

EUROPEAN UNION - RUSSIA NATURAL GAS RELATIONS

A Master's Thesis

by

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THE DEPARTMENT OF
INTERNATIONAL RELATIONS
BILKENT UNIVERSITY
ANKARA

September 2007

To My Family

“EUROPEAN UNION - RUSSIA NATURAL GAS RELATIONS”

The Institute of Economics and Social Sciences
of
Bilkent University

by

İBRAHİM SAİD ARINÇ

In Partial Fulfillment of the Requirements for the Degree of
MASTER OF ARTS

in

THE DEPARTMENT OF
INTERNATIONAL RELATIONS
BILKENT UNIVERSITY
ANKARA

September 2007

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ABSTRACT

EUROPEAN UNION - RUSSIA NATURAL GAS RELATIONS

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This thesis aims to analyze, the natural gas relationship of European Union and Russia with comparative perspective. The EU is very much dependent on Russian gas and this dependency is expected to increase in the following decades. On the other hand, the natural gas export revenues significantly contribute to Russian budget that makes it dependent on gas sales to Europe. Therefore, this relationship creates interdependence between EU and Russia. Finally, by means of analyzing this interdependency, this study also aims to discuss the possible contribution of Turkey to the future of EU-Russia gas relations.

Keywords: European Union, Russia, Natural Gas, Interdependence, Pipeline, LNG, Gazprom, Turkey

ÖZET

AVRUPA BİRLİĞİ - RUSYA DOĞAL GAZ İLİŞKİLERİ

Arınç, İbrahim Said

Master tezi, Uluslararası İlişkiler Bölümü

Tez Yöneticisi: Dr. Hasan Ali Karasar

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Bu yüksek lisans tezinin amacı Avrupa Birliği-Rusya doğal gaz ilişkisini detaylı bir şekilde incelemektir. AB, Rus doğal gazına ciddi bir biçimde bağımlıdır ve bu bağımlılığın önümüzdeki yıllarda daha da artacağı tahmin edilmektedir. Diğer taraftan, doğal gaz ihraç gelirleri Rusya ekonomisine önemli ölçüde katkıda bulunmakta ve bu durum Rusya'yı AB'ye doğal gaz satışına bağımlı kılmaktadır. Bu nedenle bu ilişki AB ve Rusya arasında karşılıklı bağımlılığa sebep olmaktadır. Son olarak bu çalışma, karşılıklı bağımlılığı tahlil etmek suretiyle, AB-Rusya doğal gaz ilişkisinin geleceği seyrine Türliye'nin olası katkılarını tartışmayı da amaçlamaktadır.

Anahtar Kelimeler: Avrupa Birliği, Rusya, Doğal Gaz, Karşılıklı Bağımlılık,

Boru hattı, LNG, Gazprom, Türkiye

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CHAPTER I

INTRODUCTION

In the 21st century, natural gas is becoming one of the most strategic sources of energy in the world. As Daniel Yergin names natural gas as *The Next Prize*; “it will have a far-reaching impact on the world economy, bringing new opportunities and risks, new interdependencies and geopolitical alignments”.¹ Furthermore, natural gas is the cleanest fossil fuel in terms of CO₂ emissions; it will be more popular in the future as a consequence of environmental issues and concerns. In the following years we might witness great competition over the control over natural gas in the world.

In this study the natural gas relationship between the EU and Russia will be analyzed. In EU, Russian gas constitutes 25% of total EU gas consumption² and

¹ Daniel Yergin and Michael Stopgard, “The Next Prize”, *Foreign Affairs*, Vol. 82, Issue 6, (2003), p.103.

² CERA, *European Gas Watch Supply and Demand Tables*, (Cambridge: CERA, 2007), p.6.

Russian sells 58% of its total export to the EU.³ Moreover, the EU is getting more and more dependent on Russian natural gas. This dependency is going to increase during the next ten years. How can the EU develop a diversification strategy without alienating Russia or risking its energy supply from Russia? On the other hand, how will Russia maintain its gas supplies to the EU as a reliable supplier and what are the major problems, options and trends of the Russian gas industry?

The main contribution of this study to the field of International Relations would be on the subject of economic and political stability in Eurasia. Trying to find a solution to the above mentioned problem would have vital importance to developing a “third way” satisfying both sides’ (EU and Russian Federation) concerns on increasing volumes of mutual dependence. That is also closely connected with the issues of peace and security in the region as well as the sustainability of good-neighborly relations. Moreover, the relationship will have a great impact on the development of the future global gas market.

This study is a unique approach in many respects. Firstly it employs an objective assessment of the mutual dependence issues by outlining the EU and Russia’s concerns as well as ambitions. Secondly it employs academic and technical sources which are expected to contribute to future studies with this unique method. Lastly, it is written from a point of view that not only concentrates on

³ Cedigaz, “Statistical Database”, (Cedigaz, 2007), <http://cedigaz.org/> (accessed May 13, 2007).

political-technical and bureaucratic problems but also with concentration on specific actors like Russian gas giant company *Gazprom*.

1.1 Theoretical Framework

Since the establishment of the Soviet-Western European gas trade, this relationship has been considered a classical type of interdependence. Each side held a degree of power over the other. The Soviets were the gas supplier and the Western Europeans were the source of the hard-currency payments and equipment deliveries.⁴ Robert Keohane and Joseph Nye, in their work *Power and Interdependence*, create an excellent framework with which to analyze the EU-Russia Gas Relationship. They define interdependence as *mutual* dependence and in world politics this refers to situations characterized by reciprocal effects among countries or among actors in different countries.⁵ These reciprocal effects will depend on the type and strategic significance of the commodities that are being traded.⁶ In the EU-Russia gas relationship, it is crystal clear that the gas deliveries from Russia are important commodities for EU and in return huge amounts of hard-currency are very significant for Russia.

⁴ Jonathan Stern, *Soviet Oil and Gas Exports to the West* (Hants: Gower Publishing Company, 1989), p.59.

⁵ Robert O. Keohane and Joseph S. Nye, *Power and Interdependence: World Politics in Transition*, (New York: Longman, 2001), p.7.

⁶ Keohane and Nye, p.8.

The EU's indigenous gas supply is expected to decline in the following decades. The decline in the gas production would be met by gas imports in the future. This situation makes the gas relationship between the EU and Russia more complicated. The security of the gas supply issue has become one of the first significant topics on the political agenda in the EU.

The Ukrainian Gas Crisis of 2006 was very significant case that forced Europeans to reconsider the reliability of Russia as a secure supplier. The conflict began when *Gazprom* demanded a quadrupling of the price of gas it delivers to Ukraine via a pipeline system that extends to Europe, which experienced a reduction in its deliveries of Russian gas. During the crisis many European countries, including Germany, Poland, Hungary, France, and Italy, experienced a 5% to 40% reduction in their supplies of Russian gas.⁷ This case was a significant indicator of how European countries are sensitive to an interruption of the Russian gas supply.

The terms 'sensitivity' and 'vulnerability' are critical when analyzing this scenario. Keohane and Nye define sensitivity "as the liability to costly effects imposed from outside before policies altered to try out to change the situation"⁸ and in their work vulnerability is defined "as an actor's liability to suffer costs imposed

⁷ Doris Leblond, "Europe questions Russian gas reliability", *Oil and Gas Journal*, Vol. 104, Issue: 2, (2006), <http://www.ogj.com/> (accessed 18 June, 2007).

