 2012; European Commission, 2014b).

Russian policy makers try to act indifferent towards this emerging energy source, claiming that this so-called "shale revolution" is like a soap bubble and that it will blast in the near future owing to its lower efficiency, economic problems, environmental disadvantages and consequent public opposition. What actually concerns Russia is the rising LNG trade as a result of the shale advances in the USA since LNG represents a move toward flexibility in the gas market – somewhat similar to the oil market – as opposed to the inflexible pipeline routes, where the latter increases the dependency on Russian natural gas. Actually, Gazprom was planning to start LNG export to the USA by 2015 however, the mentioned "revolution" made the U.S. market non-available (Kropatcheva, 2014).

Another stroke brought on the Russian energy companies by the “shale revolution” is highlighting the technological backwardness of the former (Chazan and Buckley, 2013). Furthermore, since the imported LNG demand in the U.S. is on the fall, the options (such as North Arican states, Qatar, etc.) of the EU for buying LNG has increased (EGAF, 2011). This gas costs 0,1 USD/ bcm, which is cheaper than the price of the Russian gas (Kropatcheva, 2014). This has actually caused Gazprom to lose some market share in the EU – from 31.8% in 2010 (Eurostat, 2014a) down to 26% in 2012 (Gazprom Export, 2013).

In summary, although shale gas does seem to offer an alternative to the Russian gas imports in the EU for diversification of energy sources in terms of energy security (Simon, 2014), there are many problems that EU is facing in order to exploit this alternative (Tsygankova, 2012). First of all, the public concerns regarding environmental and geological issues have to be resolved which necessitates strict regulatory measures as well as further geological surveys. However, the fact that Europe’s population being much more densely located as compared to the U.S. makes it almost impossible to make the drills far away from people’s homes since most of the promising plays are located much closer to local communities. And another difference between the European and American drills is that the landowners in the U.S. are able to receive a monetary benefit from leasing their land to such exploration activities whereas this is not the case in most of Europe (The Oil Drum, 2010). As a result, it can be said that unconventional gas would not be sufficient to sever the ties for the EU with Russia in terms of gas imports (EC Joint Research Center, 2012) mainly due to economic and environmental concerns, in this case, rather than political and security concerns.

4.5. Increase in the Share of Renewables in the EU and Turkey

The main renewable energy sources (RES) are (Alternative Energy, 2015):

- Solar energy; which is utilized via the use of solar (photovoltaic, PV) panels for electricity generation and heat production
- Wind energy; transformed into electrical energy with the help of wind turbines
- Hydroelectric energy; obtained through the use of hydroelectric power plants and dams
- Waste and biomass conversion via incineration plants
- Hydrogen and fuel cells
- Geothermal energy
- Heat pumps
- Biogas and biofuels
- Other sources such as tidal energy: These sources mostly suffer from one or more disadvantages and thus cannot be relied upon yet in terms of aiding to meet the energy demand.

The renewable energy policy of the EU is mainly driven by the need to de-carbonize the energy sector and reduce the ever-increasing dependency on fossil fuel imports (European Commission, 2011a). Renewable Energy (RE) technologies have gained importance in the international platform with the ratification of the "United Nations Framework Convention on Climate Change – UNFCCC" in 1992 and the ratification of Kyoto Protocol in 2005 was a policy driver for decreasing GHG emissions and increasing the share of RES (Şirin and Ege, 2012). The RE policy of the EU dates only back to the adoption of the 1997 White Paper (European Commission, 1997). The 2000's and specifically the year 2001 represent the benchmark for the targets of RES use, as a result of Directive 2001/77/EC on the promotion of electricity generated from RES in the internal power market (Marques *et al*, 2010). Then, it came the Renewable Energy Directive no. 2009/28/EC on the promotion of the use of energy from renewable sources which amended 2001/77/EC (European Parliament and the Council, 2009a). This RE directive was transposed by the Member States by the end of 2010 and National Renewable Energy Action Plans were adopted by each state to share the efforts of achieving this objective with binding national targets (European Commission, 2011a).

The RE Directive currently imposes the **"20-20-20 target"** on the EU as a major energy policy (European Commission, 2015b). These numbers refer to raising the share of energy consumption from renewable sources in the EU to 20%, 20% improvement in the energy efficiency and 20% decrease in the GHG emission values compared with the year 1990 level, all until 2020.

The 20-20-20 energy policy of the EU implies that there are opportunities to trade renewable energy to reduce the cost of achieving the national targets (Amundsen and Nese, 2009), which is also allowed by the regulatory framework: Norway and Sweden are the first to organize cross-border renewable energy trade using a common market for green certificates. Nevertheless, in the current situation, there is little or none RE trade among the EU states (European Commission, 2011a). Capros *et al*. (2008), Commission of the European Communities (2008) and Aune *et al.* (2012) all consider that the cost of achieving the national renewable energy targets for 2020 could be reduced up to 70% with RE trade among the Member States. However, Saguan and Meeus (2014) have concluded that 'the imperfect regulatory framework for transmission investment is a significant cost for renewable energy in the EU.'

Wind Power: 12,086 MW newly installed capacity was connected to the power system in the EU in 2012 reaching a total installed capacity of above 100 GW with an increase of 13% as compared to 2011 (Observer, 2013). The cumulative installed wind power capacity has reached 128.8 GW by the end of 2014 (EWEA, 2015). Germany and Spain took the lead and jointly contributed to above 50% of the total amount of wind energy generation of 2012 (Observer, 2013) and this situation remains unchanged as of the beginning of 2015 (Observer, 2015a). The

2020 forecast for installed wind energy capacity is in the range of 165.6-217 GW to cover 12.8-17% of the electricity consumption of the EU (Observer, 2015a).

A significant factor that contributed to the stimulation of the emerging market in the east of the EU (especially Poland, Romania and Austria) was the sharp rise in the price of gas in 2012 (Observer, 2013). According to a report prepared by the European Wind Energy Association (EWEA) in 2009, wind production costs have decreased by 20% over the 9 years to 2006 and solar PV by 57% (EWEA, 2009). For wind energy, low operating costs increasingly cause falling market prices (European Commission, 2011a).

Photovoltaic: The EU had accounted to about 58% of the total global market in 2012 (Observer, 2013) which unfortunately plummeted down to only 17% in 2014, with the global PV market increasing to nearly 40 GW and EU market receding to about 6.9 GW (Observer, 2015b). Germany and Italy was in the lead in this market back in 2012, accounting for almost 75% of the total amount of photovoltaic capacity (on grid +off grid) installed in the EU (Observer, 2013). However, U.K. (2,448 MWp) made a great leap in 2 years reaching the first place, followed by Germany (1,899 MWp) by the end of 2014, together making up about 63% of the total PV capacity in the EU (Observer, 2015b). Considering the current electricity market price trends in Europe, solar electricity has reached a level where it can compete with conventional production sectors. However, European sector is coming to the end of a cycle and will be unable to develop further at the same pace (Observer, 2013). In fact, this argument seems to be becoming a reality looking at the figures of annual installed photovoltaic capacity: 22 GWp in 2011, 16.6 GWp in 2012, 10.2 GWp in 2013 and 6.9 GWp in 2014 (Observer, 2015b). As for the cumulative installed values, the National Renewable Energy Action Plan scenario from the ECN report forecasts solar energy generation to contribute at 2.4% in 2020, equivalent to an output of 83.4 TWh and an installed capacity of 84,376 MWp. However, Observer (2013) foresees that the installed PV capacity in the EU would reach about 130 GWp by 2020 (Observer, 2013).

Geothermal: The geothermal electricity capacity of the EU is mainly present in Italy (90-95%) and the remaining amount is distributed among Portugal, France, Germany and Austria. In 2012, the net capacity of the EU accounted to 783.0 MWe which was almost the same for 2011-2013 (Observer, 2013, Eurostat, 2015e). It is foreseen that the geothermal power capacity will reach up to 1612 MWe (EC Joint Research Center, 2015), whereas the share of geothermal energy within the total pie-chart of the RES in 2020 will decrease down to 0.15% by 2020 (EREC, 2011)

Hydraulic Power: While this renewable energy source has many advantages, the sector has to contend with the implementation of increasingly binding environmental regulations such as the European Water Framework Directive and the protection of Natura 2000 listed areas, thus the sector expansion possibilities have been reduced. In terms of small hydraulic net capacity (<10 MW) running in the EU states, Italy, France, Spain, Germany and Austria take the lead and the total EU small hydraulic capacity amounted to about 14 GW in 2012 (Observer, 2013). Although the current share of hydraulic power within RES is around 40%, it is foreseen that small hydraulic capacity would increase by 15% at most (reaching to about 16 GW by 2020) (Observer, 2014), leading to a fall back in this former share to 10.5% by 2020 due to the expected significant increase in the windmill capacities by then (EREC, 2011)

Figure 4-3 below shows the share of each energy source in the RE generation in the EU-28 for 2012 and 2013. As can be seen, hydraulic power still accounts for nearly 40%, followed by wind power, biomass and solar power (Observer, 2014).

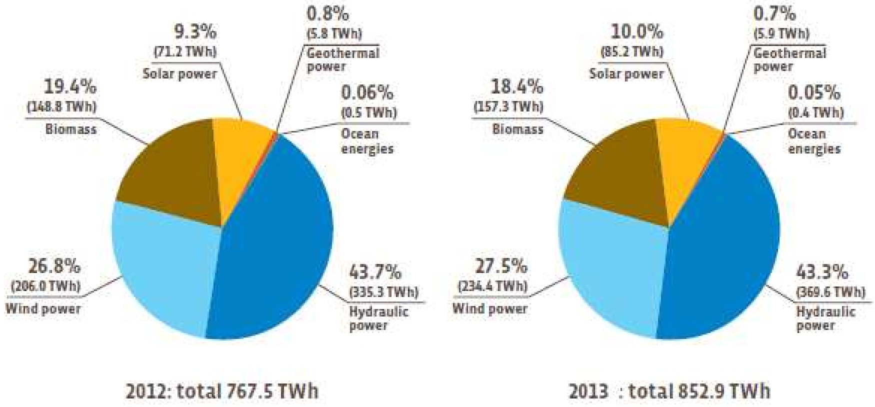


Figure 4-3. Share of RE sources in EU-27 for 2012 and 2013 (Observer, 2014)

In the EU-28, in 2004, the share of the renewables in the gross total energy use was 8.3% which increased to 14.1% in 2012 (Eurostat, 2014b) and 15.0% in 2013 (Eurostat, 2015e). This difference of 5.8% corresponds to an average annual increase of less than 1% which means that the EU will hopefully be able to achieve the 20% share as foreseen in the Directive 2009/28/EC.

Table 4-6 below summarizes the EU-28 status over the years 2004-2013 where Norway is also shown for comparison purposes (Eurostat, 2014b, Eurostat, 2015e). In terms of the countries separately, the largest increases were observed in Sweden (from 38.7% in 2004 to 52.1% in 2013), Denmark (from 14.5% to 27.2%), Austria (from 22.7% to 32.6%), Italy (from 5.7% to 16.7%) and Bulgaria (from 9.6% to 19.0%). When we look at the highest shares of RE in final energy consumption in 2013, Sweden takes the lead with 52.1%, followed by Latvia (37.1%), Finland (36.8%) and Austria (32.6%). The lowest shares were recorded in Luxembourg (3.6%), Malta (3.8%), the United Kingdom (5.1%) and the Netherlands (4.5%).

Table 4-6. Share of energy from RE in the EU-28 (Eurostat, 2015e)

(in % of gross final energy consumption)	**2004**	**2007**	**2010**	**2011**	**2012**	**2013**	**2020 target**
EU28	**8.3**	**10.0**	**12.5**	**13.0**	**14.1**	**15.0**	**20**
Belgium	1.9	3.0	5.0	5.2	6.8	7.9	13
Bulgaria	9.6	9.4	14.4	14.6	16.3	19.0	16
Czech Republic	5.9	7.4	9.3	9.3	11.2	12.4	13
Denmark	14.5	17.9	22.6	24.0	26.0	27.2	30
Germany	5.8	9.0	10.7	11.6	12.4	12.4	18
Estonia	18.4	17.2	24.7	25.0	25.2	25.6	25
Ireland	2.4	3.6	5.6	6.6	7.2	7.8	16
Greece	7.2	8.5	9.7	11.8	15.1	15.0	18
Spain	8.3	9.7	13.8	13.2	14.3	15.4	20
France	9.3	10.2	12.7	11.3	13.4	14.2	23
Croatia	13.2	12.1	14.3	15.4	16.8	18.0	20
Italy	5.7	6.5	10.6	12.3	13.5	16.7	17
Cyprus	3.1	4.0	6.0	6.0	6.8	8.1	13
Latvia	32.8	29.6	32.5	33.5	35.8	37.1	40
Lithuania	17.2	16.7	19.8	20.2	21.7	23.0	23
Luxembourg	0.9	2.7	2.9	2.9	3.1	3.6	11
Hungary	4.4	5.9	8.6	9.1	9.6	9.8	13
Malta	0.3	0.4	0.4	0.7	1.4	3.8	10
Netherlands	1.9	3.1	3.7	4.3	4.5	4.5	14
Austria	22.7	27.5	30.8	30.8	32.1	32.6	34
Poland	7.0	7.0	9.3	10.4	11.0	11.3	15
Portugal	19.2	21.9	24.2	24.5	24.6	25.7	31
Romania	16.8	18.3	23.2	21.2	22.9	23.9	24
Slovenia	16.1	15.6	19.2	19.4	20.2	21.5	25
Slovakia	5.3	7.3	9.0	10.3	10.4	9.8	14
Finland	29.2	29.8	32.4	32.7	34.3	36.8	38
Sweden	38.7	44.1	47.2	48.8	51.0	52.1	49
United Kingdom	1.2	1.8	3.3	3.8	4.2	5.1	15
Norway	58.1	60.2	61.2	64.7	65.9	65.5	67.5

According to Table 4-6, it can be seen that Bulgaria, Estonia, Lithuania and Sweden have already reached their target; Ireland, France, Slovakia and maybe Cyprus (due to the slow pace in 2010-2013) might fall short and in the current progress Luxembourg, Malta, the Netherlands and the UK will not be able to attain their national targets. On the other hand, based on their 2004-2013 average rate of increase, it seems that 18 of the remaining EU-28 states will attain or exceed their 2020 target. As for Norway, its present share is almost two-fold of the highest EU states.As elaborated in Observer (2013) Germany takes the lead in many RE investments and installations. The success of Germany in RES diffusion is partly due to the lack of available indigenous fossil resources and the recent nuclear moratorium. On the other hand the UK, despite its abundant RE potential, has chosen to use gas fired power plants and nuclear energy in electricity generation (for GHG reduction) and to subsidize coal industry (Reiche and Bechberger, 2004). Thus, utilization of RE requires political incentive and determination; mere environmental concerns are not enough. Although it can be said that public awareness does affect the policy choices of governments as in the case of shale gas development in the EU or the nuclear power moratorium decision of Germany. Liberalization in the electricity markets stimulate competition and favor the technologies with short-term profits, which of course by definition, places RE options to the back of the line. The market needs to incorporate social responsibilities into support schemes (carbon tax, etc.), international obligations must be enforced (EU directives, etc.), bring RES costs down to a competitive level via the removal of non-technical barriers and implementation of proper incentives / support mechanisms (Menanteau *et al*, 2003; Şirin and Ege, 2012). Of course, R&D must inevitably be a part of successful RE policy for cost reduction and dissemination.

Turkey’s high import dependency and high energy demand increase has been on its top agenda in the recent decades. Currently, 45.28% of electricity generation is covered by natural gas fired plants, while 24.19% is covered by coal (imported coal, anthracite and lignite) and 22.9% is covered by hydropower plants (Enerji Atlası, 2015). Adoption of BOT and BOO schemes in power generation resulted in elevated natural gas usage which led to an increase in dependency and security concerns. In order to resolve this situation, Turkey has adopted an energy policy wherein the aim is the construction of nuclear power plants (as explained in Section 4.2) and increasing the share of RE sources (Tükenmez and Demireli,

2012) also in line with the relevant EU legislation (Şirin and Ege, 2012). Turkey currently generates 20% of its electrical power from RES which is targeted to rise to 30% by 2023 (Turkish Ministry of Foreign Affairs, 2015).

Table 4-7. Renewable energy potential and installed capacity in Turkey (MENR, 2014)

RES	Economic potential (MW)	Installed capacity (MW) (2010)	Installed capacity (MW) (2013)	2023 Target (MW)	Annual average generation potential (GWh/year)
Hydropower	36,000	16,934	22,289	36,000	144,000
Wind	48,000	1,587	2,760	20,000	60,000
Solar	50,000	--	4	3,000	7,500
Geothermal	600	94	243	600	4,400
Biomass	2,000	44	288	2,000	14,000
TOTAL	136,600	18,659	25,584	61,600	229,900

Turkey's RES potential is very high. In fact, IEA (2008) estimates that this RES potential of Turkey is almost 15% of EU-27's total potential. As per the data of the Turkish Ministry of Energy and Natural Resources, the electricity generation potential of Turkey from RES is totally 229,900 GWh/year which is mostly obtained from hydropower and wind as shown in Table 4-7 above (MENR, 2014); however, as can be seen from the data above, Turkey is currently using less than half of this economic potential in terms of hydropower and near to none of its wind and biomass potential. Despite the high potential of 50,000 MW, Turkey has still no PV systems installed on a bigger scale. As for geothermal energy, Turkey is one of the countries with high potential (Özyurt, 2010) however the current share thereof in power generation is relatively low at 668 GWh as of 2010.

In general, Turkey has given priority to large hydropower energy projects and RES technologies were not provided any financial support until the early 2000s (IEA, 2006). The first support mechanism was developed by Electricity Market

Licensing Regulation adopted in 2002 mainly focused on gird connection issues. In 2005, Law no. 5346 on the Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy (The RES Law) was enforced (TBMM, 2005) but there were several problems encountered during the implementation (Şirin and Ege, 2012). Then, RES Law was amended in 2010 with Law no. 6094 (TBMM, 2010) that contained the "Renewable Energy Support Mechanism (RESM)" to enable RES power plants to benefit more from feed-in-tariff (FIT). For example, hydro and wind plants would receive 7.3 UScents/kWh, geothermal plants would receive 10.5 UScents/kWh, biomass and solar plants would obtain 13.3 UScents/kWh. Another major amendment was increasae of incentives by usinge local manufactured mechanical/ electromechanical equipments in RES plants providing an additional bonus of 0.6 UScents/kWh – 2.4 UScents/kWh. The RES support payments of some EU states and Turkey are shown in Table 4-8 (Şirin and Ege, 2012).

Table 4-8. RES Support Payments (€/MWh) in some EU states and Turkey (Şirin and Ege, 2012)

Member State	Wind power (on-shore)	Solar PV	Biomass	Hydro
Austria	73	290-460	60-160	--
Denmark	35	--	39	--
Germany	50-90	290-550	80-120	40-130
Greece	70-90	550	70-80	70-80
Italy	300	360-440	200-300	220
Netherlands	118	459-583	115-177	73-125
Portugal	74	310-450	100-110	75
Spain	73	320-340	107-158	77
U.K.	310	420	120	230
Turkey	54	100	100	54

As Şirin and Ege (2012) has concluded, Turkey has to increase cooperation with the EU (or speed up the accession negotiations) to ensure political enforcement in the utilization of its potentially vast RE potential. Moreover, the same supports and incentives have to be put in force as described above for the EU case (Menanteau *et al*, 2003; Şirin and Ege, 2012).

In summary, it should be mentioned that this 20-20-20 goal is significantly ambitious for the EU and all these three targets are foreseen to have impacts on the natural gas import of the EU-28 (EGAF, 2011). The possible impact of the efficiency target and emission target shall be discussed in Section 4.6 and 4.7, respectively. But logically, it might be considered that increase in the shares of renewables in the total energy consumption and the energy efficiency can lead to a decrease in the import of natural gas from Russia, whereas, the emission target may lead to an increase in the import of the natural gas from Russia due to the low GHG emissions from the use of natural gas as compared to fossil fuels.

On the other hand, renewable energy sources are not reliable as fossil fuels due their intermittent nature. For example, wind turbines can generate power when the wind is blowing, and solar panels can generate power efficiently only on the sunny days. However, coal, natural gas (and nuclear) power plants can generate power when necessary as a 'base load'. Therefore, these power plants are called as 'base load' power plants. Furthermore, for heating purposes, natural gas is an indispensable and most efficient energy source. That means natural gas should be in the portfolio in any case in order to satisfy the primary energy source diversification. As pointed out by Euractiv in an article in 2009 (Euractiv, 2009), the boom in the RES is seen as a driver for natural gas consumption since it can provide to make-up and back-up any intermittencies in the RES (e.g. wind) and also as a fuel for start-ups after such halts in the system.

Despite many positive environmental benefits of the RES, the price of clean energy, such as wind power and solar is relatively high when compared to those of the traditional energy sources (European Commission, 2011a). Thus, in order to progress the share of RES within the power generation sector, imposition of quotas, financial benefits such as subsidies via price regulation, like the 'feed-intariffs, capital subsidies and tax mechanisms are required'. Several studies, such as Menz and Vachon (2006) and Carley (2009), point out political motivations as the most relevant aspect to the promotion of RES. Furthermore, as the income level and foreign dependency of a country get higher, the tendency of that country to overcome investment and regulatory costs for RE systems gets higher, which is also driven by political motivation to increase diversification for energy security and reduce dependency on foreign sources (Marques *et al*, 2010). It is obvious that monetary support mechanisms for RES systems can only be phased out when the costs thereof decline sufficiently, any existing market complications are straightened and they can operate in a truly competitive market (European Commission, 2011a).

As mentioned above, RES is not as reliable as base load power plants such as coal, natural gas and nuclear and additionally, as it will be explained in Section 4.7, due to the ambitious climate targets of the EU, the dependency to Russian gas will be ongoing. As a result, the impact of the increase in the RES share in the total energy consumption in the EU and Turkey on the import of natural gas from Russia can be considered as negligible.

4.6. Energy Efficiency in the EU and Turkey

Energy efficiency means the minimization of the consumed energy amount without compromising the quantity and quality in production and without preventing economic development and social welfare. In other words, energy efficiency is an integration of efficiency-increasing measures such as the prevention of energy losses in gas, steam, heat, air and electricity; recycling and reuse of various wastes, decreasing energy demand without decreasing the generation via advanced technology use, more efficient energy resources, improved industrial processes and energy savings (İBB, 2015). Especially for the emerging economies, energy efficiency can also be defined as consuming the same amount of energy for generating a higher level of services (rather than using less energy to obtain the same level of services) (Ryan and Campbell, 2012).

One of the widely used parameter in measuring efficiency is “Energy Intensity”. It is the amount of energy used per unit of national revenue, calculated as the ratio of energy consumption to GDP, and counted among the indicators of comparison of development status among countries (Filippini *et al*, 2014; Ryan and Campbell, 2012; İBB, 2015).

Energy efficiency started become a concern for the EU since the oil shock in the 1970s causing steep rises in oil prices however, despite many initiatives and instruments introduced, the impacts thereof proved dissatisfactory (Filippini *et al*, 2014). According to EC (Commission of the European Communities, 2000), possible causes of this failure are listed as decreasing energy prices and low priorities assigned thereto. Nevertheless, the topic was revived as a result of an increase in energy security concerns and Council of the European Union (1998) set the target to improve energy intensity by 1% per year.

The current general EU policy target on energy efficiency is to decrease 20% of the EU's primary energy consumption, compared to estimations for 2020. Regarding this Energy 2020 strategy of the EU, the recent report by the European Commission (2011) suggested that EU would only be able to reach 50% of the 20% target in 2020. This led to the issuance of Directive 2012/27/EU (European Parliament and the Council, 2012) amending Directives 2009/125/EC (Eco-Design Directive) and 2010/30/EU (Eco-Design and Energy Labeling) and repealing Directives 2004/8/EC (Promotion of Cogeneration) and 2006/32/EC (Energy End-use Efficiency).

According to the model devised by Filippini *et al* (2014), the member states of EU-27 (excluding Malta due to lack of certain data) have been classified based on their residential energy efficiency levels as shown in Table 4-9.

Table 4-9. Classification of EU-27 member states based on estimated average energy efficiency (Filippini *et al*, 2014)

Energy efficiency score	**Group**	**Member States**
< 86%	Inefficient states	Belgium, Cyprus, Germany, Denmark, Estonia, Finland, Greece, Hungary, Italy, Latvia, Portugal
86% - 93%	Moderately efficient states	Austria, France, Luxembourg, Poland, Romania, Sweden, Slovakia, Slovenia
> 93%	Efficient states	Bulgaria, Czech Republic, Estonia, Ireland, Lithuania, Netherlands, U.K.

Energy efficiency is increased by 18% over the period 2000-2012, i.e., 1.7%/year. However, the pace is seen to have slowed down in 2008-2012 intervals in most states (1.3%/year on average in the EU) (Lapillonne *et al*, 2014).

The main problem in trying to compare the energy efficiency and/or intensity values used by different global and/or European bodies such as the World Bank (GDP 2011 PPP USD/toe), IEA (TPES toe/2005 USD GDP) and EC (Million Euro GDP 2010/ktoe) is that the units used vary significantly and make it almost impossible to compare with each other (IEA, 2014; European Commission, 2014d; World Bank, 2015; EIA, 2015b).

Coming to the situation in Turkey, during the decade of 1998-2008, the annual average increase of the total final energy consumption has been 3.81% (Turkish Higher Planning Board, 2012). The recent decade has continued the trend of increasing energy demand which is partly met from the gas-based plants whose share within the total installed capacities is on the rise. However, the share of the RES (including hydro plants) is declining and stagnating at best. Furthermore, there are significant losses in electricity generation and distribution, which are definitely issues that negatively affect energy efficiency.

Table 4-10. Comparison of GDP, consumption and Energy intensity (Narin and Akdemir, 2006)

Country	**GDP** ***(in 2000)*** **(billion $)**	**Energy Consumption (Mtoe)**	**Energy Intensity**	**Per capita energy consumption (Mtoe/capita)**
Turkey	190.3	72.5	0.38	1.06
Japan	5,648.0	520.7	0.09	4.09
USA	8,977.9	2,281.5	0.25	7.98
Greece	144.8	28.7	0.20	2.62
OECD	27,880.9	8,970.0	0.20	4.68
World	34,399.8	10,029.0	0.32	1.64

The relationship between GDP, energy consumption and energy intensity for Turkey, some selected countries, groups and the world is given in Table 4-10 (Narin and Akdemir, 2006). According to the IEA (International Energy Agency) the energy intensity is in the range of 0.09-0.19 whereas this figure is 0.38 in Turkey and unfortunately has not shown any significant sign of decrease (0.35 in 2005 (TMMOB, 2008), 0.36 in 2009 (Acar, 2012)). This clearly puts forth that Turkey has a long way ahead of it in terms of improving energy intensity as well as energy efficiency (İBB, 2015).

In order to provide a measure of resolution to this problem, the first step was taken with the enforcement of the Energy Efficiency Law no. 5627 in 2007, followed by steps mostly related to the energy efficiency in home appliances and energy performance in buildings starting with 2008 (EİE, 2015a). The target determined by the Turkish Ministry of Energy and Natural Resources (MENR) with the Energy Efficiency Law is to decrease the energy intensity by 15% until 2020 (İBB, 2015). In 2011, the Regulation on the Increase in the Use of Energy and Energy Sources was put into force which was later amended in 2014. This regulation, inter alia, brought about the condition to possess ISO 50001 Energy Management System Certificate for the entities apply to obtain financial support for their efficiency increasing projects (MENR, 2011). An Energy Efficiency Strategy Paper (MENR, 2012) was issued with the participation of the MENR, public, private sector and non-governmental organizations. This paper puts forth a goal for Turkey to decrease the energy intensity (energy amount consumed per GDP) at least by 20% in 2023 as compared to 2011-year values. Recently, in April 2015, a governmental bank has agreed to join EBRD’s home energy efficiency program in Turkey (Rosca, 2015).

In Turkey, it is known that there is an energy saving potential of about 20-30% in sectors where energy is intensely used. When 15% of energy saving potential is recovered, 6.5 billion TL of natural gas plant investment can be prevented. Turkey may be able to cut 3.0 billion USD of natural gas import per year. When a saving at 35% in the heating and cooling of buildings and enterprises and at 15% in transport can be obtained, it may be possible to cut 1.4 billion USD of oil and natural gas import per year (İBB, 2015; KOBİ Enver, 2015).

According to the data of Istanbul Metropolitan Municipality (İBB), most of the residential energy consumption is related to heating (~45%). To save this energy, insulation is a must. The other options regarding energy efficiency in buildings and industrial facilities are installing more efficient compact fluorescent bulbs and using high efficiency home and industrial appliances (İBB, 2015).

The environmental and economic benefits of energy efficiency is self-evident since it means, at first sight, using less energy to obtain the same benefit, thus paying lesser money and causing lower emissions. Actually, energy efficiency measures are foreseen to contribute at 44% to the de-carbonization on an international level by 2035. It also means using the energy efficiently, therefore it provides health and well-being impacts (better heating-cooling, air quality) on an individual level and energy security due to reduced demand on a national level. In fact, energy efficiency is estimated to have an impact of about 1% growth in GDP, thus it is defended that energy efficiency should not be considered as a mere “energy issue”, but rather, it should form a part of economic policies. Moreover, studies on the macroeconomic impacts of progressed energy efficiency (where energy demand is decreased by 8-15%) suggest that there can be slight but positive GDP improvements at the range of 0.8-1.26% (Ryan and Campbell, 2012). According to a UN study (UNDP, 2004), this increase can reach to 5-7% for Serbia and Montenegro, where intensity of energy is three times more than the rest of Europe.

As for the effect of energy efficiency increase on gas imports, there are some matters that need to be considered. First of all, efficiency increase does not directly equate in the same rate of decrease in consumption since it can provide other welfare gains and then there is the ‘rebound effect’ where some or all of the energy savings obtained is used up, e.g., at increased production on an industrial level (Ryan and Campbell, 2012). In fact, there have been many claims in the newspaper and journal articles that this rebound effect causes a failure to attain the theoretical energy savings as promised by the energy efficiency measures (Owen, 2010; The Economist, 2008; Bialik, 2009; Tierney, 2011). Thus, even if an efficiency target of 20% is attained in the EU, this does not necessarily mean that there will be a 20% decrease in the gas import figures. According to a Communication of EC (European Commission, 2011b), ‘20% efficiency means a saving of 368 million tons of oil equivalent (Mtoe) of primary energy (gross inland consumption minus non-energy uses) by 2020 compared to projected consumption in that year of 1842 Mtoe.’

According to a report prepared by the European Commission to estimate the EU Energy demands by 2050 (European Commission, 2014d), it is assumed that the GDP would rise at 75% from 2010 to 2050 (52% from 2010 to 2040) for the EU. The primary energy consumption is foreseen to decrease at 1.3% by 2030 and 1.2% by 2050 compared to 2011 values, whereas the natural gas consumption percentage is foreseen to stay constant (24-25%) throughout the years, including the impact of the energy efficiency policies. But it should also be kept in mind that the EU has managed to reduce its energy consumption levels in 2011 down to the figures of 1990 (~1600-1700 Mtoe) which had reached a peak of 1832 Mtoe back in 2006 (Harvey, 2015). So what actually is foreseen to happen in the future is that, nuclear energy generation (and fossil fuel utilization) will be, in time, replaced with renewable energy generation and natural gas consumption percentage, and thus the amount, will remain almost constant (or decrease about 0.8-1% at most).

On the other hand, as per a report for energy outlook to 2040 (ERI RAS, 2014) prepared in Russia, the energy intensity of Europe is projected to decrease from about 0.2 to 0.1 (toe/1000 USD GDP) as a result of the energy efficiency policy. And since in the same report, the GDP is assumed to rise at 50-60% in 30 years, it can be said that this report assumes about 20% decrease in the energy consumption of EU-28 by 2040. Although it is suggested that the fuel mix of the final energy consumption will have a higher percentage of natural gas and renewable (with decreased oil and coal), the gas demand would still decrease at about 50 bcm (from 543 to 496 bcm) for EU-28 corresponding to a decrease of 0.3% for 2010-2040 interval.

Thus, it can be said that both the exporter (Russia) and the importer (EU) agree on the forecast of an equal or very insignificantly decreased amount of gas import for 2040-2050. Due to all the justifications listed above, the effect of the energy efficiency on the natural gas import of the EU is not considered to be significant.