⁸ Keohane and Nye, p.10.

by external events even after policies have been altered”.⁹ In this framework, it could be analyzed that the high sensitivity of EU’s gas dependence on Russian gas forces the EU to take measures to decrease the level of vulnerability. Otherwise, the EU’s vulnerability to a gas crisis will have a destructive effect on EU economy and industry. Therefore, the EU is seeking other gas supplies from North Africa, the Middle East and the Caspian region to diversify its gas sources. At this point, Turkey holds very strategic position to secure and diversify gas supplies for the EU. In Chapter IV and V, the EU’s options for taking the necessary measures for being less vulnerable to gas interruptions will be analyzed.

Another outcome of the Ukrainian Crisis of 2006 was the use of natural gas as a Russian foreign policy tool in its relations with the Ukraine. The Ukraine is the gateway for nearly 80% of Russian gas exports to Europe. The crisis damaged Russia’s reputation as a reliable supplier and placed the Ukraine in the position of having insufficient supplies of natural gas to maintain its own gas needs. The problem of gas pricing by Russia allowed it to cut the supply of gas to the Ukraine. It was obvious that the outcomes of this crisis had been calculated before and the costs had been envisaged by Russia. Therefore, why did Russia behave this way toward the Ukraine, risking its reputation in the EU? The best answer draws upon the term ‘asymmetries of dependence’. Keohane and Nye define asymmetries in dependence as ‘that [which] is most likely to provide sources of influence for actors

⁹ Keohane and Nye, p.10.

in their dealings with one another”.¹⁰ In a case of a disagreement, a less dependent side would have fewer costly effects and thus the situation would give the less dependent side an advantageous position. We will not analyze the relationship between Russia and the Ukraine. However, the possibility of the use of natural gas as a foreign policy tool is very crucial in the EU-Russia gas relationship.

Moreover, regarding the EU-Russia gas relationship, it is significant to analyze the sustainability of the Russian position as a major supplier. Russian gas infrastructure had been constructed mostly during the Soviet period. Therefore, the attempts to reorganize the gas industry after the collapse of the Soviet Union and the contemporary Russian energy policy will be analyzed in Chapter III.

Consequently, the EU-Russia gas relationship has a very significant position in the global gas market. The relationship of a major supplier and consumer may shape the future of global gas trade. The problems and solutions of Russia being a gas supplier to EU could affect the other producers for their further transactions. On the demand side, the experience of EU with Russia may be useful to other gas consumer countries.

It is the fact that, the interdependence of the EU and Russia may have some costly effects on their future. So, this interdependence should be constructed to satisfy both sides. On the other hand, Turkey with its strategic position and

¹⁰ Keohane and Nye, p.9.

dynamics may contribute to the diversification of supply for EU and the diversification of transit routes for Russia.

Therefore, in order to analyze this unique gas relationship, in the following chapters, we will focus on the development of the Global Gas Market, the development of the Russian Gas Industry, and the EU gas market and analyze their interdependent relationship.

CHAPTER II

THE DEVELOPMENT OF NATURAL GAS AS AN ENERGY SOURCE AND THE GLOBAL GAS MARKET

2.1 Introduction and a Short History of the Natural Gas Industry

Natural gas has existed under the ground for millions of years, but in the modern age the methods for obtaining gas, bringing it to the surface, and putting it to use were developed.¹¹ Around 1785, Britain was the first country to commercialize the use of natural gas as it is used to light houses. In the United States the gas was first used to illuminate town of Fredonia, New York, in 1821. With the development of the oil industry and the discoveries of gas fields in 1859 in Pennsylvania led to the widespread use of natural gas in United States.¹² The first pipeline network was constructed by the enterprising businessmen who saw the

¹¹ NaturalGas.org, “History of Natural Gas”, (NaturalGas.org, 2007), <http://www.naturalgas.org/> (accessed April 20, 2007).

¹² David G. Victor, Amy M. Jaffe and Mark H. Hayes, *Natural Gas and Geopolitics: From 1970 to 2040*, (Cambridge: Cambridge University Press, 2006), p.5.

possibility of transporting gas by primitive pipelines near industrial zones. The increasing consumption of gas led to the development of gas production techniques. At the end of 19th century, gas was derived from coal or oil or by the direct production and transport of natural gas.¹³

2.1.1 The First Rise of Natural Gas

The energy shortages during World War II, led the rise of natural gas usage. "I wish you would get some of your people to look into the possibility of using natural gas," President Franklin Roosevelt wrote to Interior Secretary Harold Ickes in 1942.¹⁴ During the war natural gas was used to meet the heavy industrial demands of the United States and the consumption increased by 50% in just four years.¹⁵ The industry realized the advantages of natural gas in many sectors of production during the years of war.

Before 1950, the development of natural gas industry was essentially a United States phenomenon. In the beginning of the 1950s, the United States represented 90% of natural gas production and consumption.¹⁶ In United States, the advances in welding, metallurgy and compression technology allowed for the

¹³ Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power*, (New York: Free Press, 1991), p.78.

¹⁴ Yergin and Stopgard, p.104.

¹⁵ Victor, Jaffe and Hayes, p.6.

¹⁶ Victor, Jaffe and Hayes, p.7.

expansion of the pipeline network. The transportation infrastructure had made natural gas easy to obtain, and it was becoming an increasingly popular form of energy. New uses for natural gas were discovered, making extraction and transportation even more viable. Generally, it is used to heat households; in industry, it is used for manufacturing and processing plants; it is also used to generate electricity.¹⁷

In Western Europe, Italy first used natural gas in its industry with the discovery of natural gas in the Po Valley, during the years of the Second World War. Later, the discovery of the Groningen gas field in the Netherlands caused an increase of gas consumption in the Netherlands, Belgium, Germany and France.¹⁸ In the 1960s, the gas-rich Soviet Union adopted an industrial strategy that ordered a shift to gas. Moreover, the industries of the Soviet satellite states in the Eastern Europe were gasified with the construction of pipelines transporting gas from the gas-rich fields of the USSR.

2.1.2 The Second Rise of Natural Gas

The second rise of natural gas occurred during the OPEC crisis of 1970s. The economies of Western Europe and Japan were dependent upon imported oil. In

¹⁷ NaturalGas.org, *History of Natural Gas*.

¹⁸ Victor, Jaffe and Hayes, p.7.

order to protect their economies against the negative outcomes of the oil crisis, the diversification of energy sources was inevitable. The countries most reliant upon oil found natural gas the best alternative. Technically speaking, the substitution of oil with natural gas was must appropriate choice that did not need fundamental changes in the infrastructures and the industries of those countries. Besides, natural gas is easy to manage and cleaner than coal and oil. In particular, Japan made great efforts to increase the share of natural gas in its primary energy consumption.¹⁹

The shift to gas became easier with the development of the pipeline industry. In the 1980s, major pipelines linked Canada to United States, the Soviet Union to Eastern and Central Europe, Norway and the Netherlands to other Western European countries, and Algeria to Italy under the Mediterranean Sea.²⁰ The pipelines created two giant gas markets- North America and Europe. However, the transportation of gas by pipelines is limited to physical and economic conditions and distances.

2.1.3 The Development of LNG (Liquefied Natural Gas)

Although the gas is generally transported via pipelines, LNG offers more practical solutions for transportation. LNG promotes economical gas trading over

¹⁹ Victor, Jaffe and Hayes, p.8.

²⁰ Victor, Jaffe and Hayes, p.9.

long distances and creates a flexible business model that enables easier trade of natural gas in the world market.

In 1914, the first technique for liquefying natural gas was invented. At that time, the aim was the storage of gas. In the 1960s, the technology for shipping LNG was developed and the first commercial LNG cargo was exported from Algeria to both the United Kingdom and France.²¹ During the oil crisis in 1970s, the LNG demand increased and LNG facilities were developed in Algeria and Indonesia. By the end of 1970s, Japan was the world's largest importer of LNG, mostly imported from Indonesia. In the following decades, Malaysia, Australia, Qatar, Nigeria, Trinidad & Tobago and Oman became the major LNG producers.

In 1990s, the deregulation and privatization of natural gas in the world gas market made LNG a more flexible, competitive and entrepreneurial business. Therefore, it is not necessary to sell LNG via long-term contracts and spot sales of LNG became possible. The first regular spot LNG cargo shipped from Australia to Spain in 1993.²² The share of spot LNG sales is developing and the international gas trade is becoming more flexible and liquid.

²¹ Yergin and Stopgard, p.105.

²² Victor, Jaffe and Hayes, p.12.

2.2 Natural Gas in Global Energy Market

The significance of natural gas is increasing in global energy markets. According to the International Energy Agency (IEA), Natural gas accounts for approximately 20% of world's total energy demand.²³ Natural gas is an economic fuel in comparison to other hydrocarbon fuels. Regarding the ecological concerns, it has the least impact on the environment among other hydrocarbon fossil fuels. Therefore, in the future, as a result of its economic, ecological and technical advantages, the share of natural gas in primary energy consumption is expected to increase. IEA foresees that gas will have the largest rate of increase (2%) among other energy resources in the following decades.²⁴

The worldwide proven natural gas reserve is 181.46 Trillion Cubic Meters (TCM).²⁵ Moreover, the proven reserves are expected to be enough to meet the demand for at least 60 years.²⁶ More than two thirds of the world's gas reserves are found in the regions of the Middle East, The Caspian Sea region and Russia, among which Russia (27%), Iran (15%) and Qatar (14%) are the most important gas

²³ IEA, *World Energy Outlook 2006*, (Paris: OECD, 2006), p.67.

²⁴ IEA, *World Energy Outlook 2006*, p.66.

²⁵ BP, *Statistical Review of World Energy 2007*, (London: 2007), <http://www.bp.com> (accessed July 12, 2007), p.22.

²⁶ CIEP, *The Future of Gas: Will Really Meet Expectation*, (The Hague: The Clingendael International Energy Programme, 2004), p.4.

reserve holders.²⁷ On the quantity basis, Russia has the largest reserves of gas with 47.65 TCM. Secondly, Iran holds 28.3 TCM gas reserves.

In 2006, the worldwide total gas production was 2.8 TCM. Russia produced 612.1 billion cubic meters (BCM). On the demand side, the largest consumers are located on North America, Europe and finally Asia-Pacific. The USA is the largest consumer with the consumption of 619.7 BCM of gas in 2006.²⁸ After the USA, the European Union is the second largest consumer with 504.7 BCM of gas consumption in 2006.²⁹ The largest gas producer, Russia, also is a giant consumer that consumed 432.1 BCM. Another gas consuming region that increased its consumption sharply in the recent years is the Asia-Pacific region. The total consumption of Asia-Pacific was 438.5 BCM in 2006.³⁰

2.2.1 The Natural Gas Market Structure

The gas markets differ from each other in their level of development. Some markets have already matured, like the United States or Japan, and in some other

²⁷ CIEP, *Tomorrow's Mores: International System, Geopolitical Changes and Energy*, (The Hague: The Clingendael International Energy Programme, 2004), p.30.

²⁸ BP, p.27.

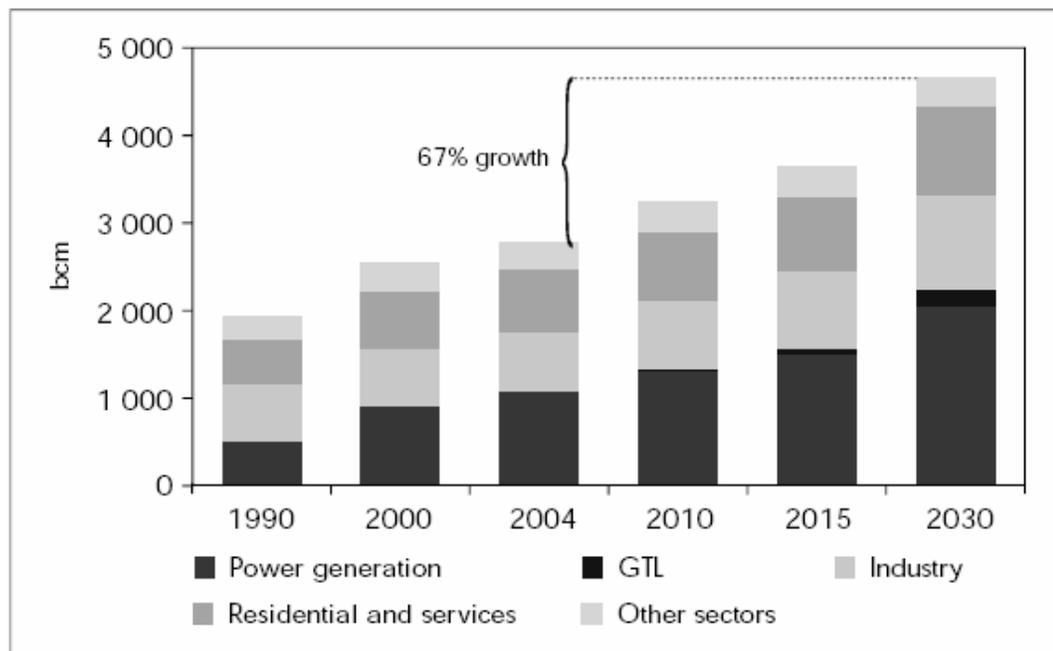
²⁹ CERA, *European Gas Watch Supply and Demand Tables*, p.2.

³⁰ BP, p.27.

states, like India or China, the gas markets are still developing. In the European Union, there are both mature markets and developing ones.³¹

However, the power sector plays the key role in the development of the gas market. Currently, the power sector accounts for more than half of the increase in primary gas demand worldwide. According to the IEA, the share of gas for power generation is expected to increase in the future (Figure 2.1). On the other hand, the power sector has another significant role that has the feature of absorbing the extra gas supplies that are produced or imported.

Figure 2.1: World Primary Natural Gas Demand by Sector



Source: IEA World Energy Outlook 2006

³¹ CIEP, *The Future of Gas: Will Really Meet Expectation*, p.7.