4.7. Climate Targets of the EU and Turkey

The final target in the 2020 climate and energy package of the EU is a 20% decrease in EU GHG emissions as compared to 1990 levels. Green House Gases (GHG) are gases that trap heat in the atmosphere, causing climate change. The main GHG are CO_2 (Carbon dioxide: caused mainly by burning of fossil fuels and other organics), CH_4 (Methane: caused mainly during transportation and production of coal, gas and oil, as well as decay of organic waste), N_2O (Nitrous Oxide: mainly emitted during industrial andagricultural activities, as well as during combustion of fossil fuels and solid waste) and Fluorinated Gases (emitted from various industrial processes, sometimes used as the substitutes of ozone-depleting substances with high climate change potential) (EPA, 2013).

Of the four measures that are to aid the 20-20-20 targets, 3 are related to the reduction of GHG and CO_2 emissions: reform of the EU Emissions Trading System (EU ETS, Directive No. 2003/87/EC), national targets for non-EU ETS emissions (Effort-sharing Decision (European Commission, 2015e)) and carbon capture & storage (CCS, Directive No. 2009/31/EC).

Currently EU-28 has achieved a GHG emission reduction of 18% (Meyer-Ohlendorf *et al*, 2014) and EEA (European Environment Agency) has estimated that the reduction amount would reach 21% by 2020 with existing measures (EEA, 2014b). Many consider that this 20% emission reduction target to be too easy to attain (Fischer and Geden, 2013) and too low for combating climate change, whereas for the other 20% targets (for renewables and efficiency), the path seems to be troublesome (RTCC, 2013). Actually, EU is committed to increase this GHG reduction percentage to 30% (European Commission, 2010b). Moreover, on January 2014, the EC has proposed a framework for 2030 with a GHG reduction target at 40%, RE share target of 27% for the EU and a reduction in energy use by 27% (minimum) as compared to the normal forecasts (European Council, 2014, Gradziuk, 2014). On the other hand, many economists and researchers consider that EU should aim a goal of ***minimum*** 40% for 2030 in order to reach its 2050 aspiration of 80-95% cuts in emissions in order to stay within the limit of 2^oC warming over preindustrial levels (Evans, 2014; Malone, 2014; Meyer-Ohlendorf *et al*, 2014; U.K. Department of Energy and Climate Change, 2014).

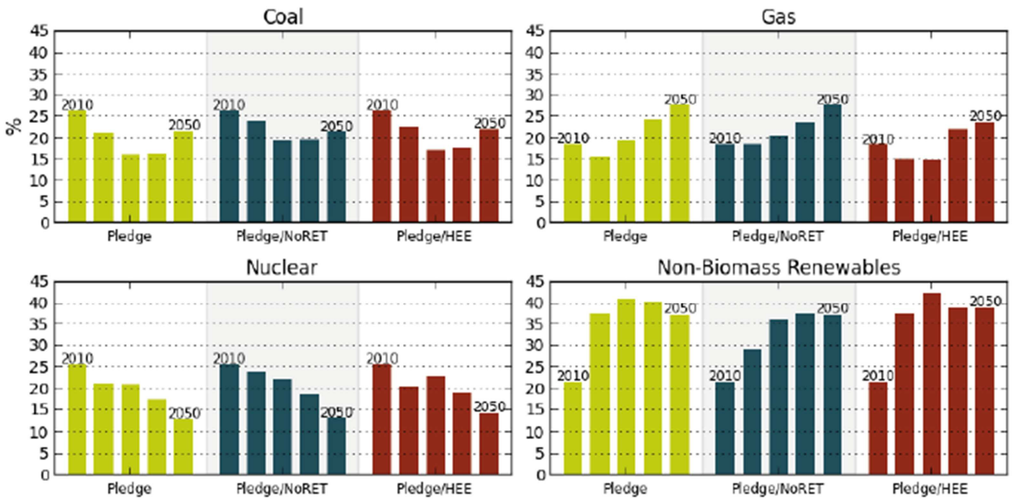
Within the EU, the approach to the climate targets vary among the member states depending on their current consumption composition, RES potential and implementation status, and economic indicators. For example Germany, with a widespread RES implementation and better economic indicators, is aiming to cut emissions up to 78 million tons of CO_2eq by 2020 as the national target of Germany is 40% carbon emission reduction by 2020. They aim to attain this target by also focusing more on energy efficiency, resulting in a reduced need for gas imports (Nicola and Parkin, 2014). On the other hand Poland has expressed its criticism many times over this EU climate policy as it brings about significant economic burdens for its nation (Gradziuk, 2014). Thus, it can be evidently seen here that economic concerns can prevail over environmental ones.

Natural gas is the one of the cleanest primary energy sources and has a limited GHG emission to the air compared with other fossil fuels Such as coal and oil. As the EU-28 aims to decrease the GHG emissions, coal and oil need to be replaced by natural gas, nuclear power plants and renewable energy. Replacing old coal plants with new –state of art- natural gas-fired plants could reduce CO_2 emissions at 60-70% per kWh power generation for the whole life cycle of the plant (exploration, extraction, construction, operation, decommissioning and disposal). Even the newest coal plants emit up to almost two times the CO_2eq per kWh as compared to the NGCCPP. In order to achieve the climate target, the first step is to decrease burning of fossil fuels which is reported to contribute at 56.6% to the accumulation GHG (IPCC, 2011).

However in the recent years, coal consumption in the EU has increased while natural gas consumption declined despite the GHG reduction commitment, due to the subsidies provided to renewable and energy efficiency initiatives causing a decrease in the carbon prices (Carraro *et al*, 2013). According to Eurostat (2015b), the gas consumption of EU has decreased by 14% as compared to 2010 values and it is foreseen to slightly decline in 2020 as compared to 2010 owing to the slow-paced increase in the total electricity demand. Nevertheless, the models prepared by BP (2015a) and EC (2010c) forecast an increase in natural gas until 2035-2050 to replace coal and nuclear power generation. This summarized forecast is shown below in Figure 4-4 (Carraro *et al*, 2013) where the natural gas consumption is estimated to attain a level of 23-27% by 2050 in the EU.

In this analysis, it is suggested that the price of CO_2 should climb from 25$ in 2020 to 60-70$ per ton of CO_2 in 2030 and that the "positive role of gas should not be neglected" (Carraro *et al*, 2013). In other words, political and policy-related pressures are needed to overcome the economic tendencies.

In a report prepared by the European Gas Advocacy Forum (EGAF), the role of natural gas within the 80% emission reduction target of 2050 for the EU was investigated based on three scenarios (Figure 4-5) (EGAF, 2011). As can be seen in this Figure, natural gas percentage is expected to increase in 2030 and 2050 except for "60% Renewables" scenario which seems to be over-enthusiastic and at least twice as costly considering the current state and other forecasts by EC (2010c), BP (2015) and Eurostat (2015b).



Note: Pledge means 'Moderate Policy Scenario'. NoRET is the case where there is no RE target (in 2020 and beyond), and HEE is where additional energy efficiency policiesare introduced (in 2020 and beyond).

Figure 4-4. Energy consumption shares of EU by fuel (2010-2050) (Carraro *et al*, 2013)

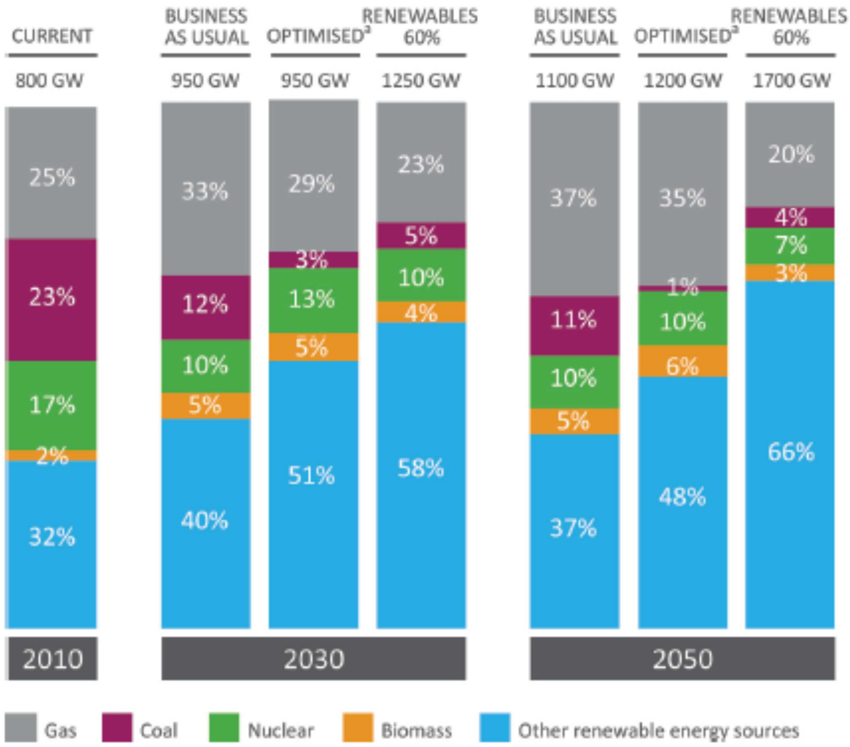


Figure 4-5. Scenarios for Europe's power capacity mix in 2030 and 2050 (EGAF, 2011)
Turkey has been a party to the United Nations International Framework

Although Turkey is not yet a member of the ETS system and does not have any GHG reduction and/or restriction obligation under the Kyoto Protocol until 2020, it has been developing and implementing projects for the voluntary carbon market since 2005. The most recent types of projects developed in the Voluntary Carbon Markets of Turkey and the emission reductions they provide are shown in the following Table 4-11 (comparison of years 2011 and 2014) (Enerji Dergisi, 2013; EİE, 2015b). The Regulation on the Monitoring of the GHG has been enforced in 2012. The Energy Efficiency Strategy Paper for the term 2012-2023, issued in 2012, aims that the energy amount consumed by GDP of Turkey to be reduced by at least 20% in 2023 as compared to 2011 (EİE, 2015b).

Table 4-11. Types of projects developed in the Voluntary Carbon Markets of Turkey and the emission reductions (Enerji Dergisi 2013; EİE, 2015b)

Type of Project	2011		2014	
	Number of Projects	**Annual GHG Reduction (ton CO_2 eq)**	**Number of Projects**	**Annual GHG Reduction (ton CO_2 eq)**
Hydroelectric Plant	124	7,181,723	159	8,747,634
Wind Energy	64	5,603,468	106	7,951,391
Biogas & Energy from Waste	19	2,987,882	27	3,069,273
Geothermal	6	405,309	6	432,081
Energy Efficiency	5	151,432	10	405,309
TOTAL	**218**	**16,329,814**	**308**	**20,605,688**

The total GHG emissions of Turkey has increased from 187 million tons of CO_2eq back in 1990 up to 422.41 million tons of CO_2eq in 2011 (Can, 2013). Of this emission value, 71% comes from energy related activities. The per capita GHG emission amount of Turkey at 5.09 tons is one third of the OECD average and half of EU average. When the emission of the last 150 years is considered globally, the responsibility of Turkey is about 0.4%. Furthermore, the population of Turkey is rising, industrialization process is continuing and thus the energy requirement is fast increasing. Therefore Turkey, with a different position as compared to the other Appendix-I nations under the Kyoto Protocol, would have significant difficulty in undertaking similar commitments as those countries (Turkish Ministry of Foreign Affairs, 2015).

Since Turkey's GHG emissions are on the rise (over 100% increase as compared to 1990 levels) (EEA, 2014a) as compared to the reductions in the EU, the main goal of Turkey should be to focus on the potential of nuclear power generation, increase RES utilization and decrease coal burning. The current natural gas imports of Turkey is 45.3 bcm where 26.2 bcm (about 58%) comes from Russia as of 2013 (EPDK, 2013). The gas consumption and imports of Turkey has always been on the rise and it is foreseen that the 2023 gas demand of Turkey would be 45-50 bcm – which is not an accurate projection – (Satman, 2006) or even 70.5 by 2025 (Cömert, 2010). Thus, the climate target of GHG does not have any negative impact on the Russian gas imports of Turkey.

As is known, the EU is striving to decrease its dependency on Russian gas due to certain political conflicts and for energy security purposes. If the potential impact of GHG reduction in the EU on the gas imports is examined, it can be seen that many of the forecasts explained herewith above, estimate a level of increase in gas consumption and imports – as the gas production in the EU is on the decline (see Section 4.3). As indicated in the Roadmap 2050 of the EC (2010), natural gas is foreseen to play a critical and important role in achieving the policy targets and commitments. In short, the EU has strong climate target commitments and to achieve these goals, the gas consumption and Russian gas import to the EU, in absolute terms, is expected increase slightly as a cleaner and transitional energy source to replace and substitute its environmentally damaging counterparts.

It is worthwhile to mention here about the Paris Climate Summit that was held during November-December 2015 with the participation of 196 countries, resulting in the signing of the Paris Agreement on the 12th of December 2015 (Bodansky, 2015). This Summit pursued the aim of "keeping the increase in the global average temperature well below 2°C above pre-industrial levels; to increase efforts to limit the temperature increase to 1.5°C above pre-industrial levels; and reducing the carbon output as soon as possible" in order to combat global warming and climate change (United Nations, 2015). The presence of China, the U.S.A. (the two being the highest CO_2 emitters since 2005) (European Commission, 2016), the EU, Turkey and Russia within the consensus can be considered historic. In fact, the U.S. President Obama indicated this consensus as a "turning point for the world" and the "best chance to save the one planet we've got" (Dolasia, 2015). 187 of the 196 countries have submitted their pledges which cover 99% of territorial emissions. Table 4-12 below shows the summary pledges of China, the USA, the EU, Russia and Turkey (Carbon Brief, 2015).

Table 4-12. Climate Pledges of Some of the Participating Countries of the Paris Agreement (Carbon Brief, 2015)

Country	Pledge Submission Date	Pledge Description	Share of 2012 GHG
China	30/06/2015	A peak in carbon dioxide emissions by 2030, with best efforts to peak earlier. China has also pledged to source 20% of its energy from low-carbon sources by 2030 and to cut emissions per unit of GDP by 60-65% of 2005 levels by 2030, potentially putting it on course to peak by 2027.	23.75%
USA	31/03/2015	26-28% domestic reduction in greenhouse gases by 2025 compared to 2005, making its best effort to reach the 28% target. This includes the land sector and excludes international credits at this time.	12.10%
EU	06/03/2015	At least a 40% domestic reduction in greenhouse gases by 2030 compared to 1990 levels.	8.97%
Russia	31/03/2015	25-30% domestic reduction in greenhouse gases by 2030 compared to 1990 levels. The Russian pledge includes maximum possible account of the land sector. Carbon Brief has looked at the details.	5.35%
Turkey	30/09/2015	A 21% reduction in emissions by 2030, compared to a business-as-usual scenario. Requests financial support, including from the Green Climate Fund.	0.85%

However, this Summit, despite being a symbolization for hope for a brighter future regarding climate change, is just a beginning step and there are still many things that need to be undertaken. An agreement was reached for the basic structure but not the detailed path towards a sound climate change regime. And since the path has not yet been clarified and elaborated, this unfortunately leaves an open door for the reluctantly-agreeing states to retreat on some of the not-yet-solidified moves (Bodansky, 2015).

Nevertheless, it can be said that the role of natural gas has become more emphasized after this Summit considering the fact that natural gas is a clean fossil fuel and its consumption should be increased in order to be able to meet the climate targets of the participating countries (Detriot News, 2015), especially the EU and Turkey in terms of this thesis subject. As an additional paradigm, natural gas is also considered to be a ‘clean transition and complementary fuel’ towards the path to and within the platform of renewable energy which makes it somewhat indispensable.

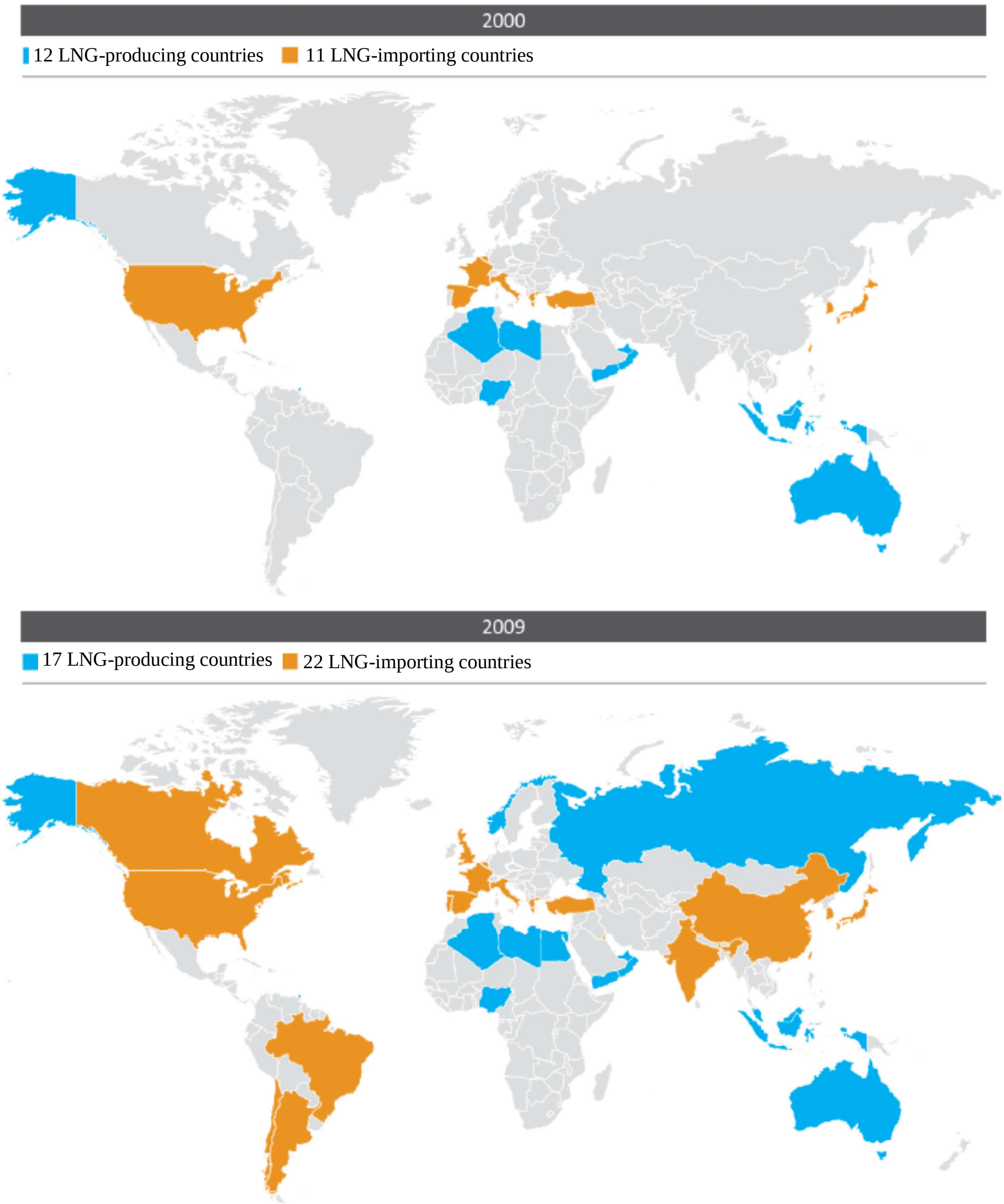
4.8. LNG Imports of the EU and Turkey

Liquefied Natural Gas (LNG) is natural gas (generally methane, CH_4) that has been pressurized into liquid form for ease of storage or transport. It is transported using specific design cryogenic marine vessels (LNG carriers) or cryogenic road tankers. LNG is cost efficient to carry over long distances where pipelines are not available. However, the high cost of production and the need to use expensive specialized tanks for storage generally provides an obstruction against its widespread commercial use (Envocare, 2013).

LNG market has witnessed a significant growth from 2000 to 2009 as shown in Map 4-3 (EGAF, 2011) and the number of exporters increased to 20 by 2014. As can be seen from the map, neither any EU-28 country nor Turkey is a producer of LNG but some EU-28 states as well as Turkey are among the importers of LNG. Another evident situation from the same map is that Russia has also started to produce LNG albeit at a relatively small rate (23 bcm in 2014) (GIIGNL, 2015).

The EU is trying to diminish its dependence on Russia in terms of gas imports due to political issues (especially the recent Crimean crisis and other power-driven actions by Russia) and security concerns (currently 30% of the natural gas received by the EU comes from Russia, and natural gas covers 25% of the energy demand) and LNG supplies have the potential to contribute to the supply security and diversification of the EU (CEER, 2013; International Gas Union, 2014b). Neither EU-28 nor Turkey had any LNG liquefaction plants but there are 21 re-gasification sites in the EU-28 and also 2 sites in Turkey (GIIGNL, 2015).

In 2011, LNG represented almost 20% of the imported natural gas in the EU (Ratner *et al*, 2012) corresponding to about 90.7 bcm. This figure dropped back to 64.6 bcm by 2012 (Eurogas, 2013) and down to around 62.9 in 2013. In 2014, LNG imports into the EU decreased again by about 2-3 bcm as compared to 2013 despite some growth in the U.K. (+2 bcm), reaching to 59.9 bcm for 2014 (GIIGNL, 2015). The major LNG importing EU-28 state is the U.K. and the next is Spain at 16-17 bcm where over 5 bcm thereof was re-exported in 2014. The major suppliers of LNG for Europe are Qatar (54%), Algeria (23%) and Nigeria (13%) (International Gas Union, 2012), corresponding to the following imported quantities in 2011: Qatar (43.4 bcm), Algeria (16.8 bcm), Nigeria (15.7 bcm), Egypt (4.3 bcm), as well as smaller amounts from Trinidad & Tobago, Peru, Oman, Yemen and Libya (Flouri, 2015). Anyhow, the LNG imports of the EU is expected to increase (Coq and Paltseva, 2012; Westphal, 2014), almost double by 2020 as compared to 2014 (Roberts, 2014; Euractiv, 2015a). This forecast of increase is both political and security-related since LNG acts as an energy source that can be obtained from many countries without being bound to Russia; thus it has the potential to provide a moderate amount of energy supply reserve in case of any interruption from the Russian gas lines and also adds on to the efforts of energy source diversification of the EU.



Map 4-3. Growth of LNG Market (EGAF, 2011)

In terms of natural gas imports, Turkey imported 49 bcm in 2012 of which about 58% came from Russia. In terms of LNG, the imports into Turkey have increased by 24% in 2014 over the last year reaching a value of 12.05 bcm, driven by power generation (GIIGNL, 2015). The major suppliers of LNG for Turkey are Algeria (56%), Nigeria (20%) and Qatar (15%). Turkey has signed new agreements and/or extended the former agreements until 2024-2025 with 4.4

bcm/year from Algeria, 1.2 bcm from Nigeria and 1.2 bcm/year from Qatar (Natural Gas Europe, 2014; Oil Review Middle East, 2014). Moreover, spot LNG cargoes are purchased from Qatar depending on the increases especially in the winter demand (5 LNG cargoes purchased at 350 Million USD in December 2013) (Argus, 2014). It has been reported by the Energy and Industry Minister of Qatar that negotiations with a Turkish company to build an LNG terminal in Turkey are ongoing (Bloomberg, 2013). Although Turkey was not considered to be in a political conflict with Russia (Devlen, 2014; Kenyon, 2014) the Russian aircraft being shot down on the 24th of November 2015 raised security tensions among these two countries. As a result, Turkey has resorted to meet any potential shortfall in Russian gas supplies with new LNG agreements signed with Qatar (Okumuş, 2015).

The main advantage of LNG is that, natural gas and oil supply and markets are somewhat intertwined whereas in LNG supply, the source and market do not need to stay physically connected to each other. Moreover, LNG provides supply flexibility (Bloomberg, 2013). However on the down side, first of all LNG imports are more costly as compared to pipeline gas (Coq and Paltseva, 2012; Reuters, 2014a). Secondly, although LNG shipments have the advantage of avoiding transit countries and terrorist attacks on pipelines; they can still be troubled with political instabilities (e.g., blockade of sea routes) or piracy attacks on vessels (Uluslararası Politika Akademisi, 2015). Thirdly, an LNG re-gasification terminal and capacity has to be present at the importer country to ensure energy security which necessitate significantly high investments, up to the level that LNG transits can be referred to as “floating pipelines” (Shaffer, 2013).

Qatar is the top worldwide LNG exporter (33%); Nigeria ranks as the 5th (7%) and Algeria ranks as the 7th (5%) (International Gas Union, 2014b). However, concerns are rising regarding the possibility of a major disruption owing to the political instability at and in the vicinity of Qatar (civil war in Yemen), Algeria (due to the current civil unrest in North Africa) and Nigeria though it is expected that this situation will have a longer term impact rather than a short-term one (Darbouche and Fattouh, 2011; Lockner and Dieckhöner, 2012).

Russia has started to export LNG as of 2008 (International Gas Union, 2014b) and has continued to expand its worldwide share but it has not started to sell LNG to Europe yet. The main importer of Russian LNG is Japan (12.4 bcm in 2013). The LNG export of Russia was at 14.9 bcm in 2012. Although these numbers may seem to be low, Russia actually ranks 8th (5%), just after Nigeria, among the worldwide LNG exporters. It is expected that Russian LNG exports would reach to nearly 60 bcm by 2020 (Roberts, 2014). This clearly shows that Russia has both the interest (Gazprom, 2015e) and the potential (ERI RAS, 2014) to include LNG into its energy exports portfolio.

LNG import capacity of Europe corresponds to about one third of its annual demand. Lithuania and Poland is planning to start up an LNG terminal in 2015 to increase its energy security position. Moreover, as the USA is increasing its exporting capacity, it has the potential to become additional source of LNG imports into the EU (Reuters, 2014a). Lithuania and Poland have started negotiations with the USA regarding natural gas supply in 2015. Currently, Russian LNG prices are higher as compared to the U.S. and Qatari LNG prices (BP, 2014), however, Gazprom has stated that it has the ability to compete with the future U.S. LNG imports into the European markets in terms of price (Rapoza, 2015) and the U.S. LNG exports into Europe are not foreseen to break the gas dependence of the latter on Russia (Uluslararası Politika Akademisi, 2015). As for possible imports of Asia in the future, an increase is not estimated in the near term due to the increasing indigenous demand of Asia, higher prices and the “relatively tight” market conditions (Almeida, 2015).

In summary, the increase of market share of LNG is not expected to affect Russian natural gas exports to Turkey or the EU because:

1- Turkey’s energy demand is growing at a fast rate (4.5%/year) and foreseen to double in the next decade. An important target of Turkey is to replace coal-fired plants with more environmentally-friendly alternatives such as RES, nuclear power and natural gas (Rzayeva, 2014; EIA, 2015c). The natural gas consumption of Turkey is also on the rise for a very long time (over 100% increase in the last decade) (BP, 2014). The foreign-dependency of Turkey for natural gas is at 97.3% and almost two thirds of the natural gas requirement is met from Russia (MENR, 2009). LNG imports correspond to 20% of the gas been imported via pipelines (EPDK, 2013) and meet only 4% of the total domestic energy demand. With the current long term contracts signed with Algeria, Qatar and Nigeria (adding up to 6.8 bcm/year plus any other on spot purchases), it is mostly likely prone to be considered as an alternative to coal combustion or as to cover any seasonal increases in demand. Therefore, LNG does not currently have the potential to affect the Russian gas imports of Turkey.

2- LNG imports only correspond to 5% of the energy demand of the EU and have been on a declining trend for the past 4-5 years (Gas in Focus, 2014; International Gas Union, 2014b; BP, 2015b). Moreover in the best case scenario, even if LNG imports double by 2020 as Roberts (2014) has suggested, it still can reach to a 10% capacity to meet the total demand – again assuming that the demand value stays somewhat constant thanks to efficiency increasing efforts (BP, 2015a) – which in itself, is not sufficient enough to significantly affect the Russian gas import share considering the decrease in the consumption of nuclear power and coal. In fact, it is estimated that the possible increase of LNG imports will come from Australia and the USA, but the “Russian gas imports are not set to be meaningfully displaced” and remain constant at 150-160 bcm range according to a recent report prepared by the International Energy Agency (IEA) (Euractiv, 2015a).

3- Pricewise, LNG is and foreseen to be more expensive than pipeline gas (Atlay, 2013) which puts it economically in a negative position. For example if the EU resorts to purchasing LNG from Qatar to substitute all its gas, which it normally imports from Russia, the price that the EU will pay will increase by about 30% based on 2013 prices (145.9 bcm Russian gas imported in 2013 (Gazprom, 2015g) corresponding to 44,383 million USD; average Qatari LNG price in 2013 at 11 USD/millionBtu (International Gas Union, 2014b), corresponding to a total price of 57,200 million USD). However, the EU, driven by political concerns over economic ones, may chose to increase its LNG import share but this seems to be unlikely considering the current economic problems faced by especially Spain (contributing to almost 25-30% of the LNG imports of the total EU) and Greece.

4- There are also other possible disruptions that might occur in the future due to the current political unrest in the vicinity of Qatar, Algeria and Nigeria, which supply more than 90% of the LNG imports of both Turkey and the EU.

4.9. Concluding Remarks

Nuclear power is considered to be an efficient, relatively clean energy but it involves extremely high risks with devastating consequences in case of an accident, such as the recent 2011 Fukushima nuclear disaster. As can be seen in Table 4-1, in the EU-28, merely 3 nuclear reactors are under construction as of June 2015 as compared to 127 in operation, and Table 4-2 clearly shows the decreasing trend of nuclear production in the EU. The nuclear phase out decision of Germany, located in the 2nd place in terms of nuclear production in the EU, will most definitely exert an extra downward pressure on the nuclear generation capacity of the EU. Although coal seems to be substituting for the gap left by nuclear generation recession, this option cannot and should not be continued considering the 20-20-20 Directive targets of the EU and more importantly considering the significant negative environmental impacts of coal burning in terms of climate change . Turkey on the other hand is on its way of building its own nuclear capacity for energy diversification purposes.

Natural gas production is on the decrease within the EU (near to nil in Turkey) and the demand is and foreseen to be on the rise in the upcoming years for the EU albeit at a slowing rate (the rate of demand increase in Turkey is expected to be the same). **Shale gas production** does not seem to be a viable option neither in the EU nor in Turkey at a significant level, however, the shale boom in the U.S. might prove to be an alternative source of LNG in the future for the EU. Just like shale gas, **LNG production** is globally on the rise but not in the EU or Turkey. LNG imports accounts for about 30% and 17% of gas imports to the EU and Turkey, respectively. EU is seeking to increase LNG imports from its current importers of Qatar, Algeria, Nigeria, as well as possible new alternatives such as the USA and Australia. Turkey has also increased its efforts in obtaining more LNG from Qatar owing to the recent political and security tensions with Russia.

The recent 2020 Energy Strategy of the EU aims to attain 20% increase in RES utilization, 20% increase in energy efficiency and 20% decrease in GHG emissions by 2020. Increasing the utilization of **renewable energy sources**, such as sun, wind, biomass, etc., for energy generation has been on the top agenda of the environmentalists for a very long time. Although RES can generate the cleanest energy with a relatively good yield if installed and operated properly, the economic burden thereof evidently decreases its attractiveness for Turkey and the EU states which are in a less economically-advantageous situation such as Poland, Greece, Spain, etc. Moreover, the intermittent nature of most of these systems, make it necessary to utilize complementary energy sources such as natural gas. **Energy efficiency** is also not a new concept however, the economic burden is much higher since ensuring energy efficiency requires modernization or complete replacement of existing systems. The **climate target** of 20% decrease in

GHG emissions to prevent, or at least decelerate, climate change is actually considered to be too low by many experts and the EU, with Germany on the lead, has put in motion plans to increase this target to 40% by 2030. This necessitates determined steps to be taken by the EU as a whole to decrease coal power utilization as much as possible. Although not currently legally bound by this target, Turkey is also aiming to decrease its coal-fired power plants and hoping to take a major step with the prospective Akkuyu Nuclear Power Plant. Despite this theoretical “aim”, it should be mentioned that Turkey is still making significant investments in coal-fired plants and is foreseen to double its coal power capacity in a mere duration of four years (Crisp, 2015c). The Paris Agreement signed as a result of the 21st Conference of Parties is also another step by the EU and Turkey in achieving this climate target and to reduce GHG emissions, as well as diversifying energy resources towards more RES. Although the consensus reached in this Agreement by 196 parties can be deemed as a success, neither the path to achieving the relevant objectives nor any penalties for failing to reach such targets has been concretized yet. Considering the fact that natural gas is a clean fossil fuel that can be used to reduce climate change, GHG emissions, plus its utility in acting as the complementary energy source in RES systems, Paris Agreement should not be considered as an item that can directly decrease Russian gas exports to the EU and Turkey.