2.2.2 Transportation of Natural Gas: Pipelines and LNG

In the global gas market, the transportation of gas is vital. The pipelines are the traditional transporters of the gas. The gas is transported by pipelines in local, national and continental systems. In some parts of the world, the natural gas usage is limited by the reach of pipelines. In these regions, the limitation of physical conditions may deprive natural gas of playing its potential role.

When the pipelines are insufficient to meet the demand, the solution seems to be the widespread use of LNG. LNG allows the plentiful gas reserves to be efficiently carried to consumers. Also, LNG has the advantage of being carried in tankers that can respond to sudden shifts in gas demand or prices.³² However, the share of LNG in the global gas trade is very low. In 2006, the LNG share of the international gas flows was approximately 24%.³³ Despite the developments in LNG shipping technology, LNG shipping is still more expensive than oil shipping.³⁴ It is believed that the development of the LNG market could cost as much as \$200 billion worldwide, and energy companies will have to choose between investments in LNG and other investments.³⁵ Nevertheless, it is expected

³² Yergin and Stopgard, p.103.

³³ Cedigaz, *The 2006 Natural Gas Review: Cedigaz's First Estimates 2006*, (Paris: Cedigaz, 2007) <http://cedigaz.org/> (accessed May 13, 2007), p.5.

³⁴ "The Future's Gas", *Economist*, Vol.372, Issue 8390, (2004), pp.53-54.

³⁵ Yergin and Stopgard, p.103.

that the higher prices of natural gas will incite energy actors to invest in LNG business.³⁶

2.2.3 The Supply and Demand Security of Natural Gas

Energy security is defined as “the availability of sufficient supplies at affordable prices”.³⁷ The energy dependent countries have concerns about their dependence on their imports, while the energy exporting countries focus on the security of demand in order to secure their revenues.

In energy security, the security of gas supplies is becoming a major issue. The natural gas trade faces many risks regarding the interruption of supply, which could be dangerous for both suppliers and consumers. In order to establish a secure gas trade, the relationships between major gas suppliers and consumers must be able to create new geopolitical considerations.³⁸

The system forces suppliers and consumers into a long term mutual relationship of significant dependence. Regarding natural gas specifically, it has very expensive investment costs and a very complicated supply chain: huge, specific investments have to be made for facilities that produce gas and transport

³⁶ *Economist*, pp.53-54.

³⁷ Daniel Yergin, “Ensuring Energy Security,” *Foreign Affairs*, Vol. 85, Issue 2, (2006), p.81.

³⁸ Victor, Jaffe and Hayes, p.4.

that gas from a specific gas field to a specific area of consumption for a long time.³⁹ Therefore, on the supply side, the measures should be taken to secure the demand to maintain a safe export transaction. On the demand side, in order to mitigate the risks, the consumers could pursue security of supply policies that can either be aimed at a reduction of the dependence on imported fuels or at an increased diversification of suppliers.⁴⁰

2.2.4 The Significance of the EU-Russia Gas Trade in Global Energy Market

The most significant gas relationship in the world is the gas trade between Russia and the EU. In 2006, 131.8 BCM of natural gas were carried out by pipelines from Russia to Europe.⁴¹ The EU is dependent on Russian gas at roughly 25% of its total energy consumption⁴² and Russian exports to EU constitute 58% of its total export.⁴³ This creates big concerns in EU circles because such a large dependence on Russian gas can risk the economy of the member states. So, EU officials and governments of the member states are trying to seek a solution to mitigate these risks and secure the energy sector of the union.

³⁹ CIEP, *The Future of Gas: Will Really Meet Expectation*, p.5.

⁴⁰ CIEP, *The Future of Gas: Will Really Meet Expectation*, p.6.

⁴¹ BP, p.31.

⁴² CERA, *European Gas Watch Supply and Demand Tables*, p.6.

⁴³ Cedigaz, *Statistical Database*.

In contrast, the gas export revenues of Russia constitute a very important portion of its economy. An important reason for Russia's dependence on Europe is its dual gas-pricing policy in which low revenues from internal gas supplies are subsidized by much higher European gas prices.⁴⁴ This pricing policy makes Russia, to a significant extent, dependent on revenues earned from exports to Europe. On the other hand, Russia aims at reasserting state control over its strategic resources and gaining a position to have dominance over the main pipelines and markets in the world, especially in the EU.⁴⁵

2.3 Conclusion

Natural gas, with its economical, technical and ecological advantageous features, is expected to be one of the most significant fuels in future global primary energy consumption. The first rise of gas usage during World War II and the second rise of gas usage during the OPEC crisis of the 1970s have proven that natural gas would be the best choice for hydrocarbon dependent economies. Moreover, the increasing energy-related environmental concerns in the world may trigger the huge amounts of global gas consumption. The development of LNG may enhance the global gas market, reaching consumers without pipelines. Therefore, the relations between the supplier and consumer countries may have

⁴⁴ Aldo Spanjer, "Russian Gas Price Reform and the EU-Russia Gas Relationship", *Energy Policy*, Vol. 35, Issue 5, (2006), p.2889.

⁴⁵ Yergin, "Ensuring Energy Security", p.81.

affect global economic and political relations. In this context, the EU-Russia gas relationship and interdependence holds a unique position to determine the future relations of suppliers and consumers.

CHAPTER III

NATURAL GAS IN RUSSIA

3.1 Introduction

Energy resource rich Russia holds the largest natural gas reserves, which are estimated at around 47 TCM and constitutes nearly 27% of the world total.⁴⁶ With its huge reserves, Russia is a major energy actor. However, this situation makes Russia more dependent on energy exports. Natural resources constitute around 80% of Russian exports, and oil and gas account for 55% of all exports, making the budget mainly dependent on the energy sector.⁴⁷ According to the World Bank, higher oil and gas prices are the primary sources of higher federal revenues of Russia.⁴⁸

⁴⁶ BP, p.22.

⁴⁷ Fiona Hill, *Energy Empire: Oil, Gas and Russia's Revival*, (London: The Foreign Policy Centre, 2004), p.13.

⁴⁸ World Bank, *Russian Economic Report*, (Moscow: World Bank Moscow Office, 2006), <http://www.worldbank.org.ru/> (accessed July 29, 2007), p.9.

In order to benefit from the high energy prices, Russia needs to export more gas to sustain its economic development. According to the IEA, Russian gas production will rise from an estimated 608 BCM in 2003 to 655 BCM in 2010 and 898 BCM in 2030. Net exports are expected to rise from 169 BCM in 2002 to 182 BCM in 2010 and 274 BCM in 2030. These projections take into account increased imports from Central Asia, which will make possible higher exports to Europe. It is expected that Russia will still be the world's biggest gas exporter in 2030.⁴⁹ Therefore the Russian state is extremely supportive of its energy companies, especially the *Gazprom*.

3.2 The Development of the Natural Gas Industry in the Russia

In the EU-Russia gas relationship, the development of the Russian gas industry since the Soviet period, the evolution of the gas industry after the collapse of the Soviet Union, and the current trends of the Russian gas market are very significant when analyzing the main pillars supporting the Russian gas industry. Moreover, this analysis is expected to give a better understanding of the sustainability of supplying the EU.

⁴⁹ IEA, *World Energy Outlook 2004*, (Paris: OECD, 2004), p.308.