Now what needs to be done is to factor in all the elements elaborated in this chapter to try to obtain an overall picture for the thesis arguments. The two tables below (Table 4-13 and Table 4-14), sum up the possible impacts of all the considerations accounted for herein this Chapter on imports of Russian gas to the EU and to Turkey.

Table 4-13. Factors that might increase/decrease Russian gas imports to the EU

Factors that might **increase** Russian gas imports to the EU	Factors that might **decrease** Russian gas imports to the EU
- Decrease in nuclear generation capacity *(however, RE capacity increases have the potential to cover up for the loss in nuclear capacity)* - Decrease in natural gas production - Decrease in GHG emissions *(EU aims to replace coal-fired plants with RES generation facilities and other measures rather than resort fully to natural gas)*	- Shale gas production - Increase of RE generation - Increase of energy efficiency - Increase of LNG imports

Table 4-14. Factors that might increase/decrease Russian gas imports to Turkey

Factors that might **increase** Russian gas imports to Turkey	Factors that might **decrease** Russian gas imports to Turkey
- Decrease in GHG emissions *(Turkey is still in a planning stage rather than implementation stage in terms of phasing down coal-fired plants)*	- Increase in nuclear generation capacity *(however, this prospective capacity will most likely be used to replace coal-fired plants rather than decreasing Russian gas imports)* - Shale gas production *(Turkey has no potential on its own and no near term agenda for the purchase thereof)* - Increase of RE generation and energy efficiency *(RES utilization and energy efficiency is still very low in Turkey)* - Increase of LNG imports *(Turkey has no near term agenda for a significant increase of LNG imports)*

As can be seen in Table 4-13 and 4-14, it can reasonably be argued that the overall potential impact of all the factors considered in this Chapter should not create a significant effect on the amount of gas being imported from Russia.

Most of these seemingly environmental dimensions – such as emphasizing RES, energy efficiency, GHG emission reduction, seeking out LNG and shale gas options – were mostly dormant or moving at a much slower pace until the Ukraine gas crises, Crimea Crisis and Syria Crisis which were then spurred into an accelerated action owing to increased political-security concerns of the EU. Thus, as defended by the thesis argument, the EU places political-security concerns above environmental-economic concerns which will be elaborated in the next Chapter.

CHAPTER 5

SECURITY AND POLITICAL DIMENSIONS

5.1. Introduction

As Chapter 4 analyzed the environmental and economic dimensions, this next chapter, takes on to discuss the security and political dimensions that may affect the natural gas diplomacy of Russia with the EU and Turkey. After the discussion of the Russian natural gas policy and a brief outlook on the natural gas supply security of Russia to the EU and Turkey, now one of thesis arguments, i.e., that "security and political dimensions prevail over economic and environmental dimensions in the natural gas pipeline diplomacy of Russia with the EU and Turkey", has to be broken down into its sub-items for detailed analysis.

This chapter is concerned with the political and security considerations of the mentioned diplomacy of Russia and for this aim; a brief history reminder on World War II and the Cold War, fall of the Soviet Union, as well as EU and NATO expansion is necessary in order to get a clearer picture as to how things turned out to be as they are now. Then, the Energy Reform Package of EU is discussed, which is actually the "reaction" component of the simple Newtonian action-reaction principle among the EU and Russia where "action" can be considered as the totality of 'Power politics of Russia on Europe, Ukrainian gas crises and Crimean annexation'.

This chapter also looks into the detail of the attitudes of the transit countries (Ukraine, Moldova and Turkey) located en-route to the EU for gas pipeline transmission towards the EU and Russia. And last but not least is the evident elaboration of how the EU-Russia relations evolved, or rather devolved, following the infamous 2006 and 2009 Ukrainian gas crises.

5.2. Power Politics of Russia and the EU on the Balkans and Eastern Europe

When seeking to delve into and gain an outlook at the power politics of Russia and the EU on the Balkans and Eastern Europe, one needs to go back in history all the way back to the World War II to obtain a better perspective. By the end of the World War II in 1945, the Soviet Union had seized and annexed many countries and lands in the Eastern Europe, including Estonia, Latvia, Lithuania and eastern part of Poland. Until 1949, Poland, Czechoslovakia, East Germany, Hungary, Romania, Yugoslavia, Albania and Bulgaria (thus most of the Balkan and remaining Eastern European states) had become communist under the influence of the Soviet Union as seen in Map 5-1 (Geoffrey, 1999).

Map 5-1. Divided Europe after 1949 (Geoffrey, 1999)

In response to the security threat posed by the Soviet Union, NATO treaty was signed in 1949 among the twelve founding nations (Belgium, Canada, Denmark, France, Iceland, Italy, Luxembourg, Netherlands, Norway, Portugal, the U.K., and the USA). The Soviet Union continued its expansion actions towards Germany, occupied Berlin in 1945 and then applied a blockade again in Berlin during 1948-1949, which finally led to the separation of East Germany and West Germany which was to last until 1990 (Geoffrey, 1999). Meanwhile Greece, Turkey and West Germany joined NATO in the 1950s (NATO, 2015).

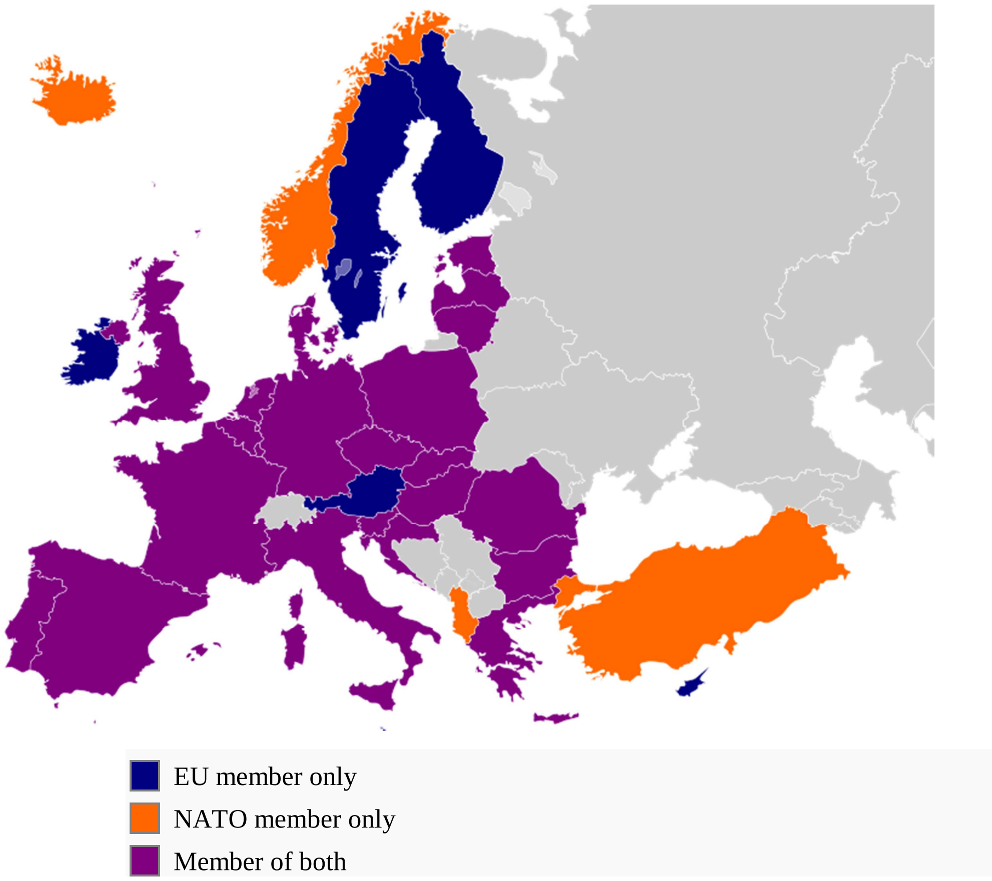
The organization, which is now called the European Union, was founded in 1957 originally with six members: Belgium, France, Germany, Italy, Luxembourg and the Netherlands. Evidently suggested by its title, this union did not contain Canada and the second biggest power of that time: the USA (the first was of course the Soviet Union). As opposed to NATO, which can be termed as an international organization, the EU is an integrated organization wherein the former operates based on interdependence and mutual cooperation, without intervening to the internal policy-making of its members, whereas in the latter, certain policy decisions are taken with mutual discussion of all the members and the organization can impose sanctions on its members in case of violation of any mutual laws or regulations (Dedman, 2006).

During the 1960s, Eastern Europe started to free itself from and rise above the basis of mere communist forces, moving towards modernization, nationalization, industrialization and a democratic pluralization (Gati, 1974).

Soviet Union collapsed during 1989-1991, being divided into the Russian Federation, Ukraine, Belarus, Estonia, Latvia, Lithuania, Moldova, Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Turkmenistan, Tajikistan and Uzbekistan (History, 2011). Thereby a significant part of the Eastern Europe declared its independence and some of these independent states (Estonia, Latvia and Lithuania) became an EU member in 2004 (European Union, 2015).

NATO member countries reached to 28 with the addition of further Central and Eastern European countries. 1999 marked the membership of Poland, Hungary and the Czech Republic despite a strong Russian opposition. The current map showing the membership situation of NATO and the EU in Europe is given in Map 5-2 (Wikimedia, 2013; NATO, 2015).

Estonia, Lithuania and Latvia, known as the Baltic States have underwent significant turmoil and devastation within the 20th century. Nevertheless, having declared their geographical freedom from the Soviet Union at the onset of the 1990s and becoming a member of the EU and NATO in 2004, the path to their actual freedom can be considered to have reached its happy ending (Maly, 2009).



Map 5-2. Map showing the European membership of EU and NATO (Wikimedia, 2013; NATO, 2015)

As can be seen in the above narrative and maps, the collapse of the Soviet Union resulted in its shrinking towards the east, while EU and NATO has enlarged significantly to cover most of the Balkans and Eastern European states with the goal of earning security, economic and geopolitical benefits. The biggest expansion of the EU occurred in 2007 as compared to 2004 (from 15 to 27 members). However in the 2010s, this enlargement reached a stagnation owing to several financial and economic crises in its amidst. This has also resulted in a level of reluctance and concern in the EU citizens and leaders alike regarding further enlargement (Szolucha, 2010), though this reluctance has not yet transformed into a complete halt, as evidenced with the start of access negotiations with Montenegro and Serbia in 2012 and 2014, respectively (Vachudova, 2013). And on the other side of the coin, some researchers started to question whether the Western Balkan countries still even want to access such a troublesome EU. Nevertheless, it is argued that the incentive of the EU membership for the non-EU member western Balkan states that are either in a candidate or potential candidate status (Albania, Montenegro, Serbia, The former Yugoslav Republic of Macedonia, Bosnia & Herzegovina, Kosovo) (European Union, 2015) creates a 'democratizing effect' and a quasi-stability in the region that is still struggling with ethnic wars, territory issues and corruption (Vachudova, 2013). Of course, there are also other articles such as the one by Cunliffe (2012), which points out how the EU's implementation of leverage against the Western Balkans resulted in pushing such countries further away from modernization and reform.

It is also argued that the power politics of Russia over the Balkans has transformed into a geopolitical nature in the 21st century with several natural gas pipeline projects being put in motion such as the failed Nabucco-South Stream and current-winner TAP projects. It is considered that the Balkan states, not having completed their gas market evolution, bear a significant potential for high demand (Özdemir, 2014). As can be seen in Map 5-2, none of the Western Balkan states – save for Croatia – have yet accessed the EU due to some objective and some subjective requirements. The primary energy consumption in the non-member Balkan states has several issues with gas having 12% share as compared to the EU's 23% and coal being at 40% as compared to the EU's 17% as can be seen in Figure 5-1 (Pesut, 2013). Due to reduction in domestic gas production, these countries are becoming more and more dependent on Russia. In fact, the gas demand of the West Balkans on its own is foreseen to exceed 21 bcm by 2030. These countries are also located on a gas transit corridor from Russia and Caspian area towards the EU (Pesut, 2013).

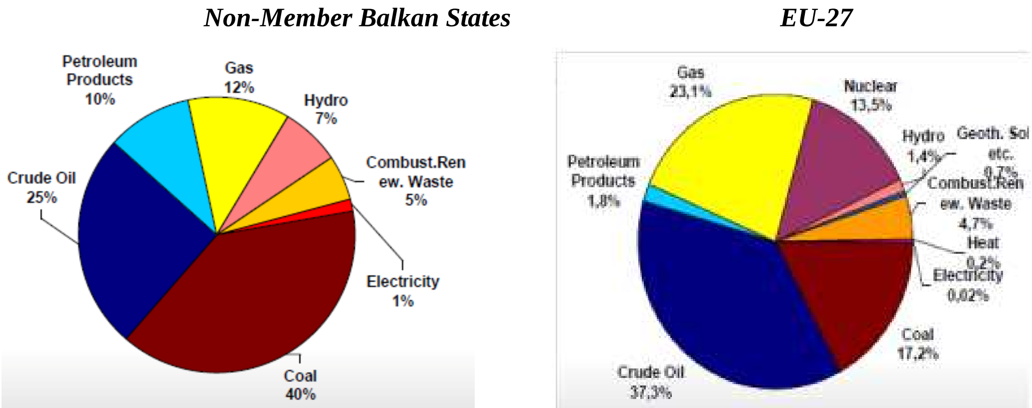


Figure 5-1. Energy Consumption Comparison of Non-Member Balkan States and the EU (Pesut, 2013)

As for the situation after the Ukraine crisis, the EU and the USA share the center stage in terms of devising sanctions on Russia whereas NATO seems to remain more impartial save for a minor increase of defenses in Central European and Baltic members thereof. Russia, on the other hand, is seeking, in a way, to revive the former Soviet Union in the form of an over-arching "Russian community" and protect Russians, wherever they may be, within or without the actual borders of Russia. The Balkans and Eastern Europe, being mostly Slav and having ethnical ties with Russia, are under the constant threat of this expansive vision of Russia and thus seek more support from the Western Organizations – the EU and NATO. Although the EU and NATO can also be deemed as expansive forces;

their expansion urge is more based on free choice, values and behavior rather than ethnicity or nationality (Bond *et al*, 2014).

Although the Cold War had come to an end, Russia always tended to regard NATO as a "US-controlled, anti-Russian geopolitical tool", forming a security threat with military implications. In spite of talks being commenced with NATO for membership and achieving some progress, NATO's enlargement into the Balkans, Central and Eastern Europe during the late 1990s was strongly opposed by Russia (Greene, 2012). In fact, the relations of West and Russia are considered to be at a "historic low" and 'cold peace' only a decade following NATO's expansion in the Eastern Europe. Moreover, there are even some considerations as to whether the Crimean crisis was an (in)direct result of such expansion (Fritsche, 2014). Despite being in a strong opposition to this expansion, Russia had to tolerate it and continue partial alliances with NATO without becoming a member. Some experts expect further memberships could be on the way, including Ukraine and some countries in the Caucasus (Hubel, 2004).

Russia can be considered as one of the equivocal issues in the EU as it has divided the union into "new" and "old" member states. During the 1990s, the EU was thinking in unison, striving to democratize a weak and indebted Russia. However, the Vladimir Putin era transformed Russia into a powerful energy giant, making the EU dependent on Russia with the signature of many long-term bilateral contracts with individual states, essentially shattering the unanimity among the EU (Leonard and Popescu, 2007). In fact, the EU members are classified under five groups by Leonard and Popescu (2007):

- **Trojan Horses:** often support Russian interests (Cyprus and Greece)
- **Strategic Partners:** continue strategic relationship which can sometimes be against common EU policies (France, Germany, Italy and Spain)
- **Friendly Pragmatists:** continue close relationship with Russia and act mostly based on economical/business interests rather than political aims

(Austria, Belgium, Bulgaria, Finland, Hungary, Luxembourg, Malta, Portugal, Slovakia and Slovenia)

- **Frosty Pragmatists:** less intimate with Russia but still tend to weigh on business interests (Czech Republic, Denmark, Estonia, Ireland, Latvia, the Netherlands, Romania, Sweden and the U.K.)
- **New Cold Warriors:** openly hostile towards Russia, directly acting in blocking EU negotiations with Russia (Lithuania and Poland).

In the case of EU expansion into the Balkans and Eastern Europe; Russia has had more success in its opposition in the Baltic states, making them have to choose between West and Russia, using “influence tools” including economic and energy security (Greene, 2012), and disseminating unjustified fears related to closer relations with the EU (Bond *et al*, 2014). Nevertheless, it has been pointed out that the EU enlargement towards the east and south was an achievement, “though not perfect, the right thing to do” (Gotev, 2014). Thus, if the EU actually wants to succeed in enlarging towards Balkans and Eastern Europe without compromising its accession prerequisites, it needs to take a more active role in aiding to improve the democracy, combat corruption in and reduce Russia-dependency of these states.

As can be understood from all of the above, the main concern of Russia against NATO and EU expansion into the Balkan, Baltic and Eastern European states is security and (geo)politics, rather than economy, which is definitely the underpinning statement of this thesis. The most apparent evidence for this is the fact that the candidate and possible candidate members in the Balkans and Eastern Europe are definitely in a less developed status as compared to the current members, with lower GDP (Eurostat, 2015c) and significant corruption. For Russia, the energy sector is seen by Vladimir Putin as the central tool in gaining control over the lands which were lost with the collapse of the former Soviet Union. Instead of focusing on more troublesome issues such as infrastructural modernization, Russia puts weight on political leverage to obtain the Central Asian gas and transit them over Belarus and Ukraine, which is recently being transformed into the aim of transiting through Nord and South/Turkish Stream Pipeline Projects by succeeding in break down the dependence to these two countries.

5.3. The EU Legislation: The EU Energy Reform Packages on Russian Gas Trade with the EU and Turkey

The most recent energy package of the EU, called the 3rd Energy Package of July 2009 is considered as a concerted effort towards a fully liberalized market, containing two Directives and three Regulations, where one of the directives (2009/73/EC) is related to setting out the rules for and improving the structure of the internal market of natural gas (European Commission, 2014c). The mentioned directive aims to obtain a secure, competitive and environmentally sustainable natural gas market throughout the EU, putting emphasis on the freedom of the users to choose their own gas supplier, laying the foundation of regional or international cooperation for supply security and of a common, internal, liberalized gas market.

This package covers the following five essential topics (European Commission, 2015c):

- Unbundling energy suppliers from network operators: This item targets to remove monopoly for operation and sales, increase competition and obtain better prices for end-users.
- Increasing independency of regulators
- Foundation of ACER (Agency for the Cooperation of Energy Regulators)
- Reinforcing cooperation among transmission system operators on a cross-border basis, leading to the establishment of European Networks for Transmission System Operators
- Increasing transparency in the energy market

Among these five topics, the most controversial one is considered as the **“unbundling”** issue. It appears to be item that is directed towards decreasing dependency to a single monopolistic supplier, which almost explicitly points the finger to Russia, in order to ensure energy security. In fact, officials from the EC have stated that they are preparing emergency plans related to the EU energy security, considering every kind of risks and possible scenarios, including Russia, aiming to ensure that no member state is bound to a single gas supplier (Enerji Enstitüsü, 2015-04-17).

Russia, on the other hand, has applied to the WTO to sue the EU for the 3rd Energy Package and claims that the package is violating the provisions of many current agreements with some of the Member States (TASS, 2014-04-30).

The next problematic aspect of the 3rd Energy Package, again under the topic of unbundling, is the permission of third party access to pipelines, which complicates the existing contracts and future plans, especially of Gazprom. The former South Stream project had been requested to be exempted from the Package (TASS, 2014-09-05).

Following the Ukraine crisis, it has become more evident as to how much the EU is dependent on Russian gas. With this in mind, the EU is targeting to decrease dependency on Russia for energy in the framework of the “Energy Union” plan disclosed in February 2015 (European Commission, 2015d; Enerji Enstitüsü, 2015-04-17). In fact, it is suggested that the Energy Union can prevent Russia from making one-on-one agreements with the EU Member States. However, many European companies and the EU Member States currently have long term gas purchase agreements with Russia and the EU will need to wait for the expiration of these agreements to ensure the maturity of the Energy Union. Nevertheless, this “Energy Union” notion can be thought of a medium- or long-term attempt to shift the route in the energy dependency status of the EU as a whole (Anadolu Ajansı, 2015).

Energy Union is considered to have five main dimensions (Crisp, 2015a):

1) **Energy efficiency:** This includes the use of smart buildings. This aspect has an important role both in energy security and climate betterment. In fact, it is suggested that if the full energy efficiency potential of the EU is utilized, this would provide the opportunity to cut gas imports up to 40% within the next 15 years.
2) **Energy security:** finding new suppliers in the Caspian region, Middle East, Africa, as well as increasing the interconnectivity among the states such that any surplus energy can be transferred to another location in need within the EU (Crisp, 2015b).
3) **Internal Energy Market:** better regulation, higher transparency and liberalism in the gas and energy market, ending secrecy in the gas supply contracts and increase of the use of indigenous renewable resources.
4) **R&D and Innovation:** emphasizing this aspect for climate protection so that the costs of renewable and efficiency-increasing technologies could be lowered (Enerji Enstitüsü, 2015-03-20).
5) **Climate:** The goal is to attain a low carbon market and at least double the 20-20-20 targets. Only a 40% legally binding reduction target could be agreed in October 2014 regarding the GHG emissions as compared to 1990 levels. However, the EU energy efficiency target could only be increased to 27%, which is still not binding on a national level.

However, reaching this energy union dream is not without its obstacles. The first obvious problem is Germany phasing out its nuclear power plants where France is dependent, at least in the medium term, to nuclear energy (Anadolu Ajansı, 2015). Another issue at hand is: Bulgaria and Greece, who are having troubles regarding implementing the EU energy legislation. The first comes from the former COMECON Communist economic block whereas the second is a member state lacking territorial link to the rest of the EU. They share monopolistic practices against the liberalist and pluralist approach of the EU. Moreover, they are currently experiencing economic troubles. Bulgaria appears to be more amenable to the EU rules whereas Greece, recently ruled by Syriza and seems more “unpredictable”. As for gas, both states are mostly supplied by Russia and the current main gas pipeline going through Ukraine, Moldova, Romania to Bulgaria, Greece and Turkey is not operated as per the EU legislation (no 3rd party access, no unbundling, no reverse flows) (Gotev and Michalopoulos, 2015).

Poland, among the New Cold Warriors (Leonard and Popescu, 2007), has led the calls for the Energy Union with the aim of ending the secrecy in the gas supply contracts, back-up the transparency item under the 3rd Energy Package, and “curb Russia’s dominant position in the gas market” since Russia is alleged to be overcharging Eastern Europe customers, obstructing competition and free market in gas. Germany, on the other hand, has fears regarding the disclosure of sensitive information (Crisp, 2015b).

An additional problem pointed out by the environmentalists is that the aims of the Energy Union are distorted as it shifts the gas dependency from Russia to Azerbaijan or Kazakhstan, instead of putting more emphasis on renewable energy, indigenous resources and higher efficiency (Crisp, 2015b).

As regards to Turkey, it has commenced a High Level Energy Dialogue with the EU as of March 2015 in relation to strengthening cooperation on energy matters and the realization of the TANAP project since Turkey is deemed as a natural energy bridge and hub between the EU and the energy resources in the Middle East and Caspian Region (Enerji Enstitüsü, 2015-03-18).

The continuation of TANAP towards the EU, i.e., Trans-Adriatic pipeline (TAP), is planned to start operation by the end of 2020 and it will bring gas from Azerbaijan towards Greece, Italy and Albania, representing the European section of the Southern Gas Corridor, and this pipeline has been granted exemption from some provisions of the EU Gas Directive (2009/73/EC) (European Parliament and the Council, 2009b) such that TAP will be exempted from 3rd party access to the pipeline's 10 bcm/year capacity for 25 years. The basis for this exemption is explained as ensuring project feasibility and protecting the investors from certain risks. This in turn, implies that Gazprom, aiming to transit gas to Greek border through Turkey with the Turkish Stream, is being prevented to use the TAP pipeline. However, Russia has another planned pipeline, called the "Tesla pipeline" crossing Greece, Macedonia, Serbia, Hungary and ending in Austria. With this latter project, expected to be commissioned by the end of the next decade, Russia hopes to achieve three goals: bypass Ukraine, increase its political power in the transit Balkan states and punish Bulgaria for vetoing the South Stream project (Gotev, 2015c).

When Russia unilaterally decided to forgo the South Stream Project, rerouting it into the Turkish Stream, which is now destined for Greece and Turkey instead of Bulgaria, this has been considered by Bulgaria as a significant negative impact as a lost economic opportunity. Thus, Bulgaria seems to have been used as "a pawn in the chess power game of the EU/U.S. vs. Russian gas interests". Bulgaria has many shared cultural, business, touristic, religious and linguistic aspects with Russia. The majority of Bulgarian citizens (58%) yearn for the Socialist times and fear that they have irritated Russia since they could not act independent from EU regarding the cancellation of the South Stream project (Batkov, 2015).

Although the South Stream project appears to be cancelled by Russia in response to the pressures coming from the EU, some reporters claim that there were already problems inherent to the project and that the transformation of South Stream into the "Turkish Stream" would definitely not place Russia in a disadvantageous situation (Escobar, 2014a). In a report prepared by the Oxford Institute for Energy Studies back in the beginning of 2014, it was pointed out that the South Stream being built was an "economic" move, and should the project be abandoned, this would be a "political" act overcoming the economic aspects (Beckman, 2014a). Here, we again see how the thesis statement comes to life, with political factors prevailing over economic ones in natural gas relations between Russia and the EU.

What this cancellation has done basically is that it has eliminated a chance of the west and southwest Europe to obtain secure, direct from the source, transit-state-free gas; strengthened the ties between the EU and Turkey via the prospective Turkish Stream; and oriented Russia towards future cooperations with China and Iran (Karpukhin, 2014).

Although EU, as a bloc, has opposed the South Stream Project and is not particularly fond of the prospective Turkish Stream Project which form a threat to the Southern Gas Corridor, there are some Member States which either directly (e.g., Austria, Czech Republic and Slovakia) or indirectly (e.g., Hungary) support energy cooperation with Russia (Jakobik, 2015).

Table 5-1. Nord Stream, South Stream and Turkish Stream Comparison (Dusseault, 2010; Nord Stream, 2014; Gazprom, 2015c; Ria Novosti, 2015b; Standard News, 2015)

	Nord Stream	**South Stream**	**Turkish Stream**
Status	In operation	Cancelled / Suspended	Planned
Type	Offshore twin pipeline through Baltic Sea	Offshore pipeline through Black Sea	Offshore pipeline through Black Sea
Origin	Russia	Russia	Russia
non-EU Transit countries	None	None	Turkey
Destination(s)	Germany	Bulgaria, Serbia, Hungary, Austria, Croatia, Slovenia, Greece, Italy	Greece
Total Length	1,220 km	2,380 km	2,200 km
Capacity	55 bcm/y (27.5 x 2)	63 bcm/y	63 bcm/y (47 bcm/y to EU)
Commissioning	2011-2012	--	*December 2016*
Cost	€ 7.4 billion	*€15.5 billion*	*€15.5 billion*

Nord Stream (in operation), South Stream (currently cancelled) and Turkish Stream (planned) projects are the attempts of Russia to bypass Ukraine and utilize Turkey as an end-user and transit country towards the EU. Table 5-1 above shows the comparison of the Nord Stream, South Stream and Turkish Stream projects in a nutshell (Dusseault, 2010; Nord Stream, 2014; Gazprom, 2015c; Ria Novosti, 2015b; Standard News, 2015). These pipelines are elaborated in Chapter 7.

The 3rd Energy Package and Energy Union initiatives of the EU may be thought as a means of democratizing and liberalizing the energy market and reducing dependency on Russia but the overlooked fact is that the relationship of the EU and Russia cannot be termed as mere dependency, but more as an "interdependency" (Boussena and Locatelli, 2013). If their energy relations are considered with this perspective, this would definitely provide benefit for both parties (Spanjer, 2007). Another matter somewhat neglected in these initiatives is that some Member States are taking steps to phase out nuclear energy, the whole EU is striving to minimize the use of coal and increase the utilization of renewable resources under the 2020 Climate and Energy Package (Helm, 2014), whereas natural gas is the cost effective, more environmentally friendly and more efficient alternative of carbon-intensive energy sources (oil, coal) and it can definitely be safely used as the complementary energy source of the RES utilization systems during the ordinary and extraordinary intermissions of the latter (EGAF, 2011). Since Russia has the most abundant natural gas reserves, it is the closest and willing supplier, and the transmission pipeline systems are already there, trying to loosen the ties with Russia seems like an attempt by the EU to "shoot oneself in the foot" (Karpukhin, 2014).

The second main issue to be overcome is the EU reaching a consensus in its own regarding the attitude to be displayed for internal energy market, energy security, diversification and towards Russia. As explained by Leonard and Popescu (2007), the approach of the Member States within the EU vary significantly, as do their approach towards the Energy Union.

Although there are articles providing a roadmap for the depoliticization of the gas relations between EU and Russia (Romanova, 2014), this road has many obstacles. First of all, both powers need to stop trying to impose their own regulatory structure on each other, abandon the notion of seeing one another as rivals and reach a mutual dialogue where some compromises need to be made by both parties. Then, the transit countries (Ukraine, Belarus and Turkey) need to be acknowledged as separate entities, in fact a partner of both parties, rather than attempting to make them an ally of one party and enemy of the other.

5.4. Attitude of Transit Countries: Ukraine, Belarus and Turkey

As can be seen in Map 5-3 below (Myre, 2014), in order for Russia to export gas to Europe (the EU and Turkey) via pipelines, it has the following 5 viable transit options: (1) Through the Baltic Sea with offshore pipeline systems, (2) Transit over **Belarus**, (3) Transit over **Ukraine**, (4) Through the Black Sea with offshore pipeline systems, and (5) Transit over **Turkey.** The current situation of Russia using these options is given in Table 5-2 (EEGA, 2014).

Map 5-3. Russia, Transit Countries and EU (Myre, 2014)

Table 5-2. Routes for Russian gas towards Europe (EEGA, 2014)

Route Options	**Capacity (bcm/year)**	**Destination**
Through the Baltic Sea - Nord Stream	 55	 Germany
Transit over Belarus - Yamal-Europe - Kobrin-Brest	 33 5	 Poland, Germany, Netherlands, Belgium, U.K. Poland
Transit over Ukraine - Uzhgorod (5 lines) - Komarno (2 lines) - Beregovo (2 lines) - Hust – Satu Mare - Ananyev (3 lines)	 97 5 13 2 26	 Slovakia, Czech Rep., Austria, Germany, France, Switzerland, Slovenia, Italy Poland Hungary, Serbia, Bosnia Romania Romania, Bulgaria, Greece, Turkey, Macedonia
Through the Black Sea - Blue Stream - *Turkish Stream (proposed)*	 16 *16*	 Turkey *Turkey*
Transit over Turkey - *Turkish Stream (proposed)*	 *47*	 *Greece*
St. Petersburg-Finland (2 lines)	6	Finland
Total Existing Capacity (*excluding Turkish Stream*)	**258**	

As can be seen in the table above, about 55% of the existing Russian exports towards Europe (including Turkey) passes through Ukraine, whereas this percentage is 15% for Belarus (BP, 2014; Gas in Focus, 2014). If the Turkish Stream is actually commissioned, the percentage of Turkey will be 20%. However, as a rule of thumb, it should be kept in mind that these figures represent the capacities of the pipelines and not the fixed amount of gas being transmitted on a yearly basis. The actual amounts vary on an annual and even seasonal basis. As an example, the actual gas consumption of the EU for 2013 came from

Ukraine at 55% and from Belarus at 25% (owing to the under utilization of Nord Stream) (Sharples and Judge, 2014). These figures clearly show the importance of the transit countries in the export of Russian gas towards Europe.

The first transit country to be examined is **Ukraine**. Despite owning some modest reserves of gas and oil, Ukraine is heavily dependent on Russia for both (66% for gas and 78% for oil in 2006). Russia had cut off gas supplies to Ukraine during the early 90s against unpaid energy debts but a relatively positive status-quo was preserved until 2004 (Woehrel, 2009).

The first thing to keep in mind is that this CIS state shares the same unique geographic position as Belarus: in between the EU and Russia. This position in turn causes the internal policy thereof being affected both from Russia and from the West. This situation reached its climax with the Orange Revolution where the 2004 presidential election among an “anti-Soviet” Yushchenko and a “pro-Soviet” Yanukovych was considered to be rigged for the favor of the latter, resulting in nationwide protests. Thus, it was claimed that Vladimir Putin had tried to exploit the election as a means to gain power and influence on Ukraine. On the other hand, the West (USA much more than the EU) had reservations regarding this ambition of Vladimir Putin since if this attempt was to reach fruition, Russia would continue to expand its influential circle towards the Central Europe which was definitely undesirable for both the USA and the EU. The main reason was that the USA believed such a situation would lead to destabilizations among the new EU and NATO members, thereby creating a security threat. Thus, while the USA displayed its stand, indirectly favoring Yushchenko, establishing democracy assistance programs (Zielys and Rudinskaite, 2014), the EU tried not to intervene to the crisis, probably because of its own dependency on Russia for gas at about 30%, but the new EU members Lithuania and Poland clearly took the anti-Soviet side. The tension was resolved with the repetition of the voting where Yushchenko won by 52% of the votes (Sirutavicius, 2005).

However this new election result soared the energy issues among Russia and Ukraine. Gazprom started supplying energy at higher prices than before (it was below market rates until 2004), with an increase from 50$ to 230$ per thousand cubic meters of gas. With the rejection of this rise by Ukraine, Russia cut off its gas supplies to Ukraine on January 1st, 2006. Then Ukraine utilized some of the gas that was directed to Europe. When the European government displayed a sharp protest, Gazprom acceded to resume the gas supply on January 2-4, 2006. The conflict of Ukraine-Russia was also partly solved with the use of an intermediary firm, RosUkrEnergo, but this in turn gave Russia access to 50% of the domestic market of Ukraine. Meanwhile, Yanukovych's party won the elections in 2006, making him the Prime Minister. During 2007-2009, "Orange" forces resurfaced in the parliament with Tymoshenko becoming the Prime Minister in 2007, which again led to some cuts and reductions of Russian gas supplies (Parthasarathy, 2008) due to alleged unpaid debts. The most prominent cut came on January 6, 2009, affecting Ukraine and the EU during a very cold winter, with the gas supply finally being resumed on January 20th (Woehrel, 2009).

During the global financial crisis of 2009, IMF and EBRD helped Ukraine pay its debt for natural gas to Russia and modernize its gas infrastructure (Woehrel, 2009; Metal Bulletin Research, 2015). Although this temporarily resolved the issue with Russia, it also meant for Ukraine to be financially dependent on the West (Sandschneider, 2009).

However, only within half a decade after the Orange Revolution, the situation within Ukraine again turned pro-Russian, since Yushchenko, as well as the West, was not living up to their promises. Neither NATO nor EU accession came to reality which accumulated the disappointment. Despite the 2006 and 2009 "political" gas crisis, depriving Ukraine, and therefore Europe, from gas for a few days, the polls showed that the Ukrainian citizens had "forgiven Russia"

(Sandschneider, 2009). In 2010, Yanukovych was elected as the president. Unfortunately, the civil unrest again arose by 2013 owing to disseminated corruption, and Yanukovych, under pressure by Russia (Saari, 2014), rejecting to sign an association agreement with the EU (Karpyak, 2013).

The Orange Revolution was considered by some to be a positive factor for Ukraine's integration into the West, whereas others point out that the increased tension within the country would lead to a negative impact on the integration-into-the-West policy (Sirutavicius, 2005). In fact, looking back at the 2006 and 2009 gas crises, keeping in mind that Ukraine still has not made its way to NATO or the EU despite continuous attempts (Reuters with Euractiv, 2015) and the recent Euromaidan protests which finally led to the separation of Crimea backed by Russia (Katchanovski, 2014), the end result seems to be a negative impact in the overall.

The most recent problematic issue placing Ukraine opposite to Russia was the Crimean crisis. Crimea was internationally recognized as a territory of Ukraine. Following the 2014 Ukraine Revolution, pro-Russian demonstrations commenced by the end of February 2014, resulting in a change of government, leading to Crimea declaring independence and finally Russia annexing Crimea based on a referendum held in the latter. Ukraine, USA and many other governments in the West have condemned Russia in this action, declaring the referendum to be illegal and illegitimate (Kalotay, 2014; Biersack and O'Lear, 2015).

The second transit country at hand, **Belarus**, had been an ally of Russia since the Soviet collapse. As with Ukraine, it is largely dependent on Russian gas and oil, enjoying low prices almost equal to Russian domestic prices. However, this situation took a reverse direction in 2006 when Gazprom demanded Belarus to sell out Belarusian natural gas firms or face with quadrupled gas prices and even threatened Belarus to cut off gas supplies. This conflict was averted with a near miss by the end of 2006, however the tensions did cause an oil supply cut off (by

Belarus) in 2007, which directly affected Western Europe. Nevertheless, Belarus was partly relieved with the oil prices dropping during 2009 as gas prices were loosely tied to oil prices (Woehrel, 2009). Actually Belarus is seeking alternatives for oil such as from Venezuela to reduce its dependency on Russia. Belarus has also tried to make an ally of the EU however, the human rights violations and the lack of a democratic reform is currently making this collaboration unlikely (Bloomberg Businessweek, 2010).

As for gas, Russia continues to increase the selling prices and threaten to cut off gas supplies owing to unpaid debts or pressure applied by Belarus on Russia for greater political concession (Stratfor Analysis, 2010). In fact in June 2010, Belarus (not cut but) reduced the gas supply to Europe pro rata the decreased gas amount being received from Russia for 2 days, which was resolved when Belarus paid back some of its debts and Russia resumed the normal capacity of gas flow (KyivPost, 2010; The Guardian, 2010). The EU state that suffered most from this reduction was Lithuania (Market Watch, 2010) and Poland to a lesser extent.

Nevertheless, a quasi-steady state seems to be reached among Belarus and Russia with Gazprom buying all the shares of the Belarusian gas company Beltransgaz in 2013 and the renewed gas sales agreement concluded based on a somewhat lower price for Belarus during the term 2015-2017 (Kazinform, 2014). As a final note it is noteworthy to indicate that Belarus holds a much weaker bargaining power against Russia as compared to Ukraine (Nagayama and Horita, 2014), with at least three times less gas being transited over the land of the former and Belarus acceding sell out its own gas transportation system to Russia, which Ukraine is still trying to avert at all costs (Sharples and Judge, 2014).

Turkey has a unique bridging position in terms of energy supply to the EU as it is geographically located between Russia and EU, as well as between South Eastern gas & oil-rich countries and EU. It is pointed out that energy, especially gas, will be a strong tool for Turkey in strengthening its geopolitical force

(Babali, 2012). EU has recognized the potential of Turkey for the former's energy security, diversification, and reduction of dependence on Russian resources; and some point out that this might have a positive influence on Turkey's road to accessing the EU (Pala, 2006; Tekin and Williams, 2009). With the accumulation of the issues among the EU and Russia, as well as among Russia and Ukraine, Turkey has emerged as the most promising and reliable route for pipeline gas transmission (Enerji Enstitüsü, 2015-03-26).

In itself, Turkey is highly dependent on imported gas at 98% (Öztürk *et al*, 2011), especially Russian gas at 55% as of 2011 (Babali, 2012). Turkey has been importing gas from Russia since 1987. The imported Russian gas started at 0.5 bcm in 1987, increasing to 12 bcm in 1999 and reaching about 22 bcm by 2011. With a foreseen annual increase rate of 4-8%, Turkey's gas consumption is expected to double (Babali, 2012) or even quadruple within the next two decades (Öztürk and Hepbaşlı, 2004).

The natural gas pipeline cooperation of Turkey and Russia is comprised of the following:

1- Russia-Turkey Western Pipeline: This pipeline used to bring Russian natural gas to Turkey from the west, from the Bulgarian border at 6 bcm/year since 1986 (Özdemir, 2008). However, Turkey has decided not to renew this agreement in 2011 due to Gazprom rejecting to grant the requested discount in price and the plans of Akkuyu nuclear power plant being put in motion again in cooperation with another Russian company, Rosatom (Today's Zaman, 2011).

2- Blue Stream: Originating at Izobilnoye gas plant and ending in Ankara, the gas pipeline is about 1,200 km long, crossing the Black Sea, with the onshore section starting at Durusu-Samsun and has a maximum capacity of 16 bcm/year. It was commissioned in 2003 and the total gas supply to Turkey via the Blue Stream pipeline was gradually increased from 7.5 bcm to 13.7 bcm in 2013 (Gazprom, 2015d).

3- Blue Stream II: This project was contemplated as a conduit to Europe via Greece at 10 bcm/year (Today's Zaman, 2009) to act as a competitor to Nabucco, the latter planning to utilize the Caspian gas instead of Russian gas (Öztürk and Hepbaşlı, 2004). However, this project did not turn into realization when Russia displayed its preference to go along with the South Stream Project (Geropoulos, 2007).
4- South Stream: This highly controversial project was going to transport Russian gas through the Black Sea, entering the EU from Bulgarian border and then distributed to Serbia, Hungary, Slovenia, Croatia and Austria via branched pipelines. Turkey had clearly stated that the South Stream project should not be deemed as a rival, but as a complementary, to any Southern Gas Corridor Project (Nabucco, TANAP, ITGI and/or TAP). In fact Turkey had granted permit to Russia for utilizing the EEZ zone of Turkey in the Black Sea provided that the relevant environmental legislation is obeyed (Babali, 2012). This project was cancelled in December 2014 (Sitdikov, 2014) as Russia and the EU failed to reach an agreement based on the 3rd Energy Package stipulations of the EU regarding unbundling and sanctions being imposed on Russia following the Crimean crisis.
5- Turkish Stream: Following the cancellation of the South Stream, Russia and Turkey has reached an agreement into transforming the South Stream project into the "Turkish Stream" with an off-shore section crossing the Black Sea, again with an annual capacity of 63 bcm. About a quarter of this capacity is planned to be consumed by Turkey and the remaining gas will be transited to the EU via the Greek border instead of the Bulgarian border (Metal Bulletin Research, 2015). The cancelled South Stream and proposed Turkish Stream projects are elaborated in detail in Chapter 7.

In terms of the positions of these transit countries against Russia, Belarus and Ukraine (much more than Belarus) display an oppositional position, whereas Turkey has generally displayed a friendly approach throughout. For example

Ukraine has declared its intention to decrease its Russia-originated natural gas consumption from 50 to 40 bcm with the gas received from the European states via reverse flow method (Enerji Enstitüsü, 2015-04-16). This step can definitely be deemed as a retaliation act against Gazprom owing to the former disagreements among them. Nevertheless, Gazprom claims that this reverse flow will not suffice to meet the domestic needs of Ukraine and that it will have no choice but resort back to Russia (Enerji Enstitüsü, 2015-03-26). Belarus had more of a rollercoaster type of relationship with Russia (Nice, 2012) but recently it has started to impose economic sanctions on Russia following the allegedly illegal action of Russia in the annexation of Crimea. This has, in turn, somewhat started to thaw the long-term cold relations among the EU and Belarus (Casert, 2015; Kulakevich; 2015).

Turkey's dependence on Russia for energy (gas and nuclear) is high and this is also reflected in their intimate commercial and political relations. Turkey aims to utilize this situation for a "win-win" case for both Russia and Turkey (Babali, 2012). Especially in the case of Crimean crisis, Turkey has presented a "muted reaction" towards the annexation of Crimea by Russia despite the fact that this land is located just across the Black Sea and it is home to Turkic Tatars (Kasapoğlu and Ergun, 2014). This reaction of Turkey is deemed to be originating from a possible military threat from Russia and possible severance of energy relations which would definitely lead to a significant aftermath (Cagaptay and Jeffrey, 2014).

In short, it should not be forgotten that the elimination of transit risks is important for the EU and Russia alike. However, pipeline transmission on-shore is cheaper and has less environmental issues as compared to off-shore transit. Moreover, as the paper of Coq and Paltseva (2012) suggests, the apparent belief the risk exposure of the EU as a whole to the Russian gas increased during 1998-2008 might not be true though this risk exposure varies significantly among the Member States. In fact, the same paper argues that Nord Stream, bypassing the transit countries and entering the EU directly from Germany, would increase the disparity among the risk exposure of the Member States and concludes with recommending the establishment of an Energy Union that takes into consideration the energy security and supply risk exposures of all the Member States.

5.5. Russia's Natural Gas Trade with the EU after Ukraine Crisis

The first thing to keep in mind is that, as described in Section 5.3 and elsewhere, Russia supplies 40-45% of the EU's gas demand including LNG (BP, 2014; Gas in Focus, 2014), and 50-55% of the Russian gas received by the EU via pipelines comes through Ukraine – which was 80% in 2010 before the construction of the Nord Stream (Nichol *et al*, 2006). The dependency of the EU states on Russian gas, coming through Ukraine, is the highest for Finland, Estonia, Latvia, Lithuania, Slovakia and Bulgaria, with the last two receiving 100% of its gas through this route (Godzimirski, 2014).

Before its collapse, the Soviet Union was practically a neighbor of the EU and thus was able to transmit its pipeline gas over its own territory (Aydın, 2012). However, with Ukraine, Belarus, Turkmenistan, Georgia, Azerbaijan and many other states declaring independence after 1990, the former Soviet Union, now-called Russian Federation (or, Russia) was faced with two primary serious difficulties: first of all, all of the southern states that has separated from the Soviet Union contained significant gas (as well as oil) deposits which were not the property of Russia anymore. Secondly, Russia was not a direct neighbor to the EU anymore (save for Finland); instead there were five former-Soviet-member states, forming a transit risk for the gas transmitted to the EU.

There have been two major Russian gas supply cutoffs to the EU via the pipeline passing though Ukraine: one in 2006 and one in 2009. The first cutoff in 2006 lasted 2-4 days, while the second in 2009 lasted for 14-18 days (Parthasarathy, 2008; Woehrel 2009; Şenterzi, 2012). The other two recent issues that concerned Russia and the EU were the Euromaidan protests and the Crimean crisis. In the Maidan protests during 2013-2014, closer European integration and democratization was demanded by the Ukrainian protesters; the geopolitical conflict involved was much heightened as compared to the Orange revolutions and the geopolitical struggle among the EU and Russia became more of an internal matter for Ukraine (Pridham, 2014). Despite the fact that Russia was finally admitted to the World Trade Organization (WTO) in 2012, the Crimean crisis in 2014 where Russia annexed the Crimean peninsula was a worldwide attention-drawing situation, after which the USA and the EU started imposing unilateral trade and other restrictive measures on/against Russia (Neuwirth and Svetlicinii, 2015). The following paragraphs take these two gas disruptions within a chronological context to discuss the aftermath and implications thereof on Ukraine, Russia and the EU.

The Russia-Ukrainian gas dispute in December 2005-January 2006 was a result of price disagreements owing to Ukraine objecting to the four-fold price increase (BBC, 2006) imposed by Russia, alleged indebtedness of Ukraine to Russia and the claim by Russia that Ukraine had diverted to itself the gas intended for EU without obtaining prior permission of Gazprom or the EU (Gündüç, 2012; Şenterzi, 2012). Although actually, this aggressive action of Russia is claimed by many as a retaliation of the pro-European political climate developing within Ukraine and the security threat perceived by Russia with the Western forces gaining power in its backyard (Aydın, 2012). Here, we again see how security and politics prevail over economy or environment. Anyhow, this dispute led to shortages and interruptions in the gas supply throughout the EU and this situation set in motion significant activities in the EU where energy security was placed at the top priority agenda (Tekin and Williams, 2009): EU Commission prepared a Green Paper on “A European Strategy for Sustainable, Competitive and Secure Energy” and an energy summit was convened on March 2006. Nevertheless, there was still significant reluctance among the members regarding the establishment of an internal energy market (Westphal, 2006).

However, the second major gas supply interruption in the EU during the beginning of 2009, again due to a political conflict among Ukraine and Russia, was a definite “eye-opener” for the EU (Tekin and Williams, 2009). This disruption created a severe impact on many European and Balkan states (Aydın, 2012). Also, the fact that Russia withdrew from the Energy Charter Treaty on July 2009 elevated the concerns among the EU high-rank officials (Roche and Petit, 2009). The European initiatives for gas supply security culminated on the publication of the European Energy Security Strategy (Godzimirski, 2014), whereas the initiatives for diversification gave emphasis to the ‘Southern Gas Corridor’ concept, backed by the EU and the USA, which is a collective set of conceptual proposed pipelines (Nabucco, Italy-Turkey-Greece Interconnector (ITGI), The Trans-Adriatic (TAP) and Trans-Anatolian (TANAP) Pipelines, Azerbaijan-Georgia-Romania Interconnector (AGRI), South East Europe Pipeline (SEEP) by BP and White Stream) to transport Caspian and Middle Eastern gas towards Europe, thereby bypassing Russia (Şenterzi, 2012). These projects, some of which are competitors and some are complementaries of each other, are elaborated in detail at Section 6.3.

Since Russia had no intention of losing one of its biggest gas customer bloc (the EU), it prepared and published its renewed ‘Energy Strategy of Russia up to 2030’ in 2010 (Şenterzi, 2012) where transit risks to Europe was addressed and the solutions proposed included the diversification of routes, building new pipelines that bypass high-risk transit countries and development of the LNG market (Ministry of Energy of the Russian Federation, 2010). In fact, Russia has declared its intentions to bypass Ukraine completely by 2019-2020 (Euractiv with Reuters, 2015a).

The first evident and successful attempt of Russia to eliminate transit state risks in gas transport to the EU was the building of the Nord Stream in 2011-2012, carrying gas from Russia via the Baltic Sea directly to Germany, with further connections towards Western Europe. This project definitely took away part of the leverage of Ukraine against Russia and enabled Russia to earn the upper hand, at least partially (Şenterzi, 2012).

The second bold, albeit unsuccessful attempt of Russia for the same purpose was the construction of the South Stream pipeline, which was to pass through the Black Sea to enter the EU from Bulgaria and branching to several states therefrom. The initial discussions around this equivocal pipeline project were centered on the environmental impacts and whether this project would be economically more feasible or not as compared to the upgrading of the Ukrainian pipeline towards the EU (Şenterzi, 2012).

In April of 2014, Russia once more threatened to cut off gas supplies to Ukraine due to the default of Ukraine to make the energy prepayment (Umbach, 2014) but did not carry out its threat as of today. In the end, these interruptions made it more clear for the EU as to how much dependent it has become on Russian gas and forced it to concentrate on energy union, efficiency, sustainability, security and diversification. The obvious outputs were the 20-20-20 Directive, increasing the share of LNG, 3rd Energy Package, Energy Union initiative and resorting to other possibilities of gas supply such as from the Caspian states via the Southern Gas Corridor (such as TANAP and TAP). In fact, it can be said that the EU has placed increasing obstacles (rejecting to grant immunity to the South Stream pipeline for 3rd party access obligation as per the 3rd Energy Package) against the South Stream project as a result of the deterioration of Russia-EU gas relations (Şenterzi, 2012; Pala, 2014b).

It has been pointed by many researchers and journalists alike that the EU-Russia gas relationship has started to deteriorate due to many fields of conflict, such as gas prices and liberalization that seem to potentially damage both parties (Umbach, 2013). It is very obvious that the Russia-Ukraine crises (Nichol *et al*, 2006), as well as the Crimean annexation by Russia is ultimately related to political power and not energy.

However, a prejudiced approach to these crises to blame merely Russia for all the mess would be ill-advised. Actually, as pointed out by Mearsheimer (2014), the West (EU and USA) should be considered more culpable. The first tension-creating matter was the desire and initiative of NATO to enlarge. The NATO enlargements in 1999 and 2004 towards Russia were considered by the latter as a significant security threat. In fact NATO officials stated in 2008 that they are considering the possibility to include Ukraine and Georgia as well (NATO, 2008), aiming to take them out of Russia's orbit – this last aim of NATO was supported by the USA but opposed by Germany and France in the fear of "angering" Russia. In fact, the Russia-Georgia war in 2008 can be deemed as a direct consequence of NATO's actions. The second element of course is the expansion of the EU eastward, with the, overt or covert, support for democratization within the Ukraine starting with the Orange Revolution back in 2004. The action of Russia to annex Crimea was actually a move to prevent the peninsula being converted into a possible NATO base and create destabilization in Ukraine to break the pro-Western idealists. During all these NATO enlargement and the EU expansion movements, the liberalists openly backed these actions whereas the realists did not, since they foresaw the possible disastrous reaction of Russia against these actions. Thus, the "realist" approach was definitely more accurate than the "liberalist" approach in this case.

Instead of taking some of the blame, the EU and the USA resorted to apply sanctions against some Russian banks, energy (oil) companies (barring of Gazprofneft, Transneft and Rosneft from raising funds with a maturity longer than 30 days in the European capital markets) and defense firms, such as rejecting the MH17 airplane in July 2014 (Pridham, 2014), as well as prohibiting European companies to provide Russia with advanced technologies for oil exploration (BBC, 2014), with the threat of commencing another set of sanctions targeting other sectors within the Russian economy. The first set of sanctions put in force by July 2014 for a year has recently (June 2015) been voted and approved by the EU to be extended for another six months (Euractiv with Reuters, 2015c). Actually, it has been announced that the gross profit of Gazprom decreased by 86% in 2014 as compared to the former year. Of course the sanctions being applied on Russia form only part of the reason for this severe drop (the other three reasons are shown to be the recession in the oil prices, ruble losing nearly 50% against USD and the 15 bcm decrease of gas export to Europe compared to 2013) (Enerji Enstitüsü, 2015-04-30c). IMF has announced its estimation that these sanctions could cause 9% drop in the GDP of Russia in the coming few years (Euractive with Reuters, 2015b). It is worthwhile to notice that the gas relations were not impaired among Russia and EU since the sanctions did not cover the natural gas sector. Many EU states, for example Germany, consider that such additional sanctions would provoke Russia more to hurt back the EU since they have several economic relations, such as gas, oil and even coal (Godzimirski, 2014), that can be damaged to the detriment of the EU. In fact, Russia did take some serious steps against this backdrop, by concluding several energy agreements with China to gain access to the Asian market such as the Sila-Siberii project and the prospective construction of the Altai gas pipeline, each to supply gas at 30 bcm/year. Another step was the conversion of the failed South Stream project into the new Turkish Stream project in order to trade the high transit risk over Ukraine with a much lower risk over Turkey which has been an open ally of Russia for over a decade, until 24th of November 2015.

A possible solution argued by Mearsheimer (2014) to pacify Russia would be stopping the activities to westernize Ukraine and focus on keeping it as a buffer zone between EU/NATO and Russia. On the other hand, there are other academics such as Pridham (2014), claiming that EU should take more active measures in supporting the pro-democratic and pro-Western developments within

Ukraine to solidify the Association Agreement concluded among the EU and Ukraine on June 2014.

As can be seen in the account given above, there is a significant interdependency among Russia, Ukraine and the EU. But Russian officials generally point out that the dependency among Russia and the EU is an "asymmetric interdependency" where Russia would survive for at least a year without the gas revenues from the West whereas Europe would not last more than a month without Russian gas imports (Umbach, 2014). Against such claims, EU has performed stress tests to estimate the results of gas disruptions from Russia as a whole and only through Ukraine, concluding that, despite substantial effects, the gas stocks and the possible utilization of alternative fuels, would counter a disastrous impact, provided that the Member States acted in unison (Godzimirski, 2014).

It can be asserted that Vladimir Putin has failed to well-manage the Ukraine crises; the illegitimate actions of Russia in the Crimean annexation placed it in a strong opposition against the EU, USA (Nichol and Woehrel, 2006), NATO as well as many other nations worldwide and that the incidents expanded much above and beyond of what Vladimir Putin has probably contemplated. In addition to the trade sanctions imposed on Russia by the EU and USA; Saudi Arabia encouraging oil prices to fall, with the cooperation of USA (Dyer and Crooks, 2014), resulted in gas prices to decrease as well since gas prices are still closely tied to the oil prices (Pala, 2014b). All these actions are resulting to be to the detriment of Russia's economy, with revenues lost in gas sales and Ruble displaying a substantial exchange loss against USD and Euro (Reuters and AFP, 2014).

5.6. Syrian Crisis

It can be argued that the current Syrian crisis has its origins rooted in the past Arab revolutions, conflicts and U.S. invasions of Iraq. The Syrian refugees, fleeing from ISIS (Islamic State of Iraq and Syria) and flooding Turkey, the EU and the U.S. are forcing the mentioned states to re-consider their refugee policy as well as their attitude towards the Syrian civil war. On the surface, the U.S. and Russia are eager to eliminate Islamic extremism and bring about a stability in Syria and Iraq; however when we go deeper in terms of the approaches of these two global powers, it can be seen that they are actually approaching the issue with different perspectives. One of this division comes from the fact that Saudi Arabia, other Gulf monarchies and Turkey have provided aid and arms to rebel forces for fighting against the Assad government; whereas Russia, Iran and Lebanon's Shiite militia Hezbollah have chosen to side with Assad (Cole, 2015). The U.S. accuses Assad for "widespread atrocities" and supports National Coalition while providing limited military backing to 'moderate' rebels (BBC, 2015b) The main reason of Turkey being against Assad is the latter's alliance with Iran, which Turkey considers as a regional rival in the Middle East. Russia on the other hand favors Assad staying in power so that the former can continue to dominate foreign policy in the Middle East as well as in the Mediterranean region (Harress, 2015) and Vladimir Putin considers that the conflict in Syria can only be resolved through political route with Assad (BBC, 2015b). In fact, Russia, Iran, Iraq and Syria have established an intelligence sharing treaty to unite in the combat against ISIS and Russia launched its first airstrikes on Syria in the aftermath of this treaty on 30th of September 2015. This intervention of Russia was not welcomed by Turkey considering that these airstrikes occurred in violation of the Turkish air space, allegedly on the Syrian opposition groups which were supported by Turkey (Hürriyet Daily News, 2015a) and would most certainly elevate the already worsened refugee inflows from Syria (Cole, 2015).

EU on the other hand is trying to ensure that Turkey acts as a buffer and absorber of this refugee influx so that the incomers trickling into the EU would be as less as possible (Euractiv, 2015b). The European Commission has provided and is willing to provide more money to Turkey for taking over the majority of the Syrian refugee burden (Euractiv with AFP, 2015b). Some even consider that this crisis has strengthened the ties among Turkey and the EU after the visit of the German Chancellor Angela Merkel to Ankara in October 2015 (Today's Zaman, 2015b). On the contrary, some academics have started to display their negative opinion towards Turkey as becoming a not-so-trustworthy ally of the West (U.S. and EU) and of NATO (Park, 2015). The most recent Paris attack of ISIS on November 13 has placed France and the entire EU on red alert against terrorism and unfortunately refugee intake (Almasy et al, 2015). In fact France has openly declared war against ISIS (Valero, 2015) and bombed Syria in cooperation with Russia on November 17 (Euractiv with Reuters, 2015e). Moreover, the European Commission has clearly stated the opinion that Russia, the U.S. and the EU need to team up to wipe out ISIS once and for all (Gotev and Robert, 2015).

Russia-Turkey relations had conquered disputes and differing opinions among the two states during the Ukraine crises and Crimean annexation (Doğan, 2015) however this Syrian crisis has placed some strain on Russia-Turkey relations (Çelikpala, 2015). The most recent issue is Turkey shooting down a Russian warplane in the vicinity of the Syrian border due to repeated (alleged) Turkish airspace violations by the Russian aircraft (Karadeniz and Kiselyova, 2015). This recent event has surely escalated the tension in Russia-Turkey relations as Vladimir Putin considers this act of Turkey as a "stab in the back". Although until recently Gazprom was convinced that such strain would not seriously affect the progress of the Turkish Stream project, (Hürriyet Daily News, 2015a) this recent development might prove otherwise. However it should not be forgotten that Russia will also be losing significant sums of money should it decide to forgo the project. An interesting situation can be observed here: If this tension actually results in the postponement or even cancellation of the Turkish Stream project – the capacity of which was already halved owing to the possible development of Nordstream-2 gas pipeline project (Geropoulos, 2015) – then it can be said that political-security concerns have prevailed over economic concerns which supports one argument of this thesis. On the other hand, if the Turkish Stream project continues despite such escalation of tension in the political relations among Russia and Turkey, this will be another strong indication as to how Gazprom directs the international gas pipeline relations of Russia, exemplifying the applicability of neoclassic realism theory in this thesis subject.

The conflicting opinions and actions of Turkey and Russia in the Syrian crisis also had a slight but temporary effect on the Akkuyu Nuclear Power Plant as well. Following the air strikes of Russia on Syria on September 30th, Erdoğan had stated: “If the Russians do not build Mersin Akkuyu, then somebody else will come and build it” (Hürriyet Daily News, 2015b). Although the experts had clearly pointed out that the threats of Erdoğan were pointless owing to the strong dependency of Turkey on Russia in terms of gas (especially taking into account the nearing winter season) (Doğan, 2015), tourism, trade, etc. and the sudden outburst from Erdoğan related to Akkuyu nuclear plant seemed to have subsided (Novinite, 2015b), the recent act of Turkey in shooting down the Russian warplane might also affect Akkuyu Nuclear Plant Project in the form of possible expected delays in implementation. Nevertheless, complete abandonment of this project is not expected since Russia has already made about 3 billion USD investment in this 22 billion USD nuclear power plant (Roberts, 2015). However it shoud be noted that only around a few hundred million USD was spent in Turkey and the rest is recoverable, because billions of USD is allocated for long-life items (reactors, generators etc) of the power plant and these items can be used at any other nuclear power plant construction out of Turkey by Rosatom.

5.7. Concluding Remarks

In this chapter, the aspiration Russia to gain and hold strong to its power on the Balkan as well as Eastern European states is clearly elaborated. It seems clear that Russia still cannot get used the fact that the Soviet Union has collapsed and fourteen states have declared their independence from the quoted bloc more than 2 decades ago. Many former USSR members and countries that were under the strong grip of the USSR have now become a part of the NATO and/or the EU.

This expansionist approach of the NATO and the EU has created a security threat perception in Russia and forced its hand to become more aggressive in making sure that these former ‘subjects of Russia’ such as Ukraine and Belarus (as well as, e.g. Greece and Bulgaria) become more dependent than ever on Russia so that even if the currently non-members do become members of the EU/NATO, they will still be under Russia’s control. The best ‘weapon’ that Russia utilizes against these countries is mostly energy-related; in the form of accumulating their debts and threatening them to deprive of their energy should they act against (especially) the security-related benefits and interests of Russia.

Ultimately what happens is the states left in between (Russia and the EU) geologically, become squeezed, and or rather pulled from both sides, creating a political turmoil within the state. Most of the time, USA also meddles in to reinforce the pull of the EU. The best example for this situation can be seen in Ukraine, which is a transit country en route to the EU for more than 50% of the Russian gas pipelines. On one side, Ukraine wants to become more Westernized, remain at a safe distance from Russia. On the other side, the West (the EU and USA) seems to sympathize with the tendency of Ukraine – in fact, provides support to the anti-Russia groups – but still not ready yet to fully embrace this state as is. This anti- and pro-Russia tidal waves within Ukraine has led to the Orange Revolutions, corrupted presidential elections, 2006 and 2009 gas crises with Russia, Euromaidan protests and most recently the annexation of Crimea by Russia.

Belarus is another transit state for the gas transmission lines from Russia to the EU but its share is lower as compared to Ukraine, this country is more pro- than anti-Russia (again in comparison to Ukraine) and the financial status thereof is more problematic, which has led to the surrender of Belarus of all the shares in Beltransgaz, the main gas company of Belarus. Thus it can be said that Russia has accomplished its goals in Belarus in terms of gas trade.

Turkey is not an actual but a potential transit state, which will gain extra geopolitical significance should the Turkish Stream project of Russia become a reality. Thus, this country definitely tries to make everyone happy, aligning with the benefits of Russia, while attempting not to distance the EU away from it owing to the possible EU accession talks and the prospective Southern Corridor project(s) of the latter, which is/are destined to pass through Turkey. However, the recent events concerning the Syria crisis and downing of the Russian aircraft at the Syrian border have undoubtedly created significant tension among Russia and Turkey which is not foreseen to result in direct war but has forced Russia taking a restrictive stance against Turkey regarding trade. In addition to natural gas trade, prospective Turkish Stream and Akkuyu power plant projects; summer and winter tourism, construction projects in Russia, fresh vegetable and fruit sales, and the transit of Turkish trucks towards Kirghizstan, Kazakhstan, Tajikistan, Mongolia (which Russia has halted by the end of October 2015) (Doğan, 2015) also have an important share within the commercial relations among Turkey and Russia. The future of Turkish Stream (and Akkuyu Nuclear Power Plant Project) remains to be seen although it should not be forgotten that Russia will also have much to lose should it decide to abandon any of these projects, but delays in implementation seem to be inevitable until some resolution or relaxation in this tension is achieved (Roberts, 2015). Another possible and feared consequence of this Russia-Turkey tension is Russia resorting to reducing or cutting gas supply to Turkey which will undoubtedly create a significant problem for Turkey in terms of heating and electricity. However, this will also send bad signals to the EU as well – who is another significant trading partner of the Russia – (Roberts, 2015) and EU has already started to take concrete steps in reducing the dependency of the EU on Russia in the aftermath of Ukraine and Crimean crises.