3.2.1 The Soviet Union and the Establishment of the Natural Gas Industry

Natural gas was first used for the lamps on Aptekarsky Island in St. Petersburg in 1819.⁵⁰ At the end of the nineteenth century, the gas was widely used for lighting in the major cities of Russia. In Russia, until 1950s, natural gas production was very low. At that time, most of the gas produced was by-product gas from oil production and refining, and until the Second World War this gas was not utilized in industry, except in the Baku area.⁵¹ The first long distance natural gas pipeline was commissioned in 1946. The 845 km length between Saratov and Moscow should be considered the birth of the modern Russian natural gas industry.⁵² Despite some limited developments in gas industry, the job-intensive hydropower and coal dominated industrial system impeded the utilization of gas under the Stalin administration in the 1940s and 1950s.

In the beginning of Khrushchev era, the goal of catching up to the United States played the major role in generating a movement to use modern fuels in Soviet industry. Oil was Khrushchev's first focus, but gas also had a prominent role in his modernization desire. Developing a gas industry was officially inserted into the Sixth Five-Year Plan (1956-1960) and advanced with Seventh Five-Year Plan

⁵⁰ Victor, Jaffe and Hayes, p.126.

⁵¹ Paul E. Lydolph and Theodore Shabad, "The Oil and Gas industries in the U.S.S.R", *Annals of the Association of American Geographers*, Vol. 50, Issue 4, (1960), p.469.

⁵² Jonathan Stern, *The Future of Russian Gas and Gazprom*, (Oxford: Oxford Institute for Energy Studies, 2005), p.1.

(1959-1965).⁵³ In the beginning of the 1960s, it was not believed that natural gas would play an important role in the Soviet economy. Since the mid-1960s, the Ministry of the Gas Industry (MGI) has had uncertain growth of gas production and unmet targets.⁵⁴ In the following years, the Soviet administration invested in long-distance pipelines and gas fields in the northern Caucasus, Ukraine, Volga-Ural region, Central Asia and Western Siberia.

In the late 1950s the total output was 5.8 BCM; more than half of the production was from the Volga-Urals and Ukrainian fields. When it was decided to expand output, firstly the fields in the Northern Caucasus and the Ukraine developed.⁵⁵ In Northern Caucasus, gas production increased with the development of the oil industry. The discovery of the North Stavropol field with 230 BCM reserves in 1951 led to the first separate development of the gas industry. The production from Stavropol field and other middle-size fields on the Northern Caucasus fostered the construction of the Central Pipeline System, carrying natural gas from the North Caucasus north to Moscow. At which time, a “28-inch, 790-mile pipeline [was] completed in 1956 and the capacity of [the] system was expanded to carry more than 30 BCM a year in the early 1960s”.⁵⁶ The Northern Caucasus-Moscow system was extended to Leningrad in 1959.

⁵³ Victor, Jaffe and Hayes, p.127.

⁵⁴ Thane Gustafson, *Crisis Amid Plenty: The Politics of Soviet Energy under Brezhnev and Gorbachev*, (Princeton: Princeton University Press, 1989), p.139.

⁵⁵ Ed A. Hewett, *Energy, Economics and Foreign Policy in the Soviet Union*, (Washington: The Brookings Institute, 1984), p.67.

⁵⁶ Leslie Dienes and Theodore Shabat, *The Soviet Energy System: Resource Use and Policies*, (Washington: V. H. Winston & Sons, 1979), p.75.

Another early gas producing region was the Carpathian district in the Ukrainian SSR. There had been production of non-associated gas in the region since 1940. Following significant investments in the region, production increased to 2.9 BCM in 1955. A 20-inch 800-mile line to Moscow was completed in 1949, and an 860-mile line of diameters ranging to 32 inches was laid northward, reaching Minsk in 1960, Vilnius in 1961 and Riga in 1962.⁵⁷

The development of the *Shebelinka* field with its 530 BCM of reserves made the Ukraine the Soviet Union's principal gas producing region in the 1960s and 1970s.⁵⁸ At that time, the transmission system of the Ukraine was developed and gave opportunity to generate the first significant exports of gas to Eastern and Western Europe.

Although *Saratov* was one of the early gas producing regions of the Soviet Union, until the discovery of the *Orenburg* fields in 1966 the Volga-Ural region was in third place after the North Caucasus and the Ukraine. The discovery of the *Orenburg* field, with explored reserves of 1,792 BCM, was important not only for the increase of total gas production, but for its favorable location near economically-based parts of the Soviet Union.⁵⁹ The development of the *Orenburg* field was envisaged in three stages, each would have an ultimate capacity of 15

⁵⁷ Dienes and Shabat, p.75.

⁵⁸ Dienes and Shabat, p.76.

⁵⁹ Dienes and Shabat, p.76.

BCM. The first two stages were planned for the domestic market and the third stage was for feeding the export pipelines to the west.

The Central Asian region emerged as a potential gas producer in the 1950s. The Central Asian reserves were developed after the fields of the North Caucasus and the Ukraine and before the West Siberian fields. Two Central Asian republics, Uzbek SSR and Turkmen SSR, were involved in this development. In Uzbek SSR, the production began in the 1960s and peaked at an annual output level of 36-37 BCM in 1970s. Turkmen SSR had larger reserves and production reached 70 BCM annually in 1970s.⁶⁰ The Central Asian-Central Russia pipeline was commissioned in the 1970s with a capacity of 68 BCM. With the new pipeline extensions, the length of the Soviet gas pipeline network rose from 42,300 km in 1965 to 67,500 km in 1970 and after another five years the length of the pipelines increased to 99,200 km in 1975.⁶¹

However, the major role in the increase of the production of the Soviet Union was the discovery of the super fields –*Medvezhe, Urengoy, Yamburg and Zapolyarnoye* – in Western Siberia in the mid to late 1960s.⁶² These super fields represented a total of 10.000 BCM, or nearly 40% of the Soviet Union's reserves. They had huge reserves: *Urengoy*, discovered in 1966, had 3,900 m3; *Yamburg*, 1969, had 2,500 billion; *Zapolyarnoye*, 1965, had 2,000 billion, and *Medvezhe*,

⁶⁰ Dienes and Shabat, p.78.

⁶¹ Dienes and Shabat, p.84.

⁶² Stern, *The Future of Russian Gas and Gazprom*, p.1.

1966, had 1,550 billion.⁶³ These were followed in the 1970s by the Yamal Peninsula fields (in particular *Bovanenko* and *Kharasevey*). The new discoveries changed the natural gas map of the Soviet Union.

Despite the discovery of the immense gas reserves in Western Siberia and the Yamal Peninsula fields in 1960s and 1970s, the realization of the “big gas campaign” had been delayed by mainly three reasons. The first reason was the reluctance of the leaders of the gas industry to invest in the new gas fields of Western Siberia. The gas industry leaders considered Siberian gas too expensive to develop and to ship.⁶⁴ The second was the lack of labour facilities in the region, which caused a shortage of working power. In gas field cities such as *NovoUrengoy*, many people were living in portable dormitories and small huts because apartments were not available.⁶⁵ Another reason was the need for huge transmission pipelines and powerful compressor stations were not only too expensive but also beyond the capacity of Soviet heavy industry at that time. Soviet industry could not yet supply appropriate infrastructure either in the necessary quantity or quality, so the unpleasant prospect of massive imports of equipment was added to the list of deterrents to a “big gas” policy.⁶⁶

⁶³ Dienes and Shabat. p.87.