In the light of all these tensions, the EU already felt the urgent need to decrease its natural gas dependency on Russia and diversify its resources in order to be less affected from any conflict among the West & Russia and among Russia & transit states. This in turn led to the enforcement of the 3rd Energy Package, semi-concretization of the Energy Union concept and imposition of trade sanctions against Russia. What the EU wants is to make sure that all its states act in unison before Russia, there are no more bilateral energy agreements concluded by any of its Member States with Russia which are in violation of the EU's energy legislation and that all its Member States work laboriously towards attaining its energy and environmental targets.

Now, although this thesis centers on the natural gas (pipeline) policy relations of Russia with the EU / Turkey and, these three entities are not alone in the world and there are other global players which pose as risks and alternatives for the Russian gas diplomacy. Thus, the next chapter shall focus on the gas production potential, ally status (with Russia / EU / Turkey) and overall tendencies of such global players.

CHAPTER 6

GLOBAL RISKS AND ALTERNATIVES OF RUSSIA'S NATURAL GAS TRADE WITH THE EU AND TURKEY

6.1. Introduction

Following an elaboration of the economic-environmental concerns (Chapter 4) and political-security concerns (Chapter 5) surrounding and influencing the natural gas trade of Russia with the EU and Turkey, this chapter delves into other countries and regions that have a positive and/or negative effect on such trade. Within Chapter 6, effects of external factors in general; attitude and shale gas potential of the USA against Russia is discussed (Section 6.2), gas trade potential of North African, Middle Eastern and Caspian countries is elaborated (Section 6.3) as an alternative to Russian gas being supplied to the EU and Turkey. Then in Section 6.4, China, India, Korea and Japan will be discussed as alternative gas markets for Russia instead of (or in addition to) Europe before the concluding remarks in Section 6.5.

6.2. The USA

The USA can be considered as the most effective player in the global politic platform *vis-a-vis* Russia and within the context of this thesis; it comprises the primary risk against Russia's gas trade. The risk factor posed by the USA has three main axes as listed below, from the strongest to the weakest, which will be elaborated in the following paragraphs:

- The recent alleged cooperation among the USA and Saudi Arabia in the conspiracy to keep the oil prices low, thereby adversely affecting the economy of Russia.

- Constant and persistent acts of the USA to support the South Corridor gas pipeline projects and to thwart the prospective Turkish Stream pipeline project and any other possible gas pipeline projects serving to increase the dependency of the EU on Russian or Russia-supplied gas.
- The rise in shale gas production in the USA which can form an alternative of Russian gas for the EU.

There are other actions of USA to prevent Russia from conquering other countries by using energy and economy as weapons, especially the former Soviet bloc states; such as backing up the EU eastward enlargement and eastward NATO expansion (discussed in Section 5.2), supporting Ukraine – together with the EU – in the former's democratization and Westernization renaissance (discussed in Section 5.4), and the application of trade sanctions together with the EU, against several Russian commercial sectors (discussed in Section 5.5).

The first issue to be discussed is how the USA is seemingly collaborating with Saudi Arabia to pull down the oil prices and thereby adversely affecting the economies of the adversary oil and gas producer states such as Venezuela, Iran and Russia. Although the USA was more of an ally to Russia back in early 2000s during the beginning of the Bush administration owing to the (possible) involvement of the Middle East, especially Saudi Arabia, in the 9/11 attacks and the political-military tantrum prevailing in that region, and even considered to resort to Russia for oil for diversification purposes (Bahgat, 2003), the ally status of USA and Russia worsened after the hostile actions of the latter against its neighboring states and fluctuating energy relations with the EU (Kubicek, 2013). In spite of divergence of opinions as to whether Saudi Arabia is actually working together with the USA or sometimes working to its detriment as well owing to some political conflicts among them and in order to suppress the recent shale oil boom in the USA (Keating, 2014, Topf, 2014) or they are actually not working together since if they were, the ultimate target would rather be Iran (Pravda, 2015); the general consensus is the same: The goal is to cripple Russia. The 2015 state budget of Russia requires minimum $100/barrel oil (Escobar, 2014b), however the current price as of May 2015 is around $60 and December 2015 $37 as per NASDAQ figures (NASDAQ, 2015). The fact that Ruble has also fallen back against USD in exchange rates at around 50% during May 2014 – May 2015 period is definitely another blow for the Russian market. The main intention of Saudi Arabia is to bypass Russia in terms of oil supply to the EU since the share of Russia in the oil supplier matrix of the EU is at approximately 27% whereas Saudi Arabia only supplies 8% of the EU's oil consumption (EC Oil Imports, 2014). Nevertheless, considering the fact that the gas prices are still mostly deemed to be bound to the oil prices (Amadeo, 2015), the falling of the oil prices can affect the gas market of Russia as well.

The next action of the USA is its preference towards the Caspian-based gas supply towards the EU. The USA has always viewed the energy security of the EU as a national interest and tended to promote the diversification initiatives of the EU (Ratner et al, 2012). The gas and oil reserves present in the Caspian Sea Region correspond to 4-6% and 3-4%, respectively of the global reserves but the current geopolitical uncertainty surrounding the Middle East Zone (Fang *et al*, 2014), the attitude of Russia in utilizing energy as a weapon to maintain its hegemony and the pro-Western approach of Azerbaijan and Georgia located in this area have all made this region more attractive, not just for neighboring states, but also for the EU and USA (Stefan *et al*, 2013). The target of the USA is to undermine Russia by forcing many EU Member States, such as Greece (Babington, 2015) and Serbia (Nikolskyi, 2015) to back up South Corridor pipeline projects like TAP, rather than the Turkish Stream. As discussed in Section 6.3, Chapter 7 and elsewhere, the Turkish Stream pipeline plans to transport Russian gas to the EU, transiting the territory of Turkey, whereas the South Corridor projects aim to utilize Azeri and other Caspian-based gas to meet the demand of the EU which will also be using a route that passes through Turkey. Thus, the USA is not against the pipelines being passed over Turkey, it is rather concerned as to whose gas is being carried and by whom, and the USA does not want the answer to **any** of these questions to be Russia, with the aim of breaking the monopoly of Russia in the natural gas field (Kumaş, 2010). However on the upside for Russia, the EU Member States mentioned, as well as Turkey, seem to be playing for both sides to aid their own economies and supporting both the Russian-backed and Western-backed pipeline projects.

The last and the weakest risk posed by the USA is the prospective unconventional gas and oil production in the USA which can become a rival to the Russian gas (Pempel, 2012; Herman, 2014). According to the US Energy Information Agency and EIA figures, thanks to the unconventional (shale) gas and oil play extraction being on the rise, the USA is foreseen to produce oil and gas at 14.2 million barrels/day by 2020 as compared to Russia at 10.7 million barrels/day (Rapoza, 2015). However, there are many reports and articles, as can be seen in Section 4.4, that consider the prospective shale gas and oil boom as an empty promise of replacing Russian gas for the EU due to many environmental and economic concerns surrounding the extraction as well as the transportation infrastructure thereof. In fact, it is also argued that "the collapse of the US shale oil production can save Russian economy" (Mikhailov, 2014). Another situation weakening this risk is the recession in the oil prices, which will definitely make the sales of shale gas and oil, even if extracted, uneconomical against the backdrop of high extraction, transportation and any destination infrastructure costs (Cole, 2014).

6.3. North Africa, Middle East and the Caspian Countries

In order to see what kind of a threat is posed by the North African, Middle Eastern and Caspian Countries against Russia in the field of natural gas, the first thing to do is to look at the proven reserves and export quantities of these countries/regions (Table 6-1) (Eurogas, 2013; BP, 2014; CIEP, 2014; EIA, 2014a; EIA, 2015d). Then, these countries are discussed individually in the following paragraphs.

Table 6-1. Comparison of proven gas reserves and exports of North African, Middle Eastern and Caspian Countries with Russia (Eurogas, 2013; BP, 2014; CIEP, 2014; EIA, 2014a; EIA, 2015d

Region /Country	Proven Gas Reserves as of 2014 (tcm)	Gas Exports to EU-28 as of 2013 (bcm/year)	
		by pipeline	as LNG
Russia	**47.77**	**136.2**	**0.0**
Nigeria	5.1	--	11.6
Algeria	4.5	32.8	14.4
Egypt	2.2	--	2.4
Libya	1.5	5.2	--
Total North Africa (*)	**13.3**	**38.0**	**28.4**
Iran	33.8	--	--
Qatar	25.1	--	23
Saudi Arabia	8.2	--	--
United Arab Emirates	6.1	--	--
Iraq	3.2	--	--
Kuwait	1.8	--	--
Oman	0.5	--	0.2
Yemen	0.5		0.1
Total Middle East (*)	**79.2**	**0.0**	**23.3**
Turkmenistan	7.5	--	--
Kazakhstan	2.4	--	--
Uzbekistan	1.8	--	--
Azerbaijan	1.0	--	--
Total Caspian countries (*)	**12.7**	**0.0**	**0.0**

(*) Note: The Totals given for North Africa and Middle East and Caspian countries are only comprised of the countries listed above since the remaining countries in the relevant regions contain << 1 tcm proven reserves as of the beginning of 2014.

North Africa

As seen in Table 6-1, the proven gas reserves of North Africa correspond to about one third of Russia. Currently, North Africa provides 28.4 bcm/year of gas as LNG and pipeline gas is received by the EU (38 bcm) from Libya and Algeria. There is also the proposed Trans-Saharan gas pipeline that is planned to provide

Nigerian gas to Europe (Expogroup, 2014). Map 6-1 (Wikimedia, 2011) shows the gas pipelines from North Africa to the EU.

Map 6-1. Gas pipelines extending from North Africa to the EU (Wikimedia, 2011)

According to the actual figures, the gas imported from Russia corresponded to 32%, whereas the gas imported from North Africa as a whole was at 20% in 2012 (14.3% Algeria, 3.5% Nigeria, 1.7% Libya, 0.5% Egypt) (Eurostat, 2015d). As compared with the 2002 figures:

- the supply from Algeria steadily decreased from 21.1% owing to high production costs and the sudden increase in domestic consumption (Fischer, 2014);
- the supply from Nigeria started at 2.2% and displayed a fluctuating but an overall increase;

- the supply from Libya started at 0.3%, reached a peak of 3% around 2007-2009 and has been on the decline ever since due to the increase in domestic consumption (Reuters, 2014b);
- the supply from Egypt started at nil, reached a peak plateau at 1.7-2.5% during 2006-2009 and then started to decrease due to the rising electricity demands within Egypt (Ahram Online, 2014).

LNG is deemed to be the strong suit of North Africa against Russia since it is considered by some as “the most promising source of non-Russian gas” (Beckman, 2014b). According to EIA; Algeria, Libya and Egypt have the potential to supply gas up to 44-50% of what Russia is currently supplying to the EU; however there are serious issues concerning infrastructure, political instability and ever-changing legal and commercial rules of the North African region (Clark, 2014a). Algeria is considered to be able to supply 56-60 bcm/year (Tagliapietra and Zachmann, 2015a) whereas Libya and Egypt can supply 10 bcm/year each (Shiryaevskaya and Almeida, 2014).

Algeria ranks as the 3rd biggest gas supplier to the EU-28 (EIA, 2014b). In fact, a consortium led by an Algerian state-owned company Sonatrach commenced a natural gas pipeline to Spain in 2011 but the interconnectivity of Spain with the rest of the EU is very limited (Clark, 2014a). Pipeline connection is also present to Portugal, Italy and Slovenia. Nevertheless, the increasing domestic consumption of Algeria (Zachmann, 2014) as well as competition with coal and RES has decreased its share of supply to the EU. In terms of shale gas, it is claimed to contain a high amount of technically recoverable plays and Sonatrach targets to starts shale gas production by 2020 (Boersma, 2015). Italy’s leading gas company Enel is interested in developing the resources of Algeria (Shiryaevskaya and Almeida, 2014).

Regarding Algeria, there is another interesting recent development where Russia is tightening its trade cooperation with and has increased natural gas exploration and production at Algeria (as well as in Nigeria, Egypt and Mozambique) with the aim of expanding its LNG sales. Although the negotiations underway seem to be related to LNG sales of Russia to Kuwait, the new collaborations have definitely made the EU uneasy (Mitrova, 2014). Thus, Russia is claimed to be seeking a way to block the diversification efforts of the EU in North Africa by putting itself forth in selling the latter's gas and thereby preserving its monopoly and increasing its armaments in the energy battle with the EU, expanding its power in Western Europe (such as Italy and Spain) who exports most of its gas from North Africa (Neuhauser, 2014).

The production in **Egypt** is not high owing to the hard-to-reach reserves (McKellar, 2013); moreover the state is politically fragile, terrorist activities at the Sinai Peninsula have aggravated export business and the growing domestic consumption renders it less preferable. Algeria and Egypt also supply gas in the form of LNG to the EU (Clark, 2014a). The most recent development is the discovery of a huge gas field by Italian ENI Company off the Egyptian coast, having the potential for 30 tcf gas (BBC, 2015a). The economic recoverability status and the effect of the gas potential on the possible gas export status of Egypt remains to be seen.

Libya is deemed to be able to provide up to 15 bcm/year gas to Europe and the domestic market growth is much slower as compared to Algeria. On the other hand, despite owning the 4th largest gas reserves in Africa, Libya is still politically instable since 2011, lacks sufficient export infrastructure and still in trouble with the ongoing civil riots (e.g. the heavy damage sustained by its LNG export facility) and terrorist attacks that undermine the production efforts (Lochner and Dieckhöner, 2011; Clark, 2014a).

Although actually located more towards Central Africa, **Nigeria** is accounted here since it is another important LNG supplier of the EU. Actually, Nigeria holds the biggest amount of proven gas reserves in Africa, however the gas production is limited owing the lack of sufficiently modern infrastructure and technical capabilities (EIA, 2015e), unfavorable business environment and vandalism (KPMG Africa, 2014). Nigeria has, on several occasions, displayed its willingness to support EU's gas supply security (Business Day, 2014; Tully, 2014), but the recent issues faced by Nigeria's oil industry seem to have the effect of undermining Nigeria's ability to provide more LNG to the EU (Opara, 2015).

In summary, the EU's diversification efforts into North Africa seem to be encumbered and fall short of the hopes thereof to substitute Russian gas due to political instability and increasing domestic consumption in the region, the threat on security and the recent cooperative advances made by Russia in this continent. It can be argued that the political uprisings in Egypt and Libya did not create significant disruption in terms of supply security however, it would be a problem if such riots disseminate towards Algeria (Lochner and Dieckhöner, 2011). Thus, although promising, North African gas seems to be a rather 'insecure' source of gas supply (Lise et al, 2008) and this in turn will most probably result in the reluctance of security-driven Europe to invest too much in North African LNG.

Middle East

As seen from Table 6-1, although there is no pipeline transport from the Middle East to the EU and the only major LNG exports are from Qatar; the Middle East still poses a significant threat against Russia with almost twice as much proven gas reserves.

It is claimed that gas import from Iran and Iraq via pipeline would be difficult considering the political instability of the region (McAuley, 2014).

Iran seems to be the potential major player with its majestic reserves and it had plans to transmit gas to Italy through Turkey via TAP (Bilgin, 2009) and join the Nabucco project to sell gas to the EU (Erdoğdu, 2010). The first option (TAP) is still kept open by EU officials but its future remains to be seen (Euractiv with

Reuters, 2015d). The second mentioned project, Nabucco, was abandoned back in 2013 (Stegen and Palovic, 2014) but there are still talks for a possible revival (Sputnik News, 2015-05-01). After IAEA approved of the nuclear program of Iran, confirming that Iran is in compliance with the nuclear agreement, the EU and the UN have recently (January 2016) removed the international sanctions on Iran. In turn, Iran can now increase its trade volume and obtain economical benefit therefrom. This new incident has caused increased expectations of oil exports from Iran, resulting in sharp drops in the oil market shares of the Gulf zone, especially of Saudi Arabia. This also brings about the forecast that the oil prices might continue its decreasing trend in the near future (Enerji Enstitüsü, 2016-01-18a). Actually, the current oil prices have reached down to its lowest level in the last 12 years, around 30 USD/barrel following the removal of the embargos (Enerji Enstitüsü, 2016-01-19).

On the down side, Iran suffers from infrastructural deficiencies, transit issues, high domestic consumption (102.4 bcm in 2007) as compared to production (101.0 bcm in 2007) (Bilgin, 2009). Although the EU still keeps its hopes high in exporting gas from Iran in the future, especially considering the possibility of extending a transmission route from the already existing pipeline connection of Tabriz-Ankara (Shirvani, 2015). Nevertheless, the strong ally status of Iran and Russia has strong potential to exclude Iran from the diversification attempts of the EU. In fact, Iran has clearly declared that Iran will not be exporting natural gas to Europe in case there is a disruption in the Russian gas supply; instead Iran is willing to export its products to Russia to aid the latter against the Western sanctions being imposed on Russia (Middle East Monitor, 2014). Thus, it does not seem to be a viable and secure option in replacing the Russian imported gas.

An important new development to mention here is the escalation of the tensions among Iran and Saudi Arabia. They have generally considered each other as serious security threats and have been on opposite sides in many issues, including the recent Syrian crisis. In fact, Saudi Arabia is argued to retain its level of oil production so that Russian, as well as Iranian, oil revenues can continue their downfall. This escalation of tension has its roots deep in recent history, resulting in the execution of 47 people, including a prominent Shiite cleric, by Saudi Arabia in January 2016 (Welsh, 2016). The factors that caused this increase of tension, among others, are the nuclear agreement signed among IAEA and Iran, and their differing positions in the Syrian crisis (Milliyet, 2016).

Iraq is claimed to be the new energy depot of the 21st century, it contains significant oil and gas reserves, with many multinational companies already in action for reserve development. About 60% of the gas reserves are estimated to be concentrated in the southern part and the remaining 40% in the problematic northern part. Nevertheless, the recent semi-conciliation reached between Turkey and Kurdistan Regional Government can open the path to the utilization of the Northern Iraqi gas. After years of embargos and wars (Bilgin, 2009), it has newly commenced to develop its oil and natural gas reserves; thus the first important issue to be resolved is the construction of the necessary infrastructure. If the barriers related to political instability are eliminated, IEA foresees that gas exports from Iraq to Turkey and then towards Europe can start by 2018-2020, reaching up to an annual 40 bcm by 2025 (Pala, 2014a). In response to a proposal made by Azerbaijan in 2014, Iraq has accepted to collaborate with the latter to join the Southern Gas Corridor project to export natural gas to the EU (Hazar Strateji Enstitüsü, 2014). However, it is noteworthy to mention that Iraq is still considered to involve high commercial and geopolitical risks and a low security score (Stegen and Palovic, 2014).

The LNG exports from **Qatar** was at 0.8% back in 2002, which has shown a steady increase, providing 8.4% of the EU-28 gas demand as of 2012. A pipeline extending from Qatar to Turkey was proposed over one of the two routes: 1- via Saudi Arabia, Jordan, Syria, or 2- via Saudi Arabia, Kuwait, Iraq. This pipeline was then to be connected to the – currently cancelled – Nabucco pipeline for supply to the European market. However, this project never came to life with

Syria rejecting to cooperate owing to its ally status with Russia and then the recent civil wars going on (Taylor, 2014); and also due to the extended political and military turmoil in Iraq from which it still has not yet fully recovered (Pala, 2014a).

The other small LNG suppliers of the EU are **Oman** (0.2 bcm) and **Yemen** (0.1 bcm) (International Gas Union, 2014b). Although Oman plans to increase its gas production and exports, it is still struggling to meet its domestic demands (Reuters, 2014c). Yemen, on the other hand is currently trying to solve its own security-related issues and its LNG Company has halted production owing to a Saudi-led airstrike campaign (Associated Press, 2015).

Israel's proven gas reserves is around 200 bcm (EIA, 2015d) however, the offshore Tamar and Dalit fields are projected to contain 250 bcm, whereas the Leviathan field is foreseen to provide 700 bcm of natural gas. In fact, it is foreseen that Israel could become a rival to the Qatari LNG in the European market when Israel commences gas exports (Beckmann, 2013). Greece and Cyprus are actively pushing the EU officials for building an offshore pipeline from Israel to supply at 8-12 bcm/year. However the technical and commercial feasibility of this project is currently being approached as doubtful due to the comparatively low amount of gas to be carried by this potential pipeline as compared to the nearly 450 bcm annual gas consumption of the EU and the huge amounts currently being supplied by Russia (Johnson, 2014). Another obstruction is that Israel is keen on protecting its national interests by reserving 60% to its domestic market (Keay, 2013), and also primarily aims to export to its neighbors such as Egypt and Jordan (Tcherneva *et al*, 2015). Moreover, despite the fact that Russia has been backing its Middle Eastern partners Iran and Syria, it has signed an agreement in 2013 to market Israeli LNG. This collaboration is expected to strengthen Russian monopoly and also provide Russia a lucrative ticket to the Asian LNG market including China, India and Japan (Glover and Economides, 2015).

Map 6-2. Gas discoveries around Cyprus Island (Euractiv with Reuters, 2015f)

The gas reserve discovery in the south offshore of Cyprus Island, as shown in Map 6-2 above (Euractive with Reuters, 2015f) is foreseen to have positive effect on the energy security of the EU, reinforce the energy diversification efforts thereof, especially away from Russia. It is even claimed that these reserves might provide a starting point in resolving the strong differences among the Turkish Cypriots and the other side of the Cyprus. However, the discovery of potential gas reserves in the Egyptian waters by the Italian ENI (BBC, 2015a) is suggested to be “the end of Cyprus’ dreams of producing gas from the offshore Aphrodite field” (Lomas, 2015). This Aphrodite field (Block 12 in Map 6-2) is estimated to contain about 127.4 bcm gas. Nevertheless, the discussions among Israel, Egypt and Cyprus are still ongoing (Reuters, 2015b). In fact, Cyprus and Egpyt have started talks regarding the transfer of gas from this Aphrodite field to Egypt via an undersea pipeline (Euractiv with AFP, 2015c). The most recent discovery in this zone has been made by two Israeli companies in Tamar-2, expected to provide a reserve of 8.9 tcm (Enerji Enstitüsü, 2016-01-18b).

Saudi Arabia does have plans to increase its natural gas production but has declared that it has no plans to enter the natural gas or LNG export market (Garcia, 2014). **United Arab Emirates** does produce some amount of LNG but most of it is exported to Japan. **Kuwait** on the other hand is planning to import natural gas from Iran (Iran Daily, 2015). Thus, these three oil exporting countries have currently no plans to get into the gas export business.

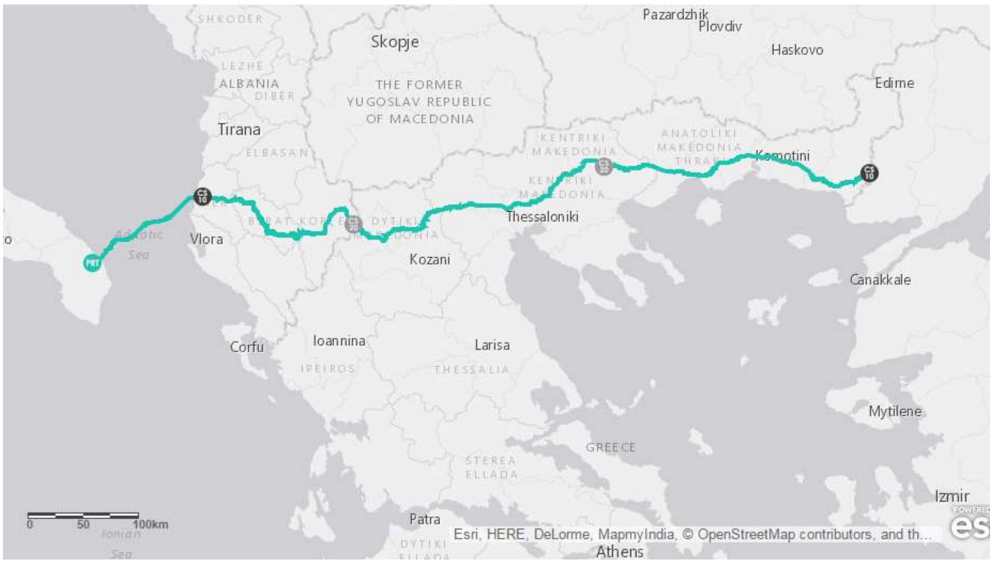
According to the account given above, it can be said that the most promising options for the EU in its supply diversification efforts is Iraq (willing to participate to the SGC, however the political instabilities have to be resolved and infrastructural deficiencies need to be met with the help of new investments), Qatar (LNG export to the EU can be increased and the formerly contemplated Qatar-Turkey-Europe pipeline can be put into motion in the future with Iraq recovery) and Israel (provided that the lobbying made by Greece and Greek Section of Cyprus prove to be successful). Nevertheless, it should be kept in mind that, although the aim of the EU is gas supply diversification, the end-target is supply "security" and the political instability prevailing in most of the Middle East Region render the energy trade businesses therewith somewhat insecure.

Caspian Region

The Caspian countries have proven reserves, comparable to North Africa, at 12.7 tcm (Table 6-1). The Caspian Basin has come to the forefront as an area of interest with its significant hydrocarbon resources, following the end of the Cold War and fall of the Soviet Union. It has especially become a main focus for the EU in developing its Southern Gas Corridor projects with the aim of partially freeing itself (and maybe the Caspian states as well) from the hegemony and monopoly of Russia (Köten, 2013). Thus, the Caspian states do have the potential to sell gas to Europe, however there are many limitations. First of all, almost all of them already have contracts with Russia to sell their gas. Secondly, these countries need to use Turkey as a transit country to supply the EU and the close ties of Turkey and Russia might pose a risk since Turkey would not want to alienate Russia, which Turkey had backed even during the Crimean crisis as discussed in Section 5.4. Thirdly, there is the controversial issue concerning the Caspian Sea territory with Iran (again a close ally of Russia) which has to be resolved before being able to export the gas to the EU.

Azerbaijan is considered by the EC officials and US experts to be the best option to meet the EU's gas demands (Aydın, 2012; Ratner *et al*, 2012) and holds the potential to become a significant competitor to the Russian gas. The Southern Gas Corridor (SGC) project, proposed by the European Commission in 2008 at the Second Strategic Energy Review (Aydın, 2012), aims to transport Caspian gas (Azerbaijani Shah Deniz field) through Georgia and Turkey, for ensuring the energy supply security of the EU, widening the area of movement of the EU states against Russia (Karagöl and Kaya, 2014). This Corridor is planning to make use of the already existing Baku-Tbilisi-Erzurum pipeline (the "South Caucasus Gas Pipeline") (Perovic and Orttung, 2007), with the future possibilities of taking in Iraqi gas, as well as Iranian and Uzbek gas, provided that the political conditions permit (Badalova, 2015).

The *Trans-Adriatic Pipeline (TAP)* via Italy (see Map 6-3) (Trans Adriatic Pipeline, 2015) is the first proposed component of the SGC and it is planned to become the last part of this project to supply 10 bcm gas to Europe by 2019-2020, with the potential to be increased to 20 bcm in the later decade (Karagöl and Kaya, 2014; Gurt, 2015). The Shah Deniz gas field is foreseen to provide a peak reserve at about 16 bcm, making it one of the largest worldwide gas field (Graeber, 2013).



Map 6-3. Proposed route of TAP (Trans Adriatic Pipeline, 2015)

The second component of SGC is the *Turkey-Greece-Italy Interconnector (ITGI)* (see Map 6-4) (Edison, 2015) which is foreseen to supply Caspian and Middle Eastern gas to Europe. However, the recent economic crisis in Greece has cast doubt as to whether DESFA (Greek gas company) will be economically able construct its section of this pipeline (Aydın, 2012).

Map 6-4. Proposed route of ITGI (Edison, 2015)

The third component is the *Azerbaijan-Georgia-Romania Interconnector (AGRI)* project (see Map 6-5) (AGRI, 2015). In order to reduce the vulnerability and high dependency of the EU on Russia for gas, Azerbaijan, Georgia, Romania and later Hungary have formed a consortium, called the AGRI consortium, to transport the Azerbaijani LNG gas directly to the EU through the Black Sea, thereby bypassing Russia (Maracz, 2011). This AGRI Interconnector is foreseen to transit 2-8 bcm gas per year with an approximate cost of 1.2-4.5 billion €, with the feasibility of the project under review as of February 2015 (AGRI, 2015). This project is considered to be a counter-attack on the current power politics Russia is applying on the Balkans and Eastern Europe. However, keeping in sight that the annual natural gas consumption of the EU was 400-450 bcm in 2012 (BP, 2014), this gas amount at 1-2% of the demand is definitely not sufficient to break the bond of the EU with Russia.

Map 6-5. Proposed route of AGRI (AGRI, 2015)

The fourth component was the *Nabucco Gas pipeline* (see Map 6-6) (Baghirov, 2015) carrying Caspian-originated gas, extending from Turkey to Austria, Romania, Bulgaria and Hungary which was proposed back in 2002 (Aydın, 2012). However, the Shah Deniz Consortium preferred to go along with TAP project instead of Nabucco (or more correctly, Nabucco-West) back in 2013 (Weiss, 2013; Baghirov, 2015). Recently, there have been rumors about the revival of Nabucco in the form of Nabucco 2.0, which will now carry Russian gas instead of Azeri gas to the EU through Turkey.

Note: Red line shows the (currently cancelled) Nabucco pipeline

Map 6-6. Proposed route of the cancelled Nabucco (Baghirov, 2015)

Turkmenistan owns the biggest proven gas reserves in the Caspian region. The proposed Trans-Caspian Pipeline to import gas from Turkmenistan across the Caspian Sea and Azerbaijan seem to be struggling despite the renewed interest of the USA and EU to build the pipeline (Kucera, 2015). Turkmenistan has recently turned its compass towards China and other Asian countries. And the final nail to the coffin is that Russia has succeeded in Turkmenistan to commit all of its gas export capacity to Gazprom until 2028 (Tcherneva *et al*, 2015), which means that the profits of any Turkmen gas being sold will go to Russia. Actually, a significant amount of Turkmen natural gas is being sold to Europe by Gazprom.

In **Kazakhstan**, there are many problems associated with the utilization of the gas resources. First of all most of the natural gas production is associated with the development of oil fields and growing petrochemical industry (Perovic and Orttung, 2007). Secondly, the country is battling with human rights issues, causing the country to be instable. Thirdly, as the largest Kazakh gas fields are located toward the north, most of its gas is being sold to Russia, being a better option owing to the already existing pipeline infrastructure, with further plans to sell to China (Ratner *et al*, 2012).

Uzbekistan displays a similar profile to Kazakhstan, utilizing most of the produced gas domestically (around 80%), selling some gas to Russia and a few Central Asian countries (Kazakhstan, Kyrgyzstan and Tajikistan), aiming to supply gas to China, being mostly closed to Western energy investment (Perovic and Orttung, 2007; Ratner *et al*, 2012).

In short, it can be said that North African countries do not seem to be too promising to decrease dependency on Russia due to the currently low export capacity and the political instability, although especially Algeria can reduce some stress in the southern Europe provided that the existing pipeline can be used at its full capacity. Among the Middle Eastern countries, more gas (as LNG and via pipeline) can be supplied by Qatar and Iraqi gas can be utilized when the infrastructural investments come to fruition in the medium term. And for the Caspian countries, Azerbaijan is the focus of all the attention, especially for the SGC project(s), but the capacity thereof might not be a match to sufficiently reduce the security threat posed by Russia.

A final note here is; owing to its geo-politically significant position along the “energy corridor to the EU”, Turkey is deemed to have a strategic importance in the transportation of North African, Caspian and Middle Eastern gas towards the EU (Gromadzki, 2002; Winrow, 2004; Kılıç, 2006).

6.4. Eastern Group: China, India, Korea and Japan

The final group of countries that will be examined is the Eastern Group comprised of China, India, Korea and Japan. In terms of proven natural gas reserves, China is located at the 13th place and India is at the 21st place with Korea and Japan not making the top 50 (BP, 2014). These countries are all net importers, located to the south of Russia with only China sharing a small borderline with Russia. All these countries have some kind of gas relations with Russia and what will be sought here is the impact of such relations on Russia (advantages and disadvantages) and on the Russia-EU gas relations (comparison of the Russia-Eastern Group gas relations with Russia-EU gas relations), as well as how the power politics of Russia is working on this eastern group.

In its Energy Strategy issued in 2003, Russia has set forth an oil and gas export target of 30% (starting with 3%) and 15% (starting with 0%) respectively for the Asia-Pacific region. For the oil exports, the 2013 figures show that a level of 18% has been reached (BP, 2014). As for the gas exports, although a pipeline to this region has not yet been built, there are agreements concluded and under negotiation. In terms of LNG almost all of the Russian exports are received by Japan and South Korea (14.1 bcm) (BP, 2014).

Among the Eastern Group, **China** is the country that benefits from Russian energy sources in the most diversified manner, covering the coal sector, electric power, LNG (2.5% of total in 2012), oil and nuclear energy (Shadrina and Bradshaw, 2013). However, due to increasing concerns regarding air pollution, China is trying to reduce coal-based emissions and has decided to resort to natural gas (ISN Security Watch, 2014).

Russia and China have recently concluded a 30-year gas supply deal in May 2014, the so-called "Power of Siberia" pipeline project, where Russia will be supplying China with 38 bcm annual pipeline gas starting with 2018 which will be providing about 20% of the current gas consumption of China (Weitz, 2014).

Another project – the Altai pipeline project – whose feasibility studies have been completed (Gazprom, 2015f) – aims to provide another 30 bcm per year. In 2013, China's natural gas consumption reached about 170 bcm, which is foreseen to reach 420 bcm per annum by 2020 (Metzel, 2014).

Although the Western States imposed many sanctions on Russia after the conflicts thereof with Ukraine, China was more understanding towards its ally, probably considering the latter's territorial debates with Japan and other neighbors over islands that carry a high possibility of undersea energy and mineral deposits (Weitz, 2014).

There has been some competition among Russia and China for the Caspian state energy supplies in the near past however this competition never reached a "confrontation" level as there have always been signs that these two Powers were "cooperating well at the corporate level" (Yenikeyeff, 2011). The "win-win" status reached among China and Russia has doubtlessly solidified their relationship: China gives loan to Russia for developing new supplies and building the necessary infrastructure for transport to China, whereas Russia commits to supply guaranteed volumes of energy to China (Weitz, 2014).

Some even consider that this companionship is actually aimed at reducing the U.S. power. Nevertheless, China should not be considered as a naive and blindfolded ally since China definitely does not overlook the manipulative actions of Russia where the latter has repeatedly and intentionally delayed the construction of pipelines to China in order to keep open its other alternatives. Moreover, Russia is not much willing to share its state-of-art technologies with China in the fear that such technologies may be copied. Just as China is not planning to create a high dependency on just Russian gas, Russia has also turned its compass towards other Asian countries as well (Weitz, 2014).

Russian LNG has many potential competitors in the Chinese market such as the USA (owing to the recent ‘shale boom’), Canada, East Africa and Australia. As for pipeline gas, China is not completely dependent on Russia considering the newly built Central Asia-China pipeline with a target annual capacity of 100 bcm and the pipeline from Myanmar to supply 12 bcm/year. Another aspect to be taken into account is the possible unconventional gas reserves estimated to be found in China, although some point out that the domestic production would not reach a sufficient level in the near future (Shadrina and Bradshaw, 2013).

After the 400 billion $ gas deal with China, Russia seems to have turned its eyes on long-time ally (Barmin, 2014) **India** to build a gas pipeline of 30 billion $ to India through China or 9 billion $ though Turkmenistan-Afghanistan-Pakistan (the latter is called the “TAPI pipeline”). If the first option is built, it will take its place among the most expensive gas pipelines worldwide. The main difficulty with this route is passing the Himalayas which is considered “impractical”. The second option, TAPI pipeline, is currently on the rocks as the consortium leader still could not be determined and the terrorism in this zone definitely does not help. Nevertheless to fortify its situation, Russia also considers to switch the agreement to LNG supply should the pipeline agreement(s) fail (Jacob, 2014).

By the end of 2014, a 10-million-ton crude oil supply agreement was signed among India and Russia for 10 years. The reason why the deal with India took so long is the troubled relations of India with China and Pakistan, over which any gas or oil pipeline from Russia will need to pass (Barmin, 2014). In addition to oil and gas, Russia and India have also reached an agreement for Rosatom to build 12 nuclear reactors in India (Kundnani, 2014).

South Korea is another Soviet era-ally of Russia who has long been planning to import Russian gas via pipeline with many agreements signed since 2003 for cooperation purposes. South Korea is currently importing 70% of its energy consumption (Vorontsov, 2012). In 2012, the LNG imports from Russia accounted for 6.0% of South Korea's consumption (Shadrina and Bradshaw, 2013). Russia has recently taken on a bold action to erase 90% of South Korea's debt to Russia. The next step was concluding a major gas deal concerning a pipeline to pass through North Korea towards South Korea to supply 10 bcm/year forecast to commence by 2017. Although the relations among North-South Korea cannot be deemed as trustworthy enough, Russia still decided to take the risk. Actually, as pointed out by International Business Times, a parallelism can be seen here: North Korea will be like Ukraine and South Korea can be thought of Europe. In fact, keeping in mind that it import approximately 97% of its energy needs, coming second after Japan in terms of gas imports (Clark, 2014b).

Due to the lack of indigenous natural resources, **Japan** has to heavily rely on imported energy. Following the Fukushima nuclear disaster in 2011, the LNG consumption of the country has been on a steep increase. Although the major supplier of Japan for LNG is Qatar, Japan is seeking ways to diversify its sources for energy security purposes: this is where Russia comes into the picture (Kolesnikova, 2012) and in 2012, Japan imported 9.5% of its LNG from Russia, which in turn corresponded to 76.3% of LNG exported from Russia (Shadrina and Bradshaw, 2013). Actually, the trade relations between Russia and Japan date far back. The desire of Russia to build and expand its ties with the Asian-Pacific Region started during the Soviet period with forestry and coal deals being signed with Japan (ISN Security Watch, 2014). However, there was a short lapse among their commercial relation during the collapse of the USSR until Russia rose back on its feet with the rising of the oil prices by the end of 1990s. The bilateral trade relations among Russia and Japan have risen exponentially since the mid 2000s, with Japan exporting cars to Russia, whereas Russia exporting oil and gas to Japan (Tabata, 2013). Nowadays, Russia is trying to convince Japan for a LNG supply agreement as well as an off-shore gas pipeline for which the latter Japan has been willing for some time (Kolesnikova, 2012; Tarquintic-Misa, 2012).

Although in appearance it might seem that Russia has turned eastwards with the commercial and political sanctions being imposed on Russia following the

Ukraine and Crimean crises, this is not the whole case. Russia had well commercial relations with all of these Eastern Group countries mentioned here before the collapse of the Soviet Union and Russia had to wait to get stronger economically to expand its business to the east (Shadrina, 2014b).

Based on the account given above, it is clear that Russia has better relations with these Eastern Group countries as compared to the EU bloc. This brings forth the big question of whether the EU should feel concerned with the increasing gas relations among Russia and our Eastern Group. In this respect, it is argued that Russia actually needs the revenues from the West in order to be able to construct the necessary infrastructure towards the South (i.e., the Eastern Group). Moreover, as described in Section 4.3, the natural gas market of the EU is not expected to grow too much and Russia has more than enough gas supplies to meet the demands of its European customers which is being met from the West Siberian fields; thus these diversification attempts of Russia are not expected to affect the EU's energy security in the short to medium term (Campaner, 2006; ISN Security Watch, 2014). In fact, as explained by a Russian official, this low growth rate of Europe and the rising regulatory risks was one of the reasons Russia has started to place more effort in expanding its horizon towards Eastern Asia. A third aspect is the fact that the "new and untapped" fields of Russia are located in eastern Siberia, thus closer to China (Weitz, 2014).

As for the impact of the major gas agreement signed among Russia and China in 2014 on exports to the European market, Russian officials have stated that the EU will remain unchanged in terms its place as the number one importer of Russian gas and that it is envisaged to be guided by the Asian market prices. However if the EU continues to push for a single price throughout the bloc under the Energy Union concept, Russia has clearly pointed out that the gas price would not be low (Karpukhin, 2015).

A final, somewhat troublesome aspect of the booming eastern trade expansion of Russia is that the dependency of the Asian states on Russia will increase, and it has been pointed out that as more of these states start depending on Russian gas, the less they will be able to stand against the controversial actions of Russia elsewhere (e.g. Ukraine, Crimea). In fact, South Korea and Japan are already taking it slow in siding with the Western sanctions on Russia due to its intrusive actions in Ukraine (Weitz, 2014). This means that although the Russian-Eastern Group gas relations would not affect the EU's gas import, it would cause Russia to get stronger and not be influenced as much from any further economical or commercial sanctions to be imposed on it by the Western countries.

It can be concluded that Russia has strong alternative gas markets should the gas business or diplomacy decrease with Europe. However, as argued within this thesis, Russia is looking for to increase the 'distribution of the capabilities' via natural gas (in general, energy) to the west (Europe), to the east (China, India, Japan and Korea) and to the south (Turkey). Particularly, Russia's first priority seems to be selling gas to Europe and use this as a political leverage on the bloc. Furthermore, as China is deemed as a rising power not just regionally but also worldwide, Russia's ultimate target is to gain the cooperation of this rising power to withstand the EU and the NATO; end evidently, it seems that Russia is successfully implementing this scenario during the current Vladimir Putin era.

6.5. Concluding Remarks

This chapter, with its abounding content, provides the elements that are required to complete, or at least comprehend, the bigger picture surrounding the natural gas policy of Russia with the EU and Turkey. As can be understood from the narrative above, the EU may be able to decrease dependency on Russia to a small degree provided that all (or at least most) of its plans in the North African, Middle Eastern and Caspian zones become a reality. However, as described in detail in Chapter 4, despite the current stagnation in natural gas consumption throughout the EU, the bloc will need extra gas to complement the intermissions in the future developed RES utilization, to make up the loss for the replacement of coal burning plants and possible decreases in nuclear power generation.

To aid in the process of clarifying the overall picture, the best method can be compiling all the narrative given hereinabove within a chart of pros and cons of all the countries from to point of view of Russia as given below in Table 6-2. The table below also provides a general summary for each of the zones considered (North Africa, Middle East and Caspian).

Table 6-2. Pros and Cons of the Alternative Gas Sources of the EU and other countries posing a Global Risk against Russian supplied Gas to the EU

Region/ Country	Pros for Russia	Cons for Russia
USA		➢ *Highly effective global player that is not ally of Russia, alleged conspiracy with Saudi Arabia to lower oil prices, Support to SGC projects, Shale gas and oil potential, Backing EU and NATO enlargement, Supporting Ukraine, Application of trade sanctions against Russia*
NORTH AFRICA	➢ *Political instability, ever-changing legal and commercial rules, moderate to high domestic consumption, proven gas reserves not comparable to Russia*	➢ *Geographical proximity for ease of LNG transport and possible new pipeline construction, no transit states necessary*
Nigeria	- Low proven gas reserves - Aging infrastructure	- Providing LNG to the EU - Proposed Trans-Saharan gas pipeline - Good ally of the EU
Algeria	- Very low proven gas reserves - High production costs - High domestic consumption - Possible trade cooperation with Russia	- Providing LNG and pipeline gas to the EU - Possible presence of shale gas
Egypt	- Very low proven gas reserves - High domestic consumption - Politically fragile	- Providing LNG to the EU - Discovery of a huge gas field off the coast of Egypt by ENI (Italy)
Libya	- Very low proven gas reserves - Civil riots and terrorism	- Providing pipeline gas to the EU

Table 6-2 continued

Region/Country	**Pros for Russia**	**Cons for Russia**
MIDDLE EAST	➢ *Political instability, no current gas sales to the EU, no physical pipeline connection, requiring Turkey as a transit country*	➢ *Much higher proven gas reserves as a region when compared to Russia*
Iran	- Very high domestic consumption - Good ally of Russia	- High proven gas reserves - Removal of international sanctions due to nuclear issues can increase plans of exporting gas - (Past) plans to connect to TAP - Possible connection to a probable revival of Nabucco i.e. TANAP.
Iraq	- Very low proven gas reserves - Lack of infrastructure - Still in the recovery process after Iraqi wars	- EU is very willing to develop gas fields in and build a pipeline from Iraq - Iraq accepted to be included in SGC
Qatar	- Possible pipeline connection to the EU necessitates many transit states which are problematic	- High proven gas reserves - Providing LNG to the EU - Good ally of the EU
Oman & Yemen	- Very low proven gas reserves - High domestic demands (Oman) - Politically insecure (Yemen)	- Providing low amount of LNG to the EU
Israel	- Very low proven gas reserves - Reserving 60% gas production for domestic consumption - LNG sales agreement signed with Russia - Mostly keen on selling gas to neighbors	- Possible discovery of new promising gas fields - Potential to sell LNG to the EU - Ally of Greece and Cyprus
Cyprus		- The discovery of new gas fields, in cooperation with Egypt and Israel in the Mediterranean can provide additional gas source for the EU to decrease dependence on Russian gas

Table 6-2 continued

Region/Country	**Pros for Russia**	**Cons for Russia**
CASPIAN ZONE (Turkmenistan, Kazakhstan, Uzbekistan and Azerbaijan)	➢ *Low proven gas reserves as compared to Russia, requiring Turkey as a transit country known to be a good ally of Russia, Caspian Sea territorial issues with Iran* ➢ *Tending to sell to China and other Asian countries (Turkmenistan, Kazakhstan, Uzbekistan)* ➢ *Present contracts with Russia to sell their own gas (Turkmenistan, Kazakhstan)* ➢ *High domestic production (Uzbekistan)*	➢ *Significant area of interest for the EU for SGC projects, significant hydrocarbon resources*
EASTERN GROUP	➢ *Net importers of gas, good ally of Russia* ➢ *Russian LNG transports (Japan, South Korea)*	➢ *No pipeline present yet*
China	- Close ties in many sectors with Russia - High air pollution due to coal sector and thus highly in need of gas with its vast population - Power of Siberia and Altai projects	- Past competition with Russia for Caspian zone energy supplies - Presence of a mutual conditional trust towards each other - Possible presence of shale gas
South Korea	- Good ally of Russia - Plans to build gas pipeline - Russian LNG being purchased	-No pipeline present yet
India	- Good ally of Russia - Russia plans to sell LNG to India	- Plans to build gas pipeline are present but there are geographical, economic and security-related issues
Japan	- Close ties in many sectors with Russia - Russian LNG being purchased with plans of increase - Plans to build an offshore gas pipeline	-No pipeline present yet

Note: The proven gas reserves of the countries given above are classified as high (>20 tcm), moderate (>10 tcm and <20 tcm), low (>5 tcm and <10 tcm) and very low (<5 tcm) in comparison to the proven gas reserves of Russia

It should be kept in mind here that although the EU is seemingly intent on increasing its LNG imports, this is foreseen to cost about twice of the Russian pipeline gas (The Economist, 2014) and the potential LNG sources are not that "secure". Thus, this shows that the EU puts forth politics above economy and even security to attain its goal of gas supplier diversification and freeing itself from the monopoly of Russia.

Now, after explaining the background and multi-facets of the Russian gas pipeline diplomacy with the EU and Turkey, the next logical step is to describe and discuss the Case Study of this thesis being the South Stream and Turkish Stream gas pipeline projects.

CHAPTER 7

CASE STUDY: SOUTH /TURKISH STREAM PROJECT

7.1. Introduction

Following the elaboration and analysis of the security, political, economic and environmental factors, as well as the global risks and alternatives influencing and surrounding the natural gas pipeline diplomacy of Russia with the EU and Turkey, finally, this Chapter aims to discuss the Case Study of this thesis, which is the South Stream gas pipeline project, which has recently been cancelled and transformed into the Turkish Stream (or TurkStream) gas pipeline project. First, both projects shall be described, again followed by the analysis and discussion of the Economic and Environmental Dimensions, and of the Security and Political Dimensions. The Chapter is concluded with the discussion of the applicability of the selected IR theory, Neoclassical Realism, on this Case Study.

7.2. General Project Descriptions

In its attempts to bypass the transit countries, eliminate the transit fees and risks thereof, Russia has always been interested in establishing a direct route to the EU in supplying gas as described in Section 5.4. In fact, Russia aims to end natural gas sales through Ukraine by 2019 (Enerji Enstitüsü, 2015-04-14) when the current agreement among Naftogas (Ukraine) and Gazprom (Russia) will come to an end (Koch, 2015). The first phase of this attempt was the ‘Yamal-Europe pipeline’ commissioned in 1994, passing through Belarus, reaching Germany, having a maximum discharge capacity of 33 bcm/year. The second phase was the ‘Blue Stream’ which started to transmit gas directly to Turkey by 2005 with a maximum capacity of 16 bcm/year. The third phase was the ‘Nord Stream’ project: It was commenced in 2006 and this pipeline transmits gas directly from

Russia to Germany through the Baltic Sea in 2 parallel lines, extending over 1200 km. Nord Stream was commissioned in 2011-2012 and has a maximum capacity of 55 bcm/year, with an estimated cost of 8.8 billion Euros (Luvsan-Ochiriyn, 2011).

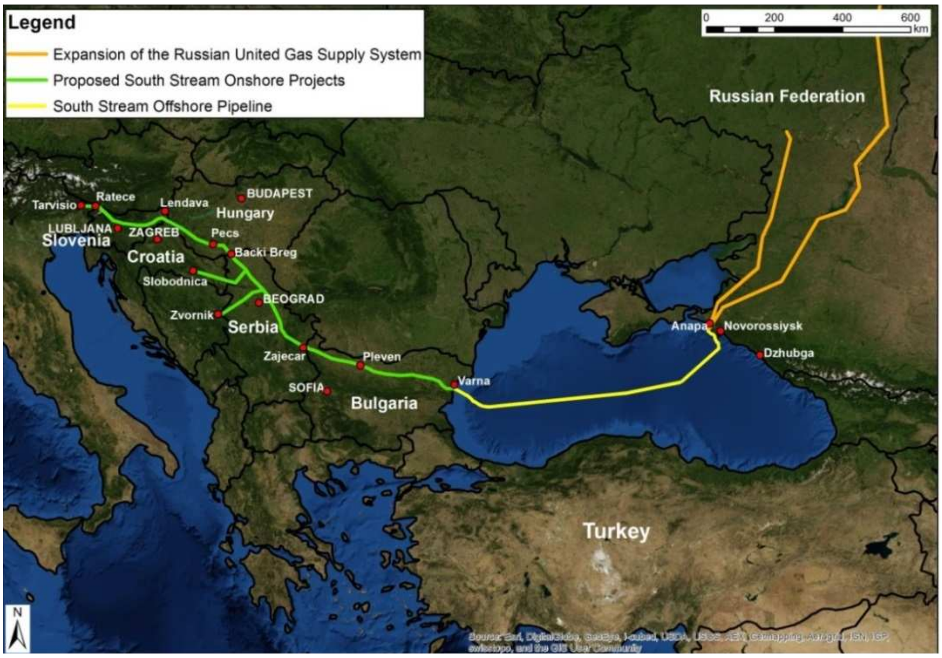
In the Nord Stream project, Russia was the major shareholder (Gazprom holding 51% of the shares), but there were European partners such as Germany (Winthershall and E.ON Ruhrgas, both 15.5%), the Netherlands (Gasunie, 9%), and France (GDF Suez, 9%) (Luvsan-Ochiriyn, 2011). The route of the Nord Stream is shown below in Map 7-1 (Rosen Group, 2013).

Map 7-1. Route of the Nord Stream natural gas pipeline (Rosen Group, 2013)

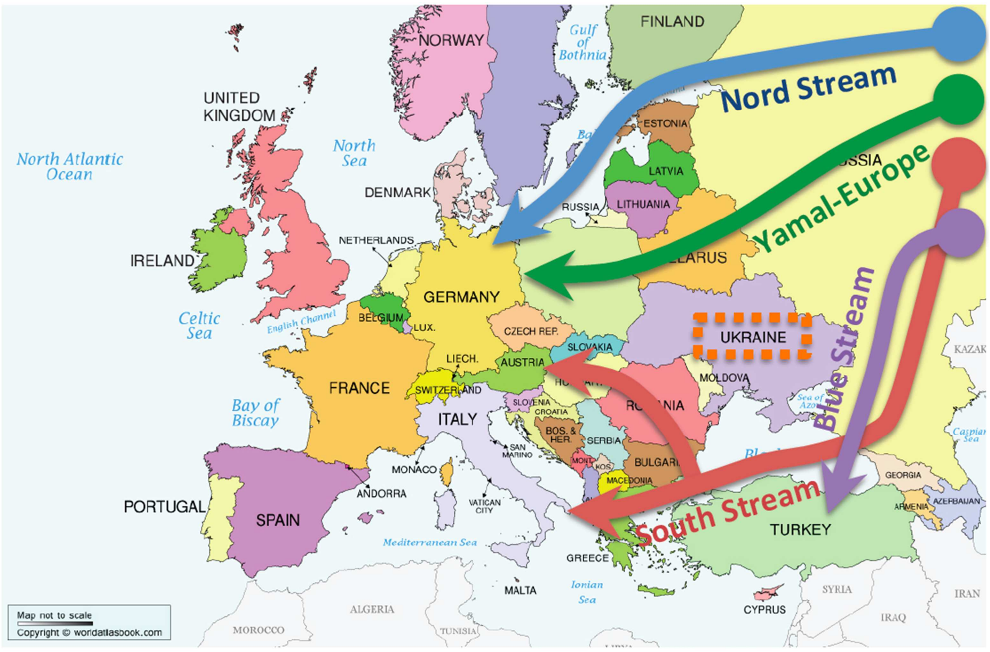
The South Stream Natural Gas (SSNG) Pipeline System was developed to provide a new supply route that would enhance the long-term reliability of gas supplies from Russia to the countries of Central and South-Eastern Europe via the Black Sea. SSNG project was the fourth phase of the Russian bypass policy of the onshore pipelines through Ukraine and other transit countries. In 2007, Peter Gaz Ltd, a subsidiary of Gazprom, began the surveys in the Black Sea, starting from the Russian coast, through the Turkish and Bulgarian EEZ's and through the Bulgarian shores towards Bulgaria for the South Stream Project (Gazprom Export, 2010).

SSNG was going to transport 63 bcm gas annually via four parallel pipelines at the offshore section (through the Black Sea) of the project, totally extending over more than 2,300 km (Felsbach, 2014), and only one third (21 bcm) of the transported gas would be the additional volume to be supplied. In other words, the remaining two thirds (42 bcm) of the SSNG capacity would have been comprised of gas diverted from other routes (the pipelines through Ukraine and Belarus) (Poptchev, 2014).

Map 7-2 (Offshore Energy Today, 2013) below shows the initially planned route of the SSNG project. Then, Map 7-3 (Hafner and Tagliapietra, 2015) shows all the 4 phases of Russia's initiative to bypass Ukraine in gas transmission towards Turkey and Europe.

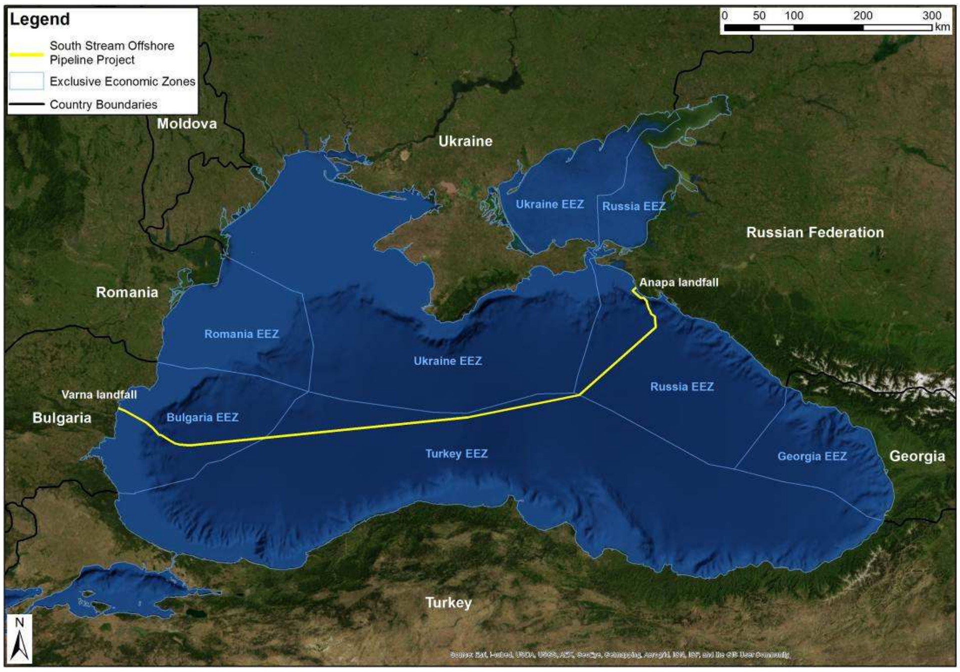


Map 7-2. Planned Route of the South Stream Natural Gas Pipeline Project (Offshore Energy Today, 2013)



Map 7-3. Four pipeline projects of Russia to bypass Ukraine
(Hafner and Tagliapietra, 2015)

The SSNG project was first announced to the public in June 2007 when Gazprom and ENI (Italy) signed a Memorandum of Understanding (Baran, 2008) and was materialized in May 2009 in Sochi, Russia with the participation of Vladimir Putin, who was the Prime Minister of Russia at that time, and Silvio Berlusconi, the Prime Minister of Italy and gas companies from Bulgaria, Greece, Italy, Russia and Serbia (Bryanski, 2009). The protocol for the passage of the pipeline through the Turkish EEZ in the Black Sea was signed among Russia and Turkey in August 2009, which was finalized on the final days of 2011 (Akkan, 2012). A few months later, an agreement was reached among Russia and Slovenia for constructing a section of the pipeline over Slovenia towards Northern Italy, which culminated in the foundation of South Stream Serbia AG in Switzerland to be responsible from the design, financing, construction and operation of the Serbian section (Gazprom, 2009). Croatia was also linked to SSNG with another agreement in March 2010. In the South Stream project, Russia was looking for some European partners in order to win the support of European companies (in other words the EU states) and tried to minimize the project risks. In June 2010, French EDF was announced to be participating to the project in addition to Gazprom (Russia), Eni (Italy) and Electricite de France (France). In the end, Italian Eni (20%) made an agreement with Gazprom and joined the offshore section of the SSNG project as a shareholder in 2007. Then, French EDF (15%) and German Wintershall (15%) also joined the consortium to realize the offshore section (ENI, 2011). Slovenia and Russia also founded a joint venture called South Stream Slovenia in March 2011. The investment decisions for the Serbian, Slovenian, Hungarian and Bulgarian sections were all signed during October-November 2012. Immediately thereafter, the shareholders of the South Stream Transport BV signed the final investment agreement concerning the offshore part of the project (Rodova, 2012).



Map 7-4. South Stream Offshore Pipeline Project (Subsea World News, 2014)

The South Stream Offshore Natural Gas Pipeline was the offshore component of the South Stream Natural Gas Pipeline System and was going to be comprised of four adjacent 32-inch (813 mm) diameter pipelines extending approximately 931 km across the Black Sea from the Russian coast near Anapa, through the Turkish Exclusive Economic Zone (EEZ), to the Bulgarian coast near Varna (South Stream Transport BV, 2015a). This offshore section of the SSNG Project is shown in Map 7-4 above (Subsea World News, 2014).

All three Sectors (Russia, Turkey and Bulgaria) of the South Stream Offshore Natural Gas Pipeline were being developed by South Stream Transport BV, an international joint venture established on 14 November 2012 in Amsterdam, the Netherlands, for the planning, construction, and subsequent operation of the offshore gas pipeline through the Black Sea. South Stream Transport BV took over the management of the South Stream Offshore Natural Gas Pipeline from South Stream Transport AG, which managed it from October 2011 to November 2012 in Switzerland and the company moved to Amsterdam in December 2012 and was renamed as South Stream Transport BV (South Stream Transport BV, 2015b). Prior to October 2011, the Project was developed by OAO Gazprom. The Russian company OAO Gazprom held a 50% stake in South Stream Transport BV; the Italian company Eni S.p.A. had a 20% stake and the French energy company EDF Group and German company Wintershall Holding GmbH (BASF Group) each held 15%. For the onshore section of the project from Bulgaria to Croatia and Slovenia, Gazprom set up companies and it held a 50% stake in each company. Remaining 50% belonged to the host country company(ies) (Reuters, 2015a).

Then on December 2012, the ground-breaking ceremony for the civil works related to the onshore section took place in Anapa, Russia (Geropoulos, 2012). In July 2013, the Republic of Macedonia also announced that it has signed an agreement to connect to the SSNG. During March-April 2014, the first two of the four lines of the offshore section were awarded to Saipem (Italy) and Allseas (Switzerland) (Delosevic, 2013).

However, the tides started to change direction by the 17th of April 2014, with the Ukrainian political crisis on the rise, when the European Parliament agreed on a resolution to oppose the SSNG project and to search for other gas suppliers to meet the European demand (Novinite, 2014), which resulted in Russia filing a case against the EU at the WTO regarding the EU retroactively and forcibly trying to apply its energy market laws put into force back in 2009 (Associated Press, 2014). Then in June 2014, Bulgaria was forced to halt the construction works of SSNG project, with the EC claiming that Bulgaria was in breach of the Union's energy market rules (Euractiv, 2014).

And finally, it was announced by Vladimir Putin on the 1st of December 2014 in Ankara that the SSNG project was cancelled due to the EU's and Bulgaria's negative attitude and the project would be renamed as 'Turkish Stream' with a different route (ending at the Turkish-Greek border rather than branching into Bulgaria, Serbia, Croatia, etc.). On the other end, the main reasons, from the viewpoint of the EU that led to the cancellation of the SSNG project by Russia can be listed briefly as below:

1. As the main argument of this thesis and as an 'invisible' but 'very well known' issue; the behavior of the EU in blocking the SSNG project was to prevent the empowerment of Russia who was using the natural gas as a weapon against the Balkans and Eastern Europe (as discussed in Section 5.2). Additionally, the EU argued that SSNG Project would not increase the source diversity and would not decrease – but on the contrary, increase – the dependency on Russia.
2. The project was in violation of the EU's 3rd Energy Package which states that the generation and sales companies need to be separated from their transmission business (as discussed in Section 5.3).
3. The Crimean crisis (as discussed in Section 5.5).

Following the unilateral cancellation of the South Stream project, Gazprom went on to buy out the shares from Eni, EDF and Wintershall to keep good relations with its former European partners to possibly use their services once more in the Turkish Stream project (Gotev, 2015a). The Turkish Stream project is foreseen to have a maximal depth of 2,200 m, with an offshore section length of 910 km. The capacity is foreseen to be 63 bcm/year – same as the South Stream – with 47 bcm/year being supplied to the Greek border of Turkey and the remaining being utilized by Turkey. Map 7-5 below (CREF, 2015) shows the routes of SSNG and the new Turkish stream for comparison purposes.

Map 7-5. Routes of the former SSNG and the new Turkish Stream pipeline projects (CREF, 2015)

In December 2014, Gazprom and BOTAŞ signed the Memorandum of Understanding for the construction of the offshore section of the Turkish Stream (Gazprom, 2015c). The project is planned to be commissioned by 2019-2020 (Enerji Enstitüsü, 2015-04-30a). On June 19, 2015, Russia and Greece signed the deal for a section of the Turkish Stream, where Gazprom has also announced its intentions to build "two additional stretches" to the already existing Nord Stream with an additional capacity of 55 bcm/year. This last announcement of Gazprom was, of course, not welcome by the EC officials, saying that this would definitely be against the energy diversification efforts of the EU (Gotev, 2015b). However, recent news shows the determination of Russia despite the opposition of the EC, regarding the fact that a Shareholder Agreement has been signed among Gazprom, BASF, E.ON, ENGIE, OMV and Shell for Nord Stream II project in September 2015 (Enerji Enstitüsü, 2015-09-04).

7.3. Economic and Environmental Dimensions

In terms of economic dimensions, the cost of the SSNG project that was to transport gas from Russia to Italy was foreseen to be 15-16 billion € (Reuters, 2015) with the offshore and European sections. Thus economically, this amount for just the transport of 21 bcm extra was deemed high but the project was accepted at the time anyhow (Marson, 2013). In fact the Russian officials had argued that the project would bring economic savings with the removal of the transit fees and lower operating costs since the offshore pipelines operate at higher pressure (thereby eliminating the need for "midway compressor stations" that are very costly) (Luvsan-Ochiriyn, 2011). For example, with the Nord Stream project, that bypasses transit countries, Ukraine has been claimed to have lost nearly 720 million USD/year (UPI, 2011). On the other hand, there were some analysts claiming that a subsea pipeline would provide higher maintenance costs compared to an over-land pipeline (Grib, 2007).