⁶⁴ Gustafson, p.143.

⁶⁵ Hewett, p.73.

⁶⁶ Gustafson, pp.143-144.

In the early 1970s, with the first oil crisis, the need to invest in Western Siberia came to the Soviet leaders' agenda again. Their aim was to increase natural gas production in order to substitute oil with gas in the domestic market. In the Soviet Union, the majority of power plants were designed to burn both fuels.⁶⁷ Soviet leaders invested heavily in Western Siberian gas development and pipeline construction. With the development of the First West Siberian gas fields and the construction of large-diameter transcontinental pipelines, gas became "a star performer".⁶⁸ Between 1975 and 1980, natural gas increased its share in the Soviet energy balance from 21.8 to 27.1 % with Siberia providing 92 % of the growth.⁶⁹ In the following years, Soviet leaders hoped to increase the natural gas production by nearly 50 % over the five-year term.

In 1970s, the industry's reluctance to invest in Siberia gave the industry very little time to make preparations for the big gas campaign. Nevertheless in the beginning of the 1980s the machine building industry was ready with the necessary compressors, pipe, and other equipment.⁷⁰ During this period, the giant pipelines and compressor stations were built to transmit Siberian gas to the European USSR and Western Europe. In the second half of the 1980s, the gas production is increased from 643 BCM in 1985 to 859 BCM in 1990.⁷¹

⁶⁷ Dienes and Shabat, p.218.

⁶⁸ Gustafson, p.139.

⁶⁹ Gustafson, p.146.

⁷⁰ Gustafson, p.146.

⁷¹ Gustafson, p.139.

On the other hand, the Soviet gas campaign met with similar outcomes as the extensive oil production policy of the Soviet Union. The higher and higher output targets of the gas industry planners played a major role in exhausting these super fields. The extensive gas production from the fields prematurely has endangered the future gas outcome from the Western Siberian fields.⁷² Moreover, if the big gas policy of 1980s would begin earlier, there could be less production pressure on the Siberian oil industry.⁷³

3.2.2 Natural Gas Exports to the West during the Soviet Period

Until 1974, the Soviet Union was a net importer of natural gas as a consequence of its deliveries from Iran and Afghanistan.⁷⁴ Because of the decline of the indigenous production, the Soviet Union signed an agreement with Iran in 1966 providing for the importation of Iranian natural gas. The gas imports were begun in 1970 and reached 9 to 10 BCM a year in the middle of the 1970s.⁷⁵ The flow of Iranian gas was planned to increase further in the 1980s under the terms of a trilateral agreement concluded in 1975 and involved Iran, the Soviet Union and three Western European countries (Austria, West Germany and France). According to the agreement, an additional 13 BCM of Iranian gas would enter the Soviet

⁷² Gustafson, p.141.

⁷³ Gustafson, p.180.

⁷⁴ Stern, *Soviet Oil and Gas Exports to the West*, p.31.

⁷⁵ Dienes and Shabat, p.75.

Union starting in 1981, and the Soviet Union would re-export 11 BCM to the West European partners. However, in the late 1970s, the Soviet leaders saw a greater benefit to exporting their own gas to Europe rather than re-exporting Iranian gas.⁷⁶

Although the Soviet Union re-exported some Iranian gas to Europe in the 1970s, the Soviet gas was consumed by western consumers as well. The first export transmission system through Czechoslovakia, known as the *Bratstvo* (Brotherhood) system, was opened in 1967. It carried gas from the West Ukrainian fields to Czechoslovakia.⁷⁷ Later a small extension linked the system to Austria and the first gas export delivery from the Soviet Union reached a West European country in 1968.⁷⁸ Another pipeline extension linked the system with Poland. The *Bratstvo* system was expanded in 1974 and began to generate exports through Czechoslovakia to East Germany, West Germany, Italy and Finland. The developments of the *Orenburg* fields and the construction of a pipeline to transport gas from *Orenburg* to the *Bratstvo* system diversified the source of exports to the West in 1978. At that time the designed capacity of the enlarged *Bratstvo* system was about 28 BCM annually.⁷⁹

In 1980, the Soviet Union exported 57.6 BCM to Western European countries. In the following years, the exports to Western Europe expanded and

⁷⁶ Stern, *Soviet Oil and Gas Exports to the West*, p.32.

⁷⁷ Dienes and Shabat, p.76.

⁷⁸ Victor, Jaffe and Hayes, p.131.

⁷⁹ Dienes and Shabat, p.76.

pipeline extensions to the European system enabled Russian gas to reach France. It was announced that West European gas companies were negotiating with the Soviet gas export company *Soyuzgazexport* to construct new pipelines with a capacity of 40 BCM annually.⁸⁰

3.2.3 The First resistance to Soviet Gas Expansion and US Sanctions

However, the Soviet invasion of Afghanistan in 1979, created great dissatisfaction among western leaders. The relations of the Soviets with the West had also deteriorated due to the martial law imposed in Poland. The energy sanctions of the United States initiated under the Carter administration and enhanced by Reagan planned to limit the oil and gas export income of the Soviet Union. The logic behind the sanctions not only involved economic concerns but also the possibility of gas becoming a weapon to be used against the western block. Furthermore, the Soviet Union would be restricted from importing some machinery equipment that was vital for the oil and gas industry from western countries.

However, the natural gas issue provided a test of the US sanctions and demonstrated the difficulty of sustaining the anti-Soviet coalition of Western states. Despite the US sanctions, the West German *Ruhrigas* started negotiations with its Soviet counterparts to construct new pipelines to carry Soviet gas to Europe that

⁸⁰ Stern, *Soviet Oil and Gas Exports to the West*, p.33.

would expand Russia's export capacity.⁸¹ In addition, this agreement with the Soviets included the upstream investments to develop the giant *Urengoy* gas fields in northwestern Siberia. In exchange for gas, German banks would supply capital and German firms would provide pipe and compressors. However, the US sanctions prevented the Germans from giving compressor technologies to the Soviets. The threat of the project's cancellation led the Soviets to develop their own compressors and the pipeline was commissioned in 1985.⁸² The Soviet exports to the West (Germany, Italy, France, Austria, Turkey, Finland and Switzerland) increased from 31 BCM in 1985 to 63 BCM in 1991. Despite the ineffective US sanctions, German and French gas companies established another coalition of Western investors to expand Soviet gas exports with another pipeline (*STEGAL*), which began operation in 1992.⁸³

In 1980s, American politicians and authors blamed the German and other European leaders who negotiated with the Soviets for the pipeline for being financiers of the Soviet devil. Some aspects of this criticism can be found in Erik v. Kuehnelt-Leddihn's article, published in the *National Review* in 1980. It states that some European states were feeding the Soviet devil in terms of hard currency and technology. In the article, the author claimed the Soviet use of slave labor in the

⁸¹ Victor, Jaffe and Hayes, p.132.

⁸² Victor, Jaffe and Hayes, p.134.

⁸³ Victor, Jaffe and Hayes, p.134.

pipeline that was constructed because of the partnership with West Germany.⁸⁴ On the contrary, some Europeans saw the gas deal as an opportunity to ensure peace between the West and the Soviet Union. Generally it was believed that the Soviet policies would become more moderate and peaceful as a result of a higher level of trade and economic interdependence with the West.⁸⁵

In the end, the US sanctions could be considered a failure. In 1982, the editorial article of the *Nation* journal revealed the result of the sanctions: “the Soviets were still in Afghanistan and the Europeans were still insisting that they had right to trade wherever they want”.⁸⁶ But, the lasting feature of the US sanctions could be felt through the limitation of the Soviet gas deliveries in Europe. After studies and long discussions within the framework of the IEA, the importing governments agreed to avoid unnecessary dependence upon any one source of gas, which meant that Soviet gas should constitute no more than 30-35% of the total gas supplies in any West European country (but especially West Germany, France and Italy).⁸⁷

⁸⁴ Erik v. Kuehnelt-Leddihn, “On Gas and Grain”, *National Review*, Vol.34, Issue 19, (1982), p.1027.

⁸⁵ Giovanni Agnelli, “East-West Trade: A European View”, *Foreign Affairs*, Vol. 58, Issue 5, (1980), p.1031.

⁸⁶ “The Pipeline Debacle”, *Nation*, Vol. 235, Issue 18, (1982), p.545.

⁸⁷ Stern, *Soviet Oil and Gas Exports to the West*, p.33.

3.2.4 Reorganization of the Russian Gas Industry after the Dissolution of the Soviet Union

Until the collapse of the Soviet Union, the energy exports were limited by the Western Alliance in order to limit high profits from energy goods from the Soviet economy. The dissolution of the Soviet Union and the rapprochement with the West gave Russia the chance to be a major gas supplier.

However, the dissolution of the Soviet Union had three effects on its gas deliveries to the West. The first change was the dissolution of the Iron Curtain states in Europe from the Soviet bloc. The Soviet pipelines were mostly located in these newly independent countries and that situation created uncertainty for future gas deliveries. The second change, which was more dangerous, was the creation of politically separate states within the Soviet Union itself.⁸⁸ In 1992, the European part of the Soviet Union disintegrated into seven states (Russia, Belarus, the Ukraine, Moldova, Latvia, Lithuania and Estonia). The Ukraine and Belarus were the main transit countries of Soviet gas exports to the West. In 1992, 90 % of Russian gas was transported through Ukraine.⁸⁹ The third change was the economic crisis that followed the dissolution of the Soviet Union. Due to the economic shockwaves, the internal demand for Russian gas declined dramatically from 480 BCM in 1990 to 400 BCM in 1995. The gas production also declined from 640

⁸⁸ Victor, Jaffe and Hayes, p.135.

⁸⁹ Victor, Jaffe and Hayes, p.135.

BCM in 1990 to 595 BCM in 1995.⁹⁰ Clearly the decline in the production was lower than the decline in the internal demand. Therefore, the large and growing surplus of natural gas would be a great opportunity for Russia to become the largest gas export country and to earn extra hard currency to finance its economic development.

The need for the reorganization of the gas sector was inevitable in order to realize that potential. The Soviet Gas Ministry had been responsible for the coordination of all production and transmission of gas. After the collapse of the Soviet Union, this entity was reorganized in 1989 into a joint stock company with the assets divided among Belarus (1.5%), Ukraine (9.5%) and Russia (89%). In Russia the State Gas Concern *Gazprom* was established by the RF Presidential Decree of November 5, 1992. In 1993, under the RF Government Directive, the State Gas Concern *Gazprom* was transformed into the Russian Joint Stock Company *Gazprom*.⁹¹ At the time, *Gazprom* was founded, 100 % of the company's shares were owned by the Russian Federation. The sales of shares started in 1993 and ended in 1995. After the sales in 1995, the state owned 41 % of the total. In 1990s, the managers of the *Gazprom* intended to retain the control over gas production, transmission and marketing in order to keep monopoly profits for *Gazprom*. As a result of these efforts, *Gazprom* obtained control over *Soyuzgazexport* -- the state entity responsible for marketing all gas exports -- and

⁹⁰ IEA, *Russian Energy Survey 2002*, (Paris: OECD, 2002), p.120.

⁹¹ *Gazprom, Gazprom in Questions and Answers*, (Moscow: Gazprom, 2007), p.4.

consolidated control over most of the gas exports.⁹² Moreover, the managers of *Gazprom* aimed at making *Gazprom* an indispensable firm for the Russian economy and society by maximizing its profits. *Gazprom* was financially consolidated by acquiring many assets varying from agricultural lands to banks. Another financial source of *Gazprom* is the control over the pipelines and the natural gas producer prices are regulated at low levels.

3.3. Natural Gas Market in Russia and *Gazprom*:

Natural gas constitutes 55% of the Russian primary energy demand.⁹³ However, Russian state plans to reduce the share of natural gas to 48% in 2010 and 45% in 2020.⁹⁴ Russia's total gas supply was 687.4 BCM in 2004. *Gazprom* produced nearly 80% of the total gas supply and the rest of the gas was imported from Central Asian republics and independent producers. On the internal demand side, Russia had a huge consumption equalling 401.9 BCM in 2004.⁹⁵ The biggest share of consumption is power generation (Figure 3.1). On the export side, the total export to customers was 208.5 BCM in 2004.⁹⁶ The major consumers were the European countries that imported 120.1 BCM of Russian gas in 2004.⁹⁷

⁹² Victor, Jaffe and Hayes, p.139.

⁹³ EIA/DOE, "Country Analysis Briefs: Russia", (EIA/DOE, 2007), <http://www.eia.doe.gov/> (accessed May 27, 2007).

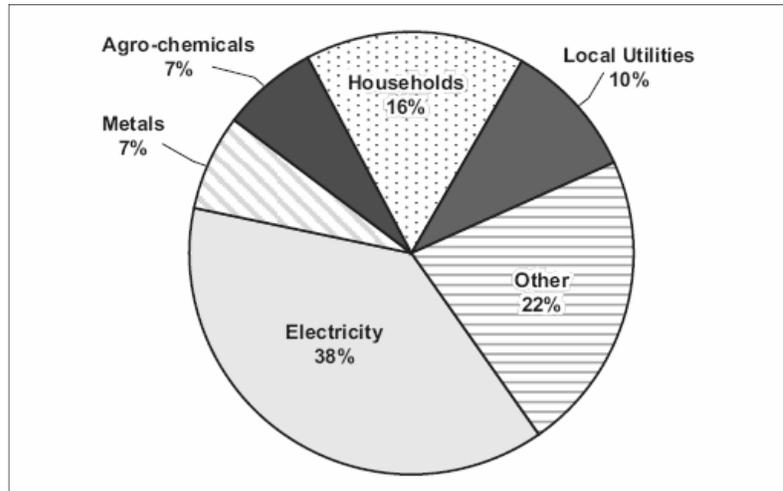
⁹⁴ Stern, *The Future of Russian Gas and Gazprom*, p.53.

⁹⁵ Stern, *The Future of Russian Gas and Gazprom*, p.2.

⁹⁶ Cedigaz, *Statistical Database*.