For comparison purposes, South Stream was deemed to be economically more feasible than trying to modernize the pipeline infrastructure of Ukraine or trying to obtain an increased supply of LNG (Baev et al, 2011).

Despite the financially strong partners of the SSNG, the financing of the project was left to Crédit Agricole Corporate and Investment Bank from France, ING Bank N.V. from U.K. and RPFB Project Finance Ltd from Russia. Thus, there were no Western financial institutions such as IFC or EBRD to provide financial support of the project owing to political reasons (South Stream Transport BV, 2015c).

As for the Turkish Stream, foreseen to be comprised of four lines, the cost is expected to be in the range of 11.4 billion € (Enerji Enstitüsü, 2015-08-11) to 15.5 billion €, similar to or somewhat lower than the South Stream project (Standard News, 2015). The expectancy for the lower price is partly related to the drop observed in the oil prices during the last year (Koch, 2015). On the other hand Bulgaria, probably because the project does not suit its interests, claims that the Turkish Stream would prove to be more costly that the South Stream (Novinite, 2015a).

Environmentally, we may discuss two perspectives. The first perspective is related to the direct environmental impacts during the construction and the operation of the project. In general, environmental impacts of offshore projects are more adverse than that the onshore projects. For the offshore section, fisheries and fishermen will be affected. In case of any accident, the response will be very limited. Nevertheless, since this is a gas pipeline and not oil, environmental impacts are much more limited. Moreover, there is almost no life less than 150-200 m depth of the Black Sea owing to the anoxic nature at those depths (Hürriyet Daily News, 2014). As for the onshore section of the project, it directly affects the agricultural lands, forests, water resources, flora and fauna as expected. The South Stream project was subjected to an EIA process by the Turkish authorities, which had stated that the offshore part of the pipeline would not pose significant ecological impacts save for the anchovies which are foreseen to be affected to some degree since the construction works would coincide with the migration period thereof within the Black Sea (South Stream BV, 2014). As an indirect positive environmental effect, natural gas, considered as a clean fossil fuel, can contribute to the lowering of coal use, and thus meeting the EU's emission targets to aid in preventing / decelerating global warming.

It has been recently announced that the EIA report which was approved for the South Stream project, would be valid for the Turkish Stream as well, indicating that the environmental impacts of the new project will be insignificant (Corner, 2015).The following table summarizes the cost comparison of Nabucco, TANAP, Turkish Stream and South Stream.

Table 7-1. Estimated cost comparison of Nabucco, TANAP, Turkish Stream and South Stream

	South Stream	Nabucco	Turkish Stream	TANAP
Estimated Cost (billion €)	15-16	8-14 ([1])	11.4 – 15.5	10-11 ([2])
Maximum capacity (bcm/year)	63 (only 21 bcm going to the EU is an additional capacity)	10 (to be increased to 23) ([2])	63 (only 21 bcm going to the EU is an additional capacity)	16 (to be increased to 23-31) ([3])
Cost per bcm/year (billion € per bcm/year)	0.714-0.762	0.800-1.400 (0.348-0.609)	0.543-0.738	0.625-0.688 (0.435-0.323)

Legend for References:
([1]): Schneeweiss (2011)
(2): Hafızoğlu (2014)
(3) Today's Zaman (2015a)

As can be clearly seen from this table, the EU has lost some of the gas capacity to Turkey with the conversion of South Stream into the Turkish Stream. From an economic perspective, the Nabucco's rival South Stream was going to transmit six times more capacity with at most double the price. As for the comparison of Turkish Stream and TANAP, Turkish Stream is expected to have about 1.5 times the price of TANAP, transmitting four-fold amount of gas (considering the 63 bcm/year). Moreover, neither the South Stream nor the Turkish Stream is foreseen to have significant negative environmental impacts. Consequently, it is obvious that the EU continues to prefer its Southern Gas Corridor projects instead of the Turkish Stream without paying regard to the cost-capacity analysis. This again proves the thesis statement that the intentions of the EU in making such a decision is not based on economic or environmental aspects, but rather on political and security considerations.

7.4. Security and Political Dimensions

The security and political dimensions of the SSNG/Turkish Stream projects to bypass the transit countries of Ukraine and Belarus have very deep perspectives, and date back to the collapse of the Soviet Union. After the collapsing of the USSR, 14 countries declared their independency (excluding the Russian Federation). Two of them were Ukraine and Belarus and these two countries mainly followed pro-EU policies after the USSR collapse in the region. After 1990, these newly-independent countries have developed positive relations with the EU and the U.S.; and, as a basic Western political pillar, they desired to set up ‘democracy’ and ‘liberal economy’. As described in Section 5.2, the EU and the NATO are expanding towards Eastern Europe where former Soviet Union countries (Ukraine, Belarus, Estonia, Latvia, Lithuania and Moldova) and and current Pro and Anti-Russian countries exist. Unfortunately, this region is an area for the power politics between Russia and the West.

On the other hand, as expected, Russia is ever-reluctant to give up its dominancy on the former Soviet Union countries. Moreover, whenever military power use is necessary, Russia never has avoided using it such as in Chechen wars (First in 1994-1996 and Second in 1999-2009), Georgia (2008) and most recently in the Crimean annexation (2014). One of main reasons behind the Crimea issue is that Russia has a (mis?)perception that NATO was planning set a military base on the Black Sea cost in Crimea which Russia clearly did not want (Sputnik News, 2015-03-16).

In such an environment, these transit countries are deemed as ‘buffer countries’ and suffer the power politics between Russia and the West (mainly the EU and US). In terms of gas pipeline diplomacy and gas transport, former-Soviet members Ukraine and Belarus have important geopolitical locations between Russia and the EU as transit countries. Especially Ukraine is the country that is most affected between these two powers and has faced major/drastic political movements such as the 'Orange Revolution' in 2004 and the Euromaidan protests during 2013-2014. As discussed in Section 5.4, there was a power change in Ukraine and pro-Russian government lost its dominance to the pro-EU government. This meant that Russia was losing one of its important supporters to the EU which was deemed as unacceptable by the Russian Federation.

After the first gas crisis in 2006 (Section 5.4) with Ukraine and Belarus, Russia paced up its decision to bypass these two countries, and to transport the gas to Europe through the Baltic Sea (Nord Stream Project) and the Black Sea (South Stream Project). In fact, during the development phase of the SSNG project, in 2009, Ukraine stopped the gas flow to Europe once more solidifying the decision of both Russia and Europe to find alternative routes since these crises posed a risk in terms of energy security for the EU and supply security for Russia. Italy had repeatedly displayed its concerns for security of the EU's energy in using Ukraine as a transit country considering the 2006 and 2009 gas crises, and had clearly emphasized that South Stream would increase Europe's energy security (Gazprom Export, 2009). On the other hand, EC officials have recently begun to clearly express their support for Ukraine, indicating that they consider Ukraine to be a trustworthy transit state (Gotev, 2015b).

The Baltic Sea and the Black Sea are the best and only available routes without any transit states in between because via these two routes, Russia is able to bypass Ukraine and other pro-EU countries, and Russia can continue to set up rules and protect its dominant position in the gas business towards the EU, and also continue to use gas as a political leverage towards Eastern Europe and Western Europe countries.

As argued in this thesis, security and politics are the main drivers for the international gas pipeline projects and South Stream project is one of the best case studies that exemplify this statement. The South Stream Project was going to bring additional gas to the Balkans and Eastern Europe at only one third of its total volume (21 bcm), whereas the remaining 42 bcm would be diverted from onshore pipelines (Ukraine and Belarus) between Russia and Europe. One of the major aims was to bypass Ukraine and other transit countries, despite the project realization being much expensive (Baran, 2008) as compared with the operation and maintenance of the current onshore pipelines via Ukraine and other transit countries. Thus, energy security and policy had prevailed over economy in the decision to build the SSNG pipeline (Stern et al, 2015).

The politically controversial (Chyong and Hobbs, 2014) SSNG project was mostly targeted for the strategic and political interests of Russia, and Gazprom in particular, to increase the dependency of Europe on Russia and thereby expand the monopoly held by the latter regarding natural gas. SSNG project was even considered to be a ‘divide and conquer’ attempt of Russia, where Russia signed bilateral agreements (strictly against the EU energy policy) with the EU states through which the SSNG pipeline was going to pass (Pomerantsev, 2015). It is worthwhile to mention here that high dependency on a single source increases vulnerability of the EU and South Stream project, while providing some theoretical increase in security for the EU by eliminating an unreliable transit state (Ukraine), it still does not change the supplier (Russia). Thus, dependency on Russia would increase, and security in terms of the EU would decrease, if the SSNG pipeline was commissioned. Moreover, as SSNG was perceived as a direct threat to the viability of Nabucco, it was more than natural for the EU to stand against it. Secondly, SSNG project was developed as a reaction to the Southern Gas Corridor aspirations of Europe in order to bypass Russia in search of other gas suppliers. Moreover, if the SSNG pipeline was built, it was going to draw gas from Central Asia, as well as possibly from the Caspian area, to avert the Nabucco and any other Southern Gas Corridor gas pipeline project plans of the

EU, i.e. TANAP. Thus, South Stream was definitely seen as a key in Russia maintaining its political leverage on Europe (Baran, 2008). It has also been claimed that the EU was trying to buy time to develop the Southern Gas Corridor projects, Nabucco at that time (Socor, 2008), and now TANAP, while deliberately putting forth opposition against the South Stream project.

A special case here is Bulgaria, sometimes called as the 'Trojan Horse' of Russia inside the EU (Pomerantsev, 2015), who was highly supportive of the SSNG project, with nearly 80 Bulgarian companies signing preliminary subcontractor deals, and was foreseen to lose significantly should the route of the project be routed through Turkey and Greece instead of Bulgaria (Batkov, 2015). It was even claimed that Gazprom was dictating the tendering procedures ongoing in Bulgaria for the South Stream project, Bulgaria was (and mostly still is) excessively pro-Russian throughout its government (Rujevic, 2013) and that corruption was widespread in Bulgaria with the "Bulgarian political system permeated by criminal organizations linked to the Russian state" (Institute of World Policy, 2014). In the end, Bulgaria was forced to abandon the project with claims of the EU that Bulgaria was in violation of the Energy Union rules.

As for the position of the USA; it was also against the South Stream project since it was going to increase the empowerment of Russia which was something the USA definitely did not want (Ahmed, 2014; Bröckers, 2014).

And finally in 2014, the Crimean crisis came to surface which clearly showed the consequences of the power-driven acts of Russia, after which the already-shaky relations among Russia and the EU took a turn for the worse. It was stated in many articles that South Stream was put at risk as long as the military issues with Ukraine and Crimea were not solved soon (Pirani et al, 2014; Ria Novosti, 2015a). The EU already increased its pace in taking firm steps regarding the solidification of the Energy Union which was an act of the EU to increase energy security and decrease dependency on a single source, being Russia (Euractiv, 2013).

It has been claimed in many occasions as how the South Stream was utilized by Russia as a tool for political influence over the Western Balkans (Mulalic and Karic, 2014). Thus, the root of the problems regarding SSNG was argued to be rooted in the clash of power among Russia and the EU instead of the so-called incompliance with the EU trade rules.

Thus, the cancellation of SSNG project was not so unexpected with many related parties foreseeing this event owing to the escalating tensions among Russia-EU, sanctions being applied and South Corridor projects (Nabucco, TANAP, etc.) being developed (Micco, 2014). It was repeatedly stated by the EU officials in the same sentence that the South Stream would have to obey the EU energy market laws and Gazprom would not be allowed to have the final word in the project. This is another indication of the power struggle between the EU and Russia. This cancellation and transformation in fact clearly exemplifies the prevalence of political (and security) will over economic interests since the new route is slightly longer. Bulgaria had made many preparations on its side which will have to be scrapped since the new route now comes to the Greek border (but not entering and thereby avoiding the application of EU rules) and as Greece is economically in a far worse situation than Bulgaria, Russia has committed to take over the costs of Greece, implying that the cost of Turkish Stream will be higher for Russia (TCE Europe, 2015).

In the perspective of Turkey, the country was said to be utilizing its geopolitical advantages efficiently in giving permission for its Black Sea EEZ to be used in the South Stream project, which was foreseen to contribute to the energy security of Turkey (Baran, 2008). Nevertheless, South Stream project being cancelled and converted into Turkish Stream is a more preferable situation, since Turkey will now be able to obtain more gas with the Turkish Stream (16 bcm/year), it will be a significant step in being a transit country and may be an important progress for becoming a ‘hub’. Russia-Turkey relations were at the highest point since the beginning when their mutual relations started until the 24th of November 2015 when the Russian warplane was shot down by the Turkish Air Force jets. However, during the Ottoman Empire time, these two countries were historical enemies and there was a great rivalry between them. After the revolution in Russia and establishment of the Republic of Turkey (after World War I), both countries followed peaceful relations and most of the time realized successful cooperations although they were at opposite sides during the Cold War era. But, in the recent decades, two countries have realized very important steps especially in the energy area. Russia is one of the main energy suppliers of Turkey in terms of oil, gas and nuclear power. In these circumstances, Russia’s new favorite transit country is Turkey for the ‘Turkish Stream Project’. Turkey, as usual, is a supporter of the project and will have strategic and economic (discount in the gas prices imported from Russia) advantages.

However recently there have been some news regarding the possible obstacles standing in the way of the Turkish Stream agreement among Turkey and Russia. First of all, Russia seems to be forcing the hand of Turkey to sign the Turkish Stream agreement for Turkey to be able to receive the formerly promised 10% price discount on gas but Turkey insists that this discount be applied whatever the outcome of Turkish Stream project is. Turkey is emphasizing that this discount is its right since the oil prices have fallen about 40% since June 2014. Secondly, Turkey wants Turkish Stream to be incorporated into its national gas grid whereas Russia is approaching this request reluctantly (Abay, 2015). Thirdly, Turkey it is being claimed that the ‘traditionally strained’ relations among Greece and Turkey might slow down the process for the Turkish Stream. (Zhavoronkov, 2015). Moreover, the current political uncertainty and increase in terrorism can be a reason why the related agreement for Turkish Stream has not been signed yet among Turkey and Russia.

Just as in the South Stream, the European Commission is still approaching the Turkish Stream project with certain hesitancy as the latter still increases dependency on Russia (Enerji Enstitüsü, 2015-04-14). The Turkish Stream is also argued to be politically-driven rather than economically-driven (Erkul, 2015). And in the same manner that Nabucco was put forth as an alternative and rival of the defunct South Stream, TANAP (the replacement of Nabucco) is considered to be the rival of the planned Turkish Stream. 1,850-km long TANAP project, with a cost of about 10 billion USD will transit gas from the Caspian zone at 16 bcm/year, planned to be increased to 23 and 31 bcm/year by 2023 and 2026, respectively. TANAP is planned to be commissioned by 2018 (Enerji Enstitüsü, 2015-04-30b).

The approach of the USA has not changed either. USA is still giving ultimatums to Greece so that it does not enter the Turkish Stream project (Enerji Enstitüsü, 2015-05-11c), hinting that IMF credits will be more easily provided should Greece puts more emphasis on the development of TANAP-TAP instead of the Turkish Stream (Enerji Enstitüsü, 2015-06-05). Nevertheless, Greece has displayed its positive tendency towards this project which will definitely boost its economic and political status (Enerji Enstitüsü, 2015-05-11d; Euractiv with AFP, 2015a). It has even been claimed that, owing to the support provided to the Turkish Stream by Macedonia, the USA was behind the turmoil ongoing in Skopje (Enerji Enstitüsü, 2015-05-20).

After losing significant money with the cancellation of the South Stream, Bulgaria has also stated to pursue of its interest in joining the Turkish Stream with the proposal of building a gas storage facility on Bulgarian soils (Enerji Enstitüsü, 2015-06-22b). In fact, Azerbaijan has even indicated that it would be willing to provide gas for the Turkish Stream project, claiming that the Southern Gas Corridor projects do not form an alternative, rather a complementary of the Turkish Stream (Enerji Enstitüsü, 2015-06-23).

7.5. Concluding Remarks: Theory-Practice Cohesion for South/Turkish Stream Project

This thesis argues that political and security dimensions play a more influential role in determining the prospects of the realization of the natural gas (pipeline) projects. The EU has clearly and repeatedly indicated that it values security over economy regarding the gas supply of the EU. This can exemplified by giving priority to the development of SGC projects, which are accepted to be costlier than buying (more) gas from Russia via the already existing pipelines (Tagliapietra and Zachmann, 2015b).

Secondly, this thesis is based on the 'political neoclassical realist approach to international relations' framework. As explained in Section 2.3, neoclassical realism is the best International Relations theory in order to explain natural gas politics of Russia with the EU and Turkey. It is assumed that although Europe's foreign policy mainly can be explained by liberal institutionalism and Turkey's can be explained by constructivism, in our case, Russia's foreign policy can be explained in general by realism considering the expansionist actions of Russia to increase its dominancy and power in as many countries as possible using crude military force or other weapons such as energy. Specifically neoclassical realism is the best theory that matches with the natural gas politics of Russia with the EU and Turkey. The main reason that neoclassical realism is being claimed is that internal factors and players have also effect on the state's foreign policy. In our case, Russian foreign energy policy is directly affected by Gazprom's natural gas policy as an internal actor in the Russian Federation.

CHAPTER 8

CONCLUSION

This thesis aims to discuss the intricate relationship among Russia, the EU and Turkey regarding natural gas (pipelines) diplomacy; attempts to put forth how this relationship will unfold over the backdrop of evolving energy orientations of Turkey, the EU, as well as Russia; claims that security-political dimensions prevail over economical-environmental dimensions related to trans-boundary gas pipeline decisions; and argues that neoclassical realism best describes the abovementioned relationship and diplomacy.

In terms of the theoretical perspective of the argument, neoclassical realism can well explain and support the argument. This IR theory asserts that state power becomes a function of the leading institutions and ideologies within the state and this, in turn, shapes the international relations of that state (Taliaferro, 2006). The best example of a leading institution in the gas relations of Russia with the other states is Gazprom, which definitely gives direction to the state in its foreign policy. Moreover, neoclassical realism also indicates that states may be cooperating and competing at the same time, in other words seeing each other both as security threats and also economic partners (Kropatcheva, 2012). This is obvious in the gas relations between the EU and Russia who seem to be in a power-struggle and striving to reduce dependency on each other, but at the same time, still trying to reach some kind of understanding and cooperation. The fact that the EU has applied many sanctions against Russia but left gas out of these sanctions proves this point. Another aspect of neoclassical realism is the emphasis it places on “external imperatives” and action-reaction concept. It has been argued that many of the Russian political actions were actually reactions towards the attitude displayed to it by the West (EU, USA, NATO). Furthermore, Russia’s acts target reinforcement of its power in the international arena, but it also requires a level of cooperation and recognition. For example Russia actually does not want to alienate the West especially in regards to the modernization of the gas pipelines, in which it needs the help of the latter.

Russia enjoys all the advantages brought about with its vast energy-rich and mineral-rich soils. In fact, it can be said that it was energy and mineral resources (oil, gas, coal, power, gold, etc.) that made Russia able to pay its internal and external debts, regain its political power in the international arena and thus, rise above the ashes of the fallen Soviet Union like a phoenix. As for the natural gas policy, Russia (and other states) puts more weight on economic (and environmental) concerns regarding the domestic gas pipelines. However, when it comes to the trans-boundary pipelines, security and politics come to the forefront. The expansionist approach of Russia prevails in this area as well since it does not wish to sever the ties with the EU and Turkey currently buying most if its gas. Russia wants to utilize and even exploit the resources of the Caspian states; extend its pipeline network towards the Eastern countries (China, India, Korea, Japan) and remain allies with the Middle Eastern countries to avoid becoming competitors with them.

An interesting comparison here would be pipeline transport of gas versus oil. Internationally, oil has a fixed price. Whereas in the gas markets, the prices are somewhat, but not completely, tied to the oil prices. Thus, the prices are set depending on the negotiation among the seller and the buyer. Moreover, gas pipeline market is dependent on long term (20-30 years) contracts, which is a distinctive difference. This makes gas diplomacy a much more important and sensitive issue.

In terms of natural gas, 58% of Turkey’s and 24% of the whole EU’s consumption is being supplied by Russia via pipelines. However, when the states comprising the EU-28 is examined, it can be seen that there is a significant variance among the states in terms of dependency on Russian gas; with Latvia, Lithuania, Estonia and Finland being 100% dependent on one end, and Croatia, Denmark, Ireland, Portugal, Spain, Sweden and the U.K. being 0% dependent on the other end. Turkey holds a unique position, located between Russia and the EU, as well as between the North African, Middle Eastern, Caspian states and the EU.

Nuclear power provides highly efficient and carbon-free energy generation, however the hazardous wastes produced require careful disposal and the possible disastrous consequences in case of safety violations or natural events such as earthquakes makes this power generation option somewhat doubtful in the eyes of the public and sometimes the government as well. For example, the Fukushima disaster raised significant concerns worldwide and altered the nuclear policy of many countries. The most notable example is Germany, generating about 10% of the total nuclear capacity of the EU, who has decided to phase-out all its nuclear reactors by 2023. Although this may lead to a conclusion where Germany might opt for increased amount of gas, it is forecasted that it will not be the case since Germany has successfully replaced the gap in the energy supply with RES. Moreover, more than 50% of the nuclear energy of the EU is generated by France and this state has no plans of a nuclear phase-down, let alone a phase-out. Thus, it can be argued that the alterations in the nuclear policy in some states of the EU will not make a significant change on the gas demand of the EU as a whole.

As for Turkey, it has already begun the construction of Akkuyu Nuclear Power Plant by Rosatom of Russia, and the plant is planned to generate power starting with 2020. The total power to be generated by the 4 reactors corresponds to about 6-7 bcm of gas as of 2023. Considering that Turkey imported 27 bcm of Russian gas in 2012, and even with a conservative 6% yearly increase in energy consumption, the gas demand from Russia would rise to 54 bcm in 2020, and this 6-7 bcm to be substituted with nuclear power would most likely not create much of a decrease in the total gas imports from Russia. Nevertheless, it should not be forgotten that in terms of dependency, Turkey will just be shifting the sector from gas to nuclear, but dependency on Russia will remain. Moreover, considering the high amount of coal burning plants (25% of generated energy in Turkey is obtained from coal-fired plants), Turkey might decide to phase-down these GHG emitting plants instead of gas imports.

Natural gas production in the EU has been decreasing since 2010 and is foreseen to decrease more according to 2035 forecasts, whereas consumption is foreseen to increase, despite at a slower pace, resulting in a possible increase in imports. The EU is hoping to close this gap with RES, shale gas imports, increased efficiency, imports from sources other than Russia and increased LNG imports; however all of these items do not seem to be enough in reducing the dependency of the EU on Russia lower than the current 25%. The first reason is the obvious expansion of the EU into 28 states some of which have no resources of their own but have increasing demand. Secondly, most of these items bring about economic burdens which some of the states will not be able to bear considering their lower economic standing as compared to the rest of the EU. Especially Greece is a significant example which has recently neared to declaring bankruptcy or leaving the EU altogether. And thirdly, despite desiring to decrease its dependency on Russia, our case study, being the Turkish Stream, is estimated to bring the EU an additional 21 bcm/year from Russia. There are even rumors about the possibility of a new Nabucco project, which will bring Russian gas instead of Caspian gas this time. Another far but not impossible situation is where Turkey is also taken into EU as a member, which would undoubtedly increase the dependency on Russia considering the former's high and ever-increasing population, and that it imports nearly 60% of its gas from Russia.

Shale gas is considered as a competitor for natural gas; however the extraction methods of the former have significant environmental and economic concerns. USA (15%), followed by China (14%) are the first two countries with the highest amount of technically recoverable shale gas. According to the EIA figures, Russia (4%) is at the ninth place. Within the EU, no state makes the top 10 list and the few states, which do have a certain level of probable shale gas, such as Poland, Bulgaria and France, are facing technical difficulties in addition to regulatory restrictions and public opposition. Turkey is also considered to have a low level of shale gas (3‰ of the world) but not enough to make any change on the import dependency thereof on natural gas. Thus, if the EU and Turkey is planning to use shale gas in their energy matrix, they need to import it, probably from the USA, which is estimated to be more expensive than natural gas imports from Russia owing to the high cost of transport of shale gas in the form of LNG. As a result, should the EU tend to increase LNG imports from USA to substitute for Russian gas, this will definitely be a political and security-related decision rather than en economic one.

Another initiative of the EU in reducing energy consumption, GHG emissions and dependency on external sources of energy is the 20-20-20 Directive aiming to decrease emissions, increase efficiency and expand the share of RES utilization. There are many theoretical sources of renewable energy however, technical, economical, geographical and climate constraints result in the utilization of hydraulic power and wind power more commonly, together amounting to over 70% within the total RE utilization within the EU. The remaining 30% is almost solely comprised of biomass conversion and solar panels. Although it has been argued that the target of 20% increase in the use of RES is too low, with a potential to be increased up to 70%, one of the main problems is the current lack of cross-border RE trading within the EU. It is foreseen that the EU as a whole will be barely able to reach its target by 2020. Turkey on the other hand, has a significant potential for RE (especially solar, wind, geothermal) and despite having set goals to increase RES utilization, it seems to be mostly focused on building more hydroelectric power plants which raise certain environmental concerns on their own. Nevertheless, the intermittent and less-reliable nature of the RES systems necessitate the use of backup and complementary energy sources, among which natural gas proves to be the most efficient and least environmentally damaging option. As a result, the potential increase of RES usage in the EU and Turkey can cause a level of decrease in the natural gas consumption but definitely at a lower percentage that the increase in RES.

The second aspect of the mentioned Directive is aimed at increasing energy efficiency up to 20% to reduce unnecessary consumption and losses. However, this matter requires extra meticulousness and resorting to advanced technological systems, thus placing a higher economic burden especially on the less wealthy states of the EU. In general, the EU is not expected to be able to live up to its promises in terms of energy efficiency by 2020 and fall significantly short of the 20% target. Moreover, it should be kept in mind that 20% efficiency being reached does not translate directly into 20% decrease in consumption due to the 'rebound effect', meaning that some of saved energy is being redirected towards industrial and other welfare gains. Turkey on the other hand, has a significant high energy demand and much higher losses as compared to the EU. Although an Energy Efficiency Law was put into force in 2007 and many other legislative steps have been taken thereafter, Turkey still has a lengthy and thorny road towards attaining its efficiency goals. Thus, the energy efficiency targets are not foreseen to create much of an impact on the gas imports of the EU or Turkey.

The final '20' in the 20-20-20 Directive is the 20% reduction target of the EU regarding the GHG emissions which is a hot topic on the worldwide agenda due its imminent effect on the climate change. However, this target is considered by many as too easy to attain and too low to actually combat with the climate change. In fact, the EU has almost reached (18%) its target as of 2013. Therefore, there have been recent developments where the target of GHG reduction is proposed to be 40% for 2030 but this value has not yet become binding. Considering that many academics and researchers argue that 2050 ambition of 80-95% emission cuts require much drastic measures than the ones already in force, it can be safely assumed that the coal and oil-firing plants need to be phased down and even phased out by 2050. They need to be preferably replaced by RES technologies as much as possible however; economic and technical concerns will most definitely limit the complete substitution in such a short time. Nuclear plants can also be considered as a substitute however, economic, environmental and public opposition concerns, as well as the current trend in some of the EU states in phasing down/out nuclear plants may not make this prospective substitute a viable option for the EU. Thus, it can be argued that natural gas will be the least harmful and the best option of energy source of the EU during the efforts to diminish GHG emissions. Turkey is not under any obligation for GHG reduction until 2020 however, it has an aim of 20% reduction by 2023 with voluntary projects. However, the GHG emissions of Turkey have been on the rise since 1990 owing to fast increasing population and industrialization, as well as high level of lignite fired power plants. To counter this situation, Turkey has focused its attention on nuclear energy but the plants will only come into operation by 2020 and by then, the population is foreseen to raise another 5-14%. Therefore together with nuclear energy, natural gas again seems like the best complementary option for Turkey in its efforts to limit GHG emissions. As a result, it is evident that the climate target, by itself, is expected to have a positive effect on the gas imports of the EU and Turkey.

The most recent development in terms of combating with the effects of climate change is the Paris Agreement signed on the 12th of December 2015 with the consensus of 196 countries. This Agreement aims at more reduction of GHG emissions worldwide and limitation of climate change at well below 2^{o}C, even at 1.5^{o}C by 2100. The downside of this Agreement is that, albeit putting forth ambitious targets for all of the signing parties, there are no binding punitive actions decided for the countries that fall short of this target and there are no clear-cut paths drawn out to reach such targets. Anyhow, this new treaty can be considered as a pro for natural gas since it is a clean and relatively cheap fossil-fuel based energy source that can be used to complement the existing and new RES systems, and replace the lesser environmentally-friendly alternatives that generate much higher GHG emissions.

All in all, it is can be said that increase in the renewable energy source utilization and energy efficiency might theoretically have a small negative impact on the prospective gas imports by the EU and Turkey from Russia however, the GHG reduction goal, being a much more pressing matter, will have a positive impact. Therefore, the 20-20-20 Directive and the Paris Agreement are expected to make a zero or positive impact on the gas imports of the EU and Turkey from Russia.

Since the EU has been aware of the possible expectation of increased gas utilization, it has aimed to increase LNG imports instead of resorting to increased dependency on Russian gas. Despite the source-market independency and flexibility of LNG supplies, there are several disadvantages of LNG as compared to pipeline gas. First of all, the production cost is higher and it necessitates specially designed carriage tankers, in addition to gasification plants which add on to the cost. Secondly, although LNG transport is not subject to transit country or physical pipeline attack risks, it can still be interrupted with piracy attacks and political instabilities of the originating countries (e.g. Middle East and North Africa). Thus, this act of the EU, i.e. attempting to substitute Russian gas received from already laid pipelines with costly LNG, shows the security and political concerns overthrowing economic concerns. Turkey is also trying to diversify its energy sources, with almost 25% increase of LNG import as compared to 2013 and has signed new agreements with Qatar to increase the share of LNG owing to the recent political tensions with Russia and the possible expectancy of Russia cutting off or reducing gas supply to Turkey should such tensions continue to escalate. However, since Russia has clearly stated that such a cut-off or reduction would not take place, it can be concluded that future LNG purchases of Turkey can decrease potential additional gas imports from Russia, meaning that this will have an overall zero effect on the current level of pipeline gas supply from Russia.

Coming to the security and political aspects, the first topic is the power politics played by Russia and the EU on the Balkans and Eastern Europe. Most of this area was either seized by the USSR or under communist effect by the end of the 1940s. This power of the Soviet Union created a security threat perception for Europe and the USA, leading to the foundation of NATO in 1949 and the European Union in 1957. During the 1960s, this area started to liberate itself from the effects of the Soviet Union and when the latter collapsed in 1990, most of the states declared their independence and many of them started to realign themselves with European and Western civilizations. 3 of them – Estonia, Latvia and Lithuania – even became EU members by 2004. During this period, NATO did not halt its expansion either and continued to move toward Eastern Europe and Balkans. As can be seen from Map 5-2, the expansive movements of the EU and NATO to encircle Russia has reached a point where only Ukraine, Belarus and Moldova have remained as the "buffers" between the EU/NATO and Russia. On other hand, Russia still has significant power over these states considering their increasing energy, specifically gas, requirements and economic dependency on Russia. This account clearly shows the action-reaction movements in time related to power play and politics. The story is far from being over and it seems that Russia will continue to counter the expansive movements of the West with its continued reign over the Balkans and Eastern Europe.

The second aspect is the Energy Reform Packages, more specifically, the 3rd Energy Package developed by the EU in 2009 following the second Russian gas interruption. This package emphasizes energy security, as well as sustainable and liberalized natural gas market throughout the Union. The major element of this package that has created significant conflicts with Russia and even led to the collapse of the South Stream Pipeline initiative is the "unbundling provision" that necessitates the separation of the supplier from distributer in gas pipelines, which is overtly directed at breaking the monopoly of Gazprom within the EU. Another byproduct of this package was the semi-materialization of the Energy Union concept within the EU, encompassing the 20-20-20 Directive aims, energy security, as well as targeting to decrease dependency on Russia. Although these steps taken by the EU are theoretically strong, the situation in practicality is not so. A serious situation at hand is the economic downturn of Greece and the strong pro-Russia tendencies of Bulgaria and Greece, especially regarding the prospective Turkish Stream project. Another example is Poland, who, despite being strongly anti-Russia and leads the discussions regarding diminishing the dependency on Russia, has clear objections regarding the advancement of the 20-20-20 Targets owing to its own technical and economical difficulties. All these clearly show that although the EU can be a “Union” by definition, it definitely is not “united” on significant matters.

Another theoretical topic that can be discussed is the EDC (European Defense Community) which failed to become a reality, transformed into ESDP (European Security and Defense Policy), which has recently been converted into CSDP (Common Security and Defense Policy) covering the defense and military issues within merely the domain of the EU. The EDC initiative proposed back in the 1950s was targeted to form a bloc among the European states of West Germany, France, Italy and the Benelux states, against the Soviet Union, as an alternative to NATO, and as a response to the rearmament call of the USA for West Germany. Had this initiative taken life, Europe might have become stronger on its own instead of choosing to side with the USA-NATO on many aspects, gain a more military edge, even take on more of a realist rather than a liberalist-pluralist nature.

The third aspect is related to the attitudes of the transit countries located on the route of the pipelines from Russia to the EU. The first is **Ukraine**, over which 55% of the Russian gas destined to the EU passes. This state is heavily dependent on Russia for both gas and oil. It was once a part of the USSR and has fluctuated between pro- and anti-Russia tendencies since the collapse of the Soviet Union, leading to many significant events such as the Orange Revolution in 2004, Ukrainian gas crises in 2006 & 2009, Euromaidan protests and finally Crimean annexation of Russia in 2014. The second is **Belarus** which accommodates about 15% of the Russian pipeline gas going to Europe. The situation is not much different here with fluctuating ally-status with Russia and again a strong dependency on Russia for gas, oil and many other commodities. Belarus can be considered to be lesser ally to the EU as compared to Ukraine owing to the former's internal problems. The conflicts between Belarus and Russia led to, not gas, but oil pipeline disruption towards Europe in 2007. The last (prospective) transit state is **Turkey**, with its unique geopolitical position as both between Russia-EU and Caspian States-EU, making it potentially valuable for both Russia (e.g. Turkish Stream) and the EU (e.g. Southern Gas Corridor). Turkey is trying to keep warm relations with both Russia (despite the war plane being shot down by Turkish Air Forces on November 2015) and the EU to create a win-win situation for itself.

The final aspect in the political and security considerations is the evolvement, or rather recession, in the gas trade relations among Russia and the EU following the Ukrainian and Crimean crises. These crises brought to surface the (energy) security and dependency issues of the EU and created a significant rift in the formerly quasi-stable relations among the two powers. The reactions of the EU against these gas interruptions (Ukrainian crises) and hostile actions of Russia (Georgia-Ossetia war in 2008, Crimean crisis in 2014) include the imposition of several commercial and financial sanctions against Russia, enforcing the 3rd Energy Package, speeding up the Southern Gas Corridor initiatives and taking stern actions towards the formation of an Energy Union. Surprisingly, or maybe not so surprisingly considering the one third gas dependency on Russia, the mentioned sanctions were not related to natural gas (Gazprom) but mostly targeted at financial and commercial Russian corporations. The reactions of Russia were aimed at eliminating the transit state risks originating from Ukraine by focusing on the Turkish Stream, commissioning the Nord Stream carrying gas directly to Germany through the Baltic Sea, as well as concluding agreements and discussions with many Eastern Group countries such as China and South Korea to ensure its economical status should the EU resort to decreasing the gas purchases from Russia. In fact the Crimean annexation by Russia can also be considered as a reaction to the NATO and the EU expansion to include Ukraine in the future, and the alleged plans of NATO to establish a base in Crimea. In fact, it can be argued that all Russia wants to do is to sell abundant and high priced gas to the EU, but the meddling and pressures from the USA and NATO, raises security concerns and leads Russia to act more aggressive than necessary. Thus, all the unfortunate events that have led to the annexation of Crimea by Russia may be nothing more than the result of a perception / misperception of Russia.

Another important aspect is the 'Syrian Crisis'. Since beginning of the crisis, Turkey (and West) at one side and Russia (Iran and Iraq as a Shia allies) is at the other. Turkey and the West support the opposition groups towards Assad government and Russia (with Iran and Iraq) supports Assad. Turkey and Russia were able to keep the relations and were open to dialogue until the 24^{th} of November 2015 when a Russian warplane breached the Turkish border was shot down by Turkish Air Forces. After this event, issues have totally changed between Turkey and Russia, and the Syrian issue evolved into a real crisis between both countries. As an argument of this thesis, this situation directly affected the Turkish Stream Project from the security and political perspectives, although there is no direct relation between the 'Syrian Crisis' and 'Turkstream Project'.

In terms of the global risks against Russia and alternatives to Russian pipeline gas supply, the USA can be considered as the main global security risk. The main reason is the fact that it has chosen to ally itself with the EU against Russia regarding many topics, including the recent commercial and financial sanctions being imposed on Russia; providing significant support to the eastward EU and NATO enlargement; allegedly interfering in Ukrainian internal businesses to reinforce anti-Russia movements; backing the South Corridor projects; opposing the Turkish Stream project, even applying pressure on countries like Serbia, Greece and Bulgaria to avoid them from going along with Russia in the Turkish Stream project. Another controversial subject is the rumors regarding the alliance between the USA and Saudi Arabia with the aim of lowering the oil prices in order to deliver a blow on Russian economy. The last matter is related to the shale gas and oil production in the USA, recently on the rise, which has the potential to compete against Russian gas in the EU in the form of LNG. Although the first matter seems to put a level of pressure on Russia, the next two matters mentioned here are argued to be less effective in terms of gas trade since, first of all, the gas prices are only loosely tied to the oil prices and secondly, even if the USA succeeds in overcoming environmental and technical difficulties in shale gas extraction, Russia is pretty convinced that it can compete with American gas in the EU.

As for the possible gas suppliers that can pose an alternative to the Russian gas for the EU, there are three regions. The first is the **North African** region, mainly comprised of Nigeria, Algeria, Egypt and Libya, totally amounting to almost one third of the proven gas reserves of Russia. There is both pipeline and LNG gas transmission already occurring towards the EU, and there is a Trans-Saharan pipeline being planned to provide the Nigerian gas to the EU via pipeline. However, this region has the disadvantages of increasing domestic consumption (Algeria), political instability and civil unrests (Egypt and Libya) and lack of sufficient technical capabilities and infrastructure (Nigeria). The only new development that can result to the detriment of Russia in the medium to long term is the new discovery of large gas fields offshore of Egypt and Cyprus, which can be utilized both in the form of LNG and pipeline supply to the EU to replace some of the Russian gas imports.

The second is the **Middle East** region, comprised mainly of Iran, Qatar, Saudi Arabia, U.A.E. and Iraq. This region has a significant proven (almost twice of Russia's) and also unproven gas reserve potential, easily capable of becoming an alternative gas supplier to the EU, at least numerically. However, this area is overthrown with much more political and public instability as compared to North Africa, significant alliance with Russia (especially Iran and Syria), increased domestic demand (Iran and Oman) and the lack of interest of the oil exporting companies to export gas as well (Saudi Arabia, U.A.E. and Kuwait). Despite the recent removal of international sanctions on Iran and the increased expectancy of the EU to import gas from this country, the current positive relations with Russia, the interest of Iran regarding exports being mainly focused on oil rather than gas and the ongoing conflicts with Saudi Arabia make Iran a less possible alternative of Russian supplied gas to the EU. There is also Oman and Yemen, currently supplying about 0.3 bcm/year LNG in total to the EU, but these have very little reserves to pose as an alternative threat against Russia. Iraq has recently started to show some promise with higher gas reserves being claimed to be present in this country. Iraq is leaning towards supplying gas to future Southern Gas Corridor projects, quasi-stabilization has been reached within the state and partial recovery is ongoing after Saddam was overthrown. Although IEA foresees that gas exports may commence from Iraq to Turkey, towards Europe by 2020-2025, there are still many economical, technical, infrastructural and political issues to be resolved before this can become a reality. Another possible alternative to the Russian gas can be provided by Qatar that currently provides about 8% of the gas of EU-28 in the form of LNG. There was a pipeline project to extend from Qatar to Turkey which was put on hold due to many political and security issues concerning the transit states in between however, Iraq's recovery can re-place this project on Qatar's agenda. Anyhow, as the main aim of the EU is energy "security" in the course of diversification, the current political instability and somewhat insecure status throughout this region will most probably postpone any possible imminent gas trade relations among the EU and the Middle East.

The third and last area is the **Caspian** region, comprised of former Soviet Union states of Turkmenistan, Kazakhstan, Uzbekistan and Azerbaijan. Actually, this is the region that the EU is mostly focused on with the Southern Corridor projects. However there are other downsides of this region such as lower proven reserves, current contracts with Russia to sell their gas, lack of any existing pipeline infrastructure and the unresolved marine zone ownership issues with Iran at the

Caspian Sea forming the essential source of gas. Azerbaijani Shah Deniz field is considered as the most promising gas reserve that is planned to be utilized in transporting Caspian gas towards the EU at 10 and 20 bcm/year by 2020 and 2030, respectively as a part of TAP. The other prospective components of the SGC are ITGI (15 bcm/year) and AGRI (2-8 bcm/year). However, considering that 2012 annual gas demand of the EU was around 400-450 bcm, with Russia supplying around one third, these SGC projects, even if they all come to life, are not currently capable of becoming a formidable substitute of the gas being supplied by Russia to the EU.

The so-called Eastern Group comprised of China, India, Korea and Japan, who are net gas importers and allies of Russia, can be thought of a group of countries that potentially pose an alternative or an emergency spare for Russia in terms of gas sales should the EU resort to buying lesser gas from Russia in the future. They can even be considered as a potential threat to the future supply security of the EU – keeping in mind that although the EU wants to diversify its gas suppliers, it still needs Russian gas – if Russia succeeds in concluding sufficient contracts and building pipelines towards this area for gas transmission. Russia has long been aspiring to strengthen the relations with this group of countries in the hopes of starting to transmit gas to them via pipelines to be built in the near future (no Russian gas transmitting pipelines exist this area as of today despite the presence of a small amount of Russian LNG transports to Japan and South Korea). Russia and **China** have close ties in many energy-related sectors and May 2014 witnessed a momentous 400 billion $ agreement signed between Russia and China for 30-year of gas supply at 38 bcm/year (‘Power of Siberia’) as well as the completion of the feasibility of the Altai project to supply an additional 30 bcm/year. An interesting aspect of this agreement is that these two countries have started to consider using Yuan instead of USD in these projects as a reaction towards the USA. Russia has also plans to build gas pipeline(s) to **India** although the routes of the planned pipelines are facing either geological constraints (Himalayas) or security concerns (terrorism in Afghanistan).

Nevertheless, Russia is determined to supply gas to India, at least in the form of LNG. Russia has signed a gas pipeline deal with **South Korea** that will pass over North Korea to be commenced by 2017. **Japan** is another country that buys LNG from Russia and the latter has plans to increase these sales and possibly build and offshore gas pipeline to Japan. Nevertheless, all these plans are deemed not to affect the sales to the EU since the gas field proposed to be used for the Eastern Group (East Siberian Fields) and the one that is used for the EU (West Siberian Fields) is different. Moreover, it should be kept in mind that there is “mutual dependency” among the EU and Russia, and Russia definitely needs the money from the European gas buyers to build these new pipelines in the future.

The case study of this thesis is the South Stream pipeline project which has recently been converted into the Turkish Stream which provides a perfect example for both the thesis argument, i.e. how the security and political concerns prevail over economic and environmental dimensions of a gas pipeline project, and the selected political IR theory, i.e. neoclassical realism, claiming that domestic factors also help to shape the foreign relations of a state. South Stream-Turkish Stream project(s) is the fourth initiative of Russia in bypassing Ukraine to transit gas towards Europe. It is noteworthy to mention that the 63 bcm/year to be transmitted to Turkey and Europe with this project comprises of only 21 bcm additional gas, whereas the remaining two thirds is planned to be diverted from the gas that is currently being transmitted over Ukraine. This way, the transit fee paid to Ukraine is aimed to be decreased. The conversion of South Stream into Turkish Stream has actually changed nothing on the surface. In fact this conversion resulted in a rewarding situation for Turkey and Greece who have persistently stood against the EU in defense of Russia, and a chastising situation for Bulgaria who has given in as a result of the pressures of the European Commission, and even as a warning sign to the USA, considering that the talks for the Turkish Stream are continuing based on TL and not USD. An interesting issue to point out is that although South Stream project was rejected from being excluded from the 3rd Energy Package, the preferred Southern Corridor project of the EU, being TANAP, was granted such immunity, which is based on merely nothing other than political and security priorities of the EU. Economically, we need to compare the Turkish Stream with the TANAP project, where the former is expected to cost 0.543-0.748 billion €/bcm/year and the latter 0.625-0.688 billion €/bcm/year, showing that economically they are at a somewhat similar level. As for the environmental aspects, the EIA Report of both the defunct South Stream and the prospective Turkish Stream has concluded in EIA Positive, meaning that neither of these projects is foreseen to have significant environmental impacts. Lastly, the applicability of neoclassical realism on this thesis topic of pipeline gas transit from Russia to Europe is proven with the clear effect Gazprom – the "domestic factor" – has on directing the foreign affairs of Russia in this regard. As a major supportive issue to the thesis argument, Alexey Ulyukaev, Russian Minister of Economy and Development stated that TurkStream (and Akkuyu Nuclear Power Plant) Project will not be frozen by Russian Government, and the decision will be left to the relevant state owned companies, i.e. Gazprom for Turkish Stream (and Rosatom for Akkuyu Nuclear Power Plant) (Enerji Enstitüsü, 2015-12-02).

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VITA

PERSONAL DETAILS

Surname, name **Date of birth**	Tosun, Kursad September 9, 1975	**Academic Degree(s)**	Environmental Engineer, BSc; International Relations, MSc; Natural Gas Diplomacy, PhD
Nationality **Marital status**	Turkish Single	**Driver's license**	Class B

CONTACT DETAILS

Address:	Angora Evleri, F5/34, Cankaya, Ankara, Turkey.	**Email:** **Mobile:**	kursadtosun@gmail.com +90 533 746 59 63

EDUCATION, TRAININGS and CERTIFICATIONS:

Date	Degree and Institute
2011-present	**PhD Candidate, Earth System Science Department, 'Natural Gas Diplomacy of Russia with the EU and Turkey: Political and Security versus Economic and Environmental Dimensions** **(and as a Case Study 'South/Turkish Stream Project'), Middle East Technical University (METU), Ankara, Turkey (degree expected in 2016).**
2015	Eurasia Energy Summer School by RECEREES and Institute for Energy Markets and Policies, Antalya, Turkey.
2010	Energy Management (Electricity, Gas, Petroleum, LPG Markets, Energy Efficiency, Nuclear, Renewable Energy, Legal Aspects) Training, Energy Market Regulatory Authority, Ankara.
2010	Media Training, MediaFobi, Istanbul, Turkey.
2010	**MSc Degree, Department of Internationals Relations, METU, Ankara, Turkey.**
2008	**Training for HSE Managers, Donusenadam, Istanbul, Turkey.**
2007	**ISO 14001, Lead Auditor Training, BSI, Ankara, Turkey.**
2007	International Maritime Organization (IMO) Oil Pollution Preparedness, Response and Co-operation (OPRC) Level 3 Training Course for Administrators and Senior Managers, Seacor, Ceyhan, Turkey.
2007	Security Training, BOTAS International (BIL), Ceyhan, Turkey.
2007	Basic First Aid Training, American Safety and Health Institute, Erzurum, Turkey.

2007	Media Relations Training, BP, Erzurum, Turkey.
2006	Emergency Response and Crisis Management Basic Training, BP, Ankara, Turkey.
2005	**NEBOSH (National Examination Board in Occupational Safety and Health) International General Certificate Training, Istanbul, Turkey.**
2004	Management of Change, Task Based Risk Assessment Training, BP, Erzincan, Turkey.
2004	Off-road, Anti-skid and Defensive Driving Trainings, BP, Ankara, Turkey.
2004	GHSER (Getting Health, Safety and Environment Right) Training, BP, Ankara, Turkey.
2004	ISO 14001 Environmental Management System Training, KAL-DER, Istanbul, Turkey.
2003	ISO 9001 Quality Management System: Basic, Documentation and Internal Auditor Trainings, TSI, Ankara, Turkey.
2002	French Courses, French Cultural Association, Ankara, Turkey.
1998	**Management Trainee Programme,** Garanti, Istanbul, Turkey (This Program provided me skills on finance, economics, law, accounting and marketing in a full time programme during a six-month period)
1993-1998	**BSc Degree, Environmental Engineering, METU, Ankara, Turkey.**
1989-1992	Ataturk High School, Science Department, Bursa, Turkey.

LANGUAGE SKILLS

Language	**Reading**	**Speaking**	**Writing**
Turkish (native)	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

OTHER SKILLS

Computer literacy:	- Excellent use of MS Office (Word, Excel, PowerPoint, Outlook, etc), Internet services, email, etc. Familiarity with some special programs such as MS Project and Primavera.
Others:	- Excellent leadership, team management, communicative and interpersonal skills. - Excellent analytical, coordination, monitoring, auditing, evaluation and reporting skills. - Ability to operate as a director/manager/member of a multi-disciplinary and multi-cultural team. - Experience with indicators in capturing effectiveness of management in the context of Financial Institutions (World Bank/IFC, EBRD etc.)

KEY QUALIFICATIONS

I have 18 years of international business experience in project development and management in line with international codes, standards, policies and conventions (World Bank, EBRD, EC Directives etc.); and have pre-construction, construction, commissioning, operation and expansion phases' experiences in mainly energy sector within very reputable companies such as Akkuyu Nuclear A.Ş (Rosatom), South Stream Transport BV (Gazprom, ENI, EDF and Wintershall), BTC Co. (BP, SOCAR, Chevron, Statoil, TPAO, Total, etc), E.ON, RWE and Eldoradogold.

My experiences specifically cover;

- Conduction of legal and administrative requirements of legal entities,
- Budgeting and scheduling of the projects,
- Support for preparation, coordination and monitoring of Technical Specifications for tender processes,
- Review and Evaluation of Proposals,
- Negotiation of Contracts and Management of Relevant Contracts,
- Monitoring of the project management team in terms of project/construction progress;
- Development, management and monitoring of Governmental and Public Relations activities,
- and as a single point of contact to negotiate with all international and governmental agencies such as:
    - International Atomic Energy Agency (IAEA)
    - Ministry of Foreign Affairs,
    - Ministry of Energy and Natural Resources,
    - Turkish Atomic Energy Authority (TAEK),
    - Department of Transit Pipelines,
    - Turkish Electricity Transmission Corporation (TEIAS),
    - Turkish Petroleum Corporation (TPAO),
    - BOTAS (Turkish State Pipeline and Gas Company),and gas distribution companies,
    - Ministry of Environment and Urbanization,
    - Ministry of Transport, Maritime Affairs and Communications,
    - Ministry of Forestry and Water Works,
    - Ministry of Food, Agriculture and Livestock,
    - Ministry of Culture and Tourism,
    - Ministry of Interior, Coast Guard,
    - General Staff and Naval Forces,
    - Energy Market Regulatory Authority (EMRA)
    - Relevant governorships, their administrations and relevant municipalities,

and conduct duties to develop the large scale projects as follows:

- All licenses and permits to construct and operate the projects,
- E(S)IA Process (IFC/international requirements),

- Stakeholder engagement/Public Relations including press,
- Land acquisition/expropriation/resettlement and other relevant requirements,
- Following up the court cases when applicable,

for the up-scale projects such as Akkuyu Nuclear Power Plant Project (4800 MW), South Steam Offshore Gas Pipeline Project, Denizli Combined Cycle Power Plant (CCPP) Project (800 MW), Baku-Tbilisi-Ceyhan (BTC) Crude Oil Pipeline Project (including pump stations and marine terminal), Kisladag and Efemcukuru Gold Mine Projects.

I have BSc in Environmental Engineering, MSc in International Relations, and PhD Candidate, (Natural Gas Pipeline Diplomacy of Russia with the EU and Turkey) NEBOSH and ISO 14001 (Lead Auditor) qualifications and I am also appointed to represent the company and project(s) on media (interviews, presentations etc).

EMPLOYMENT RECORD

Director, Licensing and Governmental Relations -Akkuyu Nuclear Power Plant Project

Team	Supervision of three managers and 13 non-manager positions, total 15 staff.		
Total Investment	$20 Billion	**Dates:**	October 2014-present
Company	Akkuyu Nükleer A.Ş.	**Location:**	Ankara, Mersin, Moscow.

Tasks:
General:
- Execution of budgeting, team building, scheduling, selection of contractors and consultants and management of relevant contracts.
- Supervision of two managers and 13 staff (total 15 staff) in the team.
- Management and monitoring of all licenses to construct and operate Akkuyu Nuclear Power Plant Project, management and monitoring of Governmental and Public Relations Teams including Mersin Region and project site by developing strategies to increase the efficiency of the licensing, governmental relations and public relations.
- Reporting to Deputy CEO Technical Department

Licensing:
- Leading role for communication and negotiations with relevant governmental agencies such as ministries, relevant governmental agencies, governorship(s) and municipalities, preparation and submission of documents for approvals and permits; and receiving the permits from including Turkish Atomic Energy Authority (TAEK) to construct and operate the Akkuyu Nuclear Power Plant by

developing strategies, road maps, time schedules and integrating of whole process.
- Monitoring of the construction progress on site regularly.
- Review, comment and approve on contractors' documents such as EIA Report, technical drawings requested by the authority, management plans and procedures in line with technical, legal requirements and corporate policies.
- Support engineering department as a bridge between technical and legal/regulatory requirements to construct and operate the NPP.
- Support procurement team in terms of technical, legal and administrative requirements for the services requested.

Governmental Relations:
- Being in strategic interaction with the public institutions of Turkey as a Company in the construction project commenced in Mersin for Akkuyu Nuclear Power Plant;
- Establishing and preserving good relations with the managerial staff of public institutions and NGOs;
- Arranging official meetings with Turkish public institutions and NGOs;
- Arranging the necessary coordination among the necessary departments of the Company and the Turkish public institutions regarding the construction and commissioning of the Nuclear Power Plant;
- Supporting and informing the Legal Department regarding the possible legal and judicial changes at governmental institutions;
- Providing support to the Finance Department in order to benefit from possible State commercial incentive opportunities;
- Providing support to the personnel affairs and personnel training for the staff of Nuclear Power Plant;
- Providing support in relation to the negotiations and discussions with the necessary public institutions regarding safety and security;

Achievements:
-It is the first nuclear power plant Project in Turkey and not easy to receive the permits due to high level of public opposition.
-Finalization of EIA Process (December 2014) that have lasted for more than three years.
-Development of the licensing strategy and schedule for the Project including pre-construction, construction, commissioning and operations period.
-Receiving the zoning plan, land acquisition and construction permit of Nuclear Power Plant port and accordingly organization of ground breaking ceremony for the Nuclear Power Plant. (April 2015)

ESIA and Permitting Country Manager Turkey, South Stream Black Sea Off-Shore Natural Gas Pipeline Project

Team	Supervision of three staff and six consultants.		
Total Investment	Expected investment $20 billion	**Dates:**	June'13-October'14
Company:	South Stream Offshore Pipeline ENERGISING EUROPE	**Location:**	Amsterdam / The Netherlands

Tasks:

- Execution of budgeting, scheduling, team building, selection of contractors and consultants and management of relevant contracts.
- Taking over a leading role for communication and negotiations with relevant governmental agencies such as ministries, relevant governmental agencies, governorship(s) and municipalities, preparation and submission of documents for approvals and permits; and receiving the permits (EIA and all other licenses, etc) to construct and operate the off-shore gas pipeline by developing strategies, road maps, time schedules and integrating of whole process.
- Responsible for managing/monitoring South Stream Turkish Section (470 km) Team including consultants and contractors.
- Monitoring of the construction progress on site regularly.
- Review and comment on contractors' documents such as E(S)IA Reports (by URS), manuals, management plans and procedures in line with international standards(IFC/EBRD etc.), local legal requirements and corporate policies.
- Support engineering department as a bridge between technical and legal/regulatory requirements to construct and operate the offshore pipelines.
- Support procurement team in terms of technical, legal and administrative requirements for the services requested.
- Support Stakeholder Engagement Team and represent the project/company on media, technical industry work groups and to other stakeholders.
- Representative of South Stream Transport BV. in Turkey and leading role for the public consultation and other meetings.
- Reporting to Head of ESIA and Permitting -South Stream Project- in Amsterdam.

Achievements:

-Receiving all permits (EIA, Emergency Response Plan, crossing through oil-gas exploration blocks of TPAO, fishery permit and so on) to start the construction of the Project in Turkish EEZ.

-Support EPC contractors to receive the permits.

Senior Manager, Project Development, Combined Cycle Gas Power Plant, 800 MW.

Team	Supervision of five consultants		
Total Investment	$ 1 billion	**Dates:**	May'09-Jun'13
Company:	RWE The energy to lead	**Location:**	Ankara–Istanbul-Denizli/ Turkey

Tasks:
- Preparing project development budget, selection of contractors and consultants, management of relevant contracts.
- Monitoring of the construction progress on site regularly.
- Leading role for communication and negotiations with relevant governmental agencies such as ministries, EMRA, TEIAS, governorship(s) and municipalities, preparation and submission of documents for approvals and permits; and receiving the permits (EIA, generation license, land acquisition/expropriation, zoning plan change, construction license, ETL connection, design approval, system use, provisional acceptance; gas connection, design approval and provisional acceptance; power plant/switchyard design and provisional acceptance; water supply approvals etc) to construct and operate the power plant(s) by developing strategies, road maps, schedules and integrating of whole process.
- Reviewing and commenting on contractors' documents such as E(S)IA Reports, management plans and procedures in line with international standards(IFC/EBRD etc.), local legal requirements and corporate policies.
- Supporting engineering department as a bridge between technical and legal requirements to construct and operate the power plant and supporting procurement team in terms of technical, legal and administrative requirements for the services requested.
- Representing the project/company on media, technical industry work groups and to other stakeholders.
- Acting as the Representative of RWE Turkey Holding A.Ş. in Ankara and reporting to the Executive Committee of RWE&TURCAS (Joint Venture Company).

Achievements:
I was the sole responsible for the all permits starting from site selection through construction and operation; and Power Plant started the operation in June 2013 without any legal, administrative and technical problem, and it is still ongoing.

HSE & Approval Manager–Turkey, Combined Cycle Gas Power Plant Project, 800 MW.

Team	Supervision of five consultants.		
Total Investment	Planned $ 1 billion	**Dates:**	May'08-April'09
Company	e·on	**Location:**	Ankara – Denizli/ Turkey

Tasks:
- Preparing project development budget, selection of contractors and consultants, management of relevant contracts.
- Taking over a leading role for coordination of ESIA (by ERM), EIA (national) Process and acquisition of land for both state-owned and private for power plant.
- Reviewing and commenting on contractors' documents such as E(S)IA Reports, HSE Manuals, management plans and procedures in line with international standards(IFC/EBRD etc.), local legal requirements and corporate policies.
- Supporting engineering department as a bridge between technical and legal requirements to construct and operate the power plant.
- Supporting procurement team in terms of technical, legal and administrative requirements for the services requested.
- Taking over a leading role for communication and negotiations with relevant governmental agencies such as ministries, governorship(s) and municipalities; preparation and submission of documents for approvals and permits; and receiving the permits (EIA, generation license, land acquisition/expropriation, zoning plan change, building license, water supply approvals etc) to construct and operate the power plant(s) by developing strategies, road maps, time schedules and integrating of whole process.
- Reporting to Managing Director of the Joint Venture Company.

Achievements:
-I was the sole responsible for all permits and finalized the EIA Process and Zoning Plan around 10 months.

License to Operate Advisor -Baku-Tbilisi-Ceyhan (BTC) Crude Oil Pipeline Project.

Total Investment	$ 4.5 billion	**Dates:**	Sep'04- Jan'08
Company:	bp	**Location:**	LOT B, Pump Stations, Ceyhan Marine Terminal, Ankara / Turkey

Tasks:

- Monitoring of BOTAS's (Turkish Pipeline Company, lump sum turnkey contractor of Turkey section of BTC Project) and BIL's (BOTAS International Limited, Operator of BTC Pipeline) implementation according to all items committed in Environmental and Social Impact Assessment (ESIA) Report by ERM with reinstatement, waste, pollution prevention, traffic, cultural heritage, community safety and aggregate management plans and Resettlement Action Plan-Land Acquisition (RAP) along Lot B (mid part of Turkey Section, 467 km, 42''), two pump terminals (PT3 & PT4), three construction camps and one Marine Terminal through construction, commissioning and operations of BTC pipeline with a capacity up to 1mbd crude oil in line with best practices, the Turkish legislation, policies of International Finance Institutions (World Bank Group Policies, EC Directives and U.S. EXIM Bank guidelines) and international conventions in force in Turkey and corporate policies of BOTAS and BP that are applicable to the project.
- Establishing policies for preventive and/or corrective environmental and social actions by studying potential issues involving air, water, land, safety, community relations & safety and progress in line with continual improvement principle along construction, commissioning, operations and expansion phases of the project.
- At the Marine Terminal, supporting the planning and co-ordination of marine environmental monitoring such as Marine Ecology, Marine Sediment, Coastal Processes and Marine Turtle Monitoring; monitoring and supervision of IMO/MARPOL requirements (ballast water, waste and VOC handling management) waste, emission management and pollution prevention.
- Ensuring that Risk Assessments are carried out and documented prior to any field activity and to ensure that the requirements of the assessment are implemented prior and during the activity.
- Supporting designated operator and other contractors for preparation, development & delivery of training programs.
- Attendance of internal and external audits; assisting representatives of IFC, other IFIs and other institutions such as Independent Environmental Consultants (IEC, D'appolonia), Social and Resettlement Action Panel (SRAP) and Caspian Development Advisory Panel (CDAP).
- Supporting Designated Pipeline Operator for ISO 14001 EMS Certification process.
- Reporting to Delivery Manager and License to Operate Manager.

Achievements:

-I was responsible for the 467 km length of the pipeline (Lot B) during construction period and 535 km length of the pipeline (half of it) including Ceyhan Marine Terminal during the operation period. Pipeline started operation in May 2006, and without any problem, it is ongoing.

License to Operate Advisor -Baku-Tbilisi-Ceyhan (BTC) Crude Oil Pipeline Project.
Erzurum, Erzincan and Sivas Social Responsibility Projects.

Total Investment	$ 8 million	**Dates:**	Sep'04-Nov'06
Company:	bp	**Location:**	Erzincan-Adana-Ankara/Turkey

Tasks:
-Monitoring Community and Environmental Investment Projects -infrastructure and income generation projects for project affected communities; and protection of environment and natural resources projects- sponsored by BP/BTC Co. in line with environmental and social responsibility concept.

Project Development Specialist, Kisladag Gold Mine Project

Total Investment	$170 million	**Dates**	Jun'02-Sep'04
Company	eldoradogold	**Location**	Ankara – Usak / Turkey

Tasks:
-Reviewing of the documents prepared by contractors such as EIA, -the EIA Report (prepared by ENCON, Knight Piesold and Planning Alliance), coordination of environmental monitoring (air quality monitoring, soil sampling and monitoring, ground and surface water sampling and monitoring) preparing environmental budget and support procurement.

-Management of the public and governmental relations in the project area and obtaining permits to construct and operate the mine, i.e. EIA Process, land acquisition, discharge and emission permits, zoning plan and operation permits. These activities were required for legal analysis, report preparation and negotiation with relevant governmental agencies i.e. the ministries and their local representatives. Additionally, training of the local community about mining activities, resolution of complaints/conflicts and assistance to the community investment projects are other responsibilities within the project.
-Execution of the stakeholder engagement process.
-Reporting to Public and Governmental Relations Manager.

Achievements:
-It was the second Gold Mining Project in Turkey and very difficult to receive the permits due to the high level of public opposition. But, all permits for construction and operation were received successfully.
-Project started operation in 2005, and without any problem, it is ongoing.

Project Development Specialist, Kisladag Social Responsibility Projects.

Total Investment	$ 500,000	**Dates:**	Jun'02- Sep'04
Company	eldoradogold	**Location:**	Ankara – Usak / Turkey

Tasks:
-Supporting infrastructure and income generation projects for the project affected local people & villagers.

Portfolio Specialist, GarantiBank

Position:	Specialist	**Dates:**	Sep'98-Apr'01
Company:	Garanti	**Location:**	Istanbul / Turkey

Tasks:
-Financial analysis and management of the portfolio of the up-scale retail customers and companies. Experience with the financial sector products, how they operate and financial management.