⁹⁷ CERA, *European Gas Watch Data Center*, <http://www.cera.org/> (accessed July 21, 2007).

Figure 3.1: Russian Natural Gas Consumption by Sector



Source: CERA

3.3.1 The Natural Gas Fields and Production:

Gazprom, the world's largest natural gas producer and exporter plays the most important role in the Russian gas market. It holds 55% of Russia's natural gas reserves. *Gazprom's* reserves are the most significant commercial reserves in Russia.⁹⁸ According to *Gazprom*, they hold more reserves than Iran or Qatar. The rest of the reserves belong to independent gas producers. The oil companies like *TNK-BP*, *Lukoil* and *Surgutneftegaz* and gas companies like *Itera* and *Novatek* are the major independent gas producers.⁹⁹

⁹⁸ Stern, *The Future of Russian Gas and Gazprom*, p.2.

⁹⁹ Stern, *The Future of Russian Gas and Gazprom*, p.19.

The major fields of *Gazprom* are located in Western Siberia (*Urengoy*, *Yamburg*, *Medvezhye* and *Zapolyarnoye*), the Yamal Peninsula (*Bovanenkovskoye* and *Kharaseveyskoye*), Barents Sea (*Shtokman*), Southern Russia (*Astrakhan*) and the Volga Region (*Orenburg*). These fields of *Gazprom* are in production or being prepared for production. The *Urengoy*, *Yamburg*, *Medvezhye* and *Orenburg* fields are in decline. The *Zapolyarnoye* and *Astrakhan* fields are close to maximum production levels. The Yamal Peninsula and Barents Sea fields are not fully developed yet.¹⁰⁰

Nearly 70% of total Russian gas production comes from Western Siberian fields of *Gazprom*.¹⁰¹ However, the gas production is declining every year, a total average quantity of 22 BCM, in the *Urengoy*, *Yamburg* and *Medvezhye* fields. These fields produced 365 BCM gas in 2001. According to Cambridge Energy Research Associates (CERA), in 2020 the total production of these fields will be 20 BCM.¹⁰² In order to compensate for the decline in Western Siberian production, an increase of gas production is expected from the giant field, *Zapolyarnoye*, and smaller fields *Kharvutinskoye*, *West Tarkosalinskoye*, *Pestsovoye*, *Yen-Yakhinskoye* and *Yeti-Purovskoye*.¹⁰³

¹⁰⁰ Stern, *The Future of Russian Gas and Gazprom*, pp.4-5.

¹⁰¹ EIA/DOE, *Country Analysis Briefs: Russia*.

¹⁰² CERA, *Outlook for Gas production from Gazprom's Big Three Fields: What will be the rate of decline?*, (Cambridge: CERA, 2002), p.6 .

¹⁰³ Stern. *The Future of Russian Gas and Gazprom*, p.58.

The fields of Yamal Peninsula and Barents Sea are viewed as alternative options of *Gazprom* for future large scale supply.¹⁰⁴ However, the cost of production and transportation to markets are substantial factors that may affect the development of the fields in these regions. The development of current fields and finding new sources are crucial for *Gazprom* to maintain or increase its production for domestic supply and exportation.

3.3.2 The Russian Natural Gas Market Structure

Gazprom is located in the centre of the Russian gas industry in which the third party access to the transmission system is restricted and the tariff system is designed in favour of the system operator. *Gazprom* owns and operates the national network of high-pressure inter-regional gas pipelines, which, at around 152.800 km, is the longest in the world. It is the sole owner of gas storage sites in Russia, operating 24 underground facilities.¹⁰⁵ *Gazprom* has a monopoly on all gas exports outside the Commonwealth of Independent States (CIS) and holds a monopoly on gas processing in Russia, making it the only buyer of the gas produced by Russian oil companies and independent gas producers.¹⁰⁶ With the support of the Russian state, *Gazprom* tightly controls the infrastructure of the gas

¹⁰⁴ Stern, *The Future of Russian Gas and Gazprom*, p.11.

¹⁰⁵ Gazprom, *Annual Report 2004*, (Moscow: Gazprom, 2005), p.38.

¹⁰⁶ IEA, *World Energy Outlook 2004*, p.309.

sector. The lower prices and uncertain access to the pipeline prevented most independent producers from entering the market.¹⁰⁷

Gazprom also plays a central role in the Russian economy, providing up to a quarter of the federal government's tax revenues. Every day *Gazprom* supplies 1 billion rubles to the budget of the Russian Federation. In 2004, the total volume of gas supplied to distant foreign countries exceeded 140 BCM, which brought in US \$ 18 billion in revenue.¹⁰⁸ It is clear that in both the short and medium terms, increasing gas export volumes and rising oil prices will bring more revenues to *Gazprom* and the Russian government

Moreover, Russia has a dual pricing policy. The low revenues from domestic gas prices are subsidized by much higher European and, to a less significant extent, Commonwealth of Independent States gas prices.¹⁰⁹ It could be said that the system favours *Gazprom* as a financially strong global gas giant, but there are two problematic aspects with the pricing system.

The first problematic aspect of pricing policy involves the Russian domestic market. Russia is a very large country and the transportation of gas, especially from Western Siberia, causes price differences between zones. The expensive production and transmission costs together with the low industrial gas prices caused a great

¹⁰⁷ Victor, Jaffe and Hayes, p.140.

¹⁰⁸ *Gazprom, Annual Report 2004*, p.4.

¹⁰⁹ Spanjer, p.2891.

financial loss for *Gazprom* in recent years. In the period of 1999-2003, *Gazprom*'s loss has been calculated at around 25 Billion USD.¹¹⁰ Another problem is the non-payment of gas for households. *Gazprom* does not have any right to cut off the supply to force the customers to pay. More significantly, despite the concerns about the decline in the major fields and increasing domestic demand, the low prices have incited the Russian people to consume wastefully. Therefore in December 2006, Russian state approved a price liberalization program which would increase gas prices in 2008–10 for non-household consumers.¹¹¹

The second problematic aspect of the gas pricing policy is the dependence on gas exports to the EU. Russia has significant financial profits in gas sales to European countries. This dual-pricing policy makes Russia more dependent on gas sales to Europe.¹¹²

3.3.3 Russian Natural Gas Exports

Gazprom sells gas to Europe via its *Gazexport* company. Mainly there are three types of gas sales from *Gazexport*: direct sales, sales by subsidiaries and joint

¹¹⁰ Stern, *The Future of Russian Gas and Gazprom*, p.43.

¹¹¹ CERA, *Putting on the Blitz: Russian State Actors Pull Out Stops to Close Energy Supply Gap*, (Cambridge: CERA, 2006), p.29.

¹¹² Spanjer, p.2891.

ventures and sales by intermediaries.¹¹³ The direct sales are carried out by the local companies that have direct links to *Gazprom* (like *SlovRusGaz* in Poland). The subsidiaries and joint ventures (like *Wintershall Erdgas* in Germany) have indirect links with *Gazprom*; it receives gas from *Gazexport* and sells to retailers in their countries. The intermediaries are the companies (*Itera*) that have a direct link to *Gazprom* and sells gas to retailers (*Emfesz* of Hungary) in Europe.¹¹⁴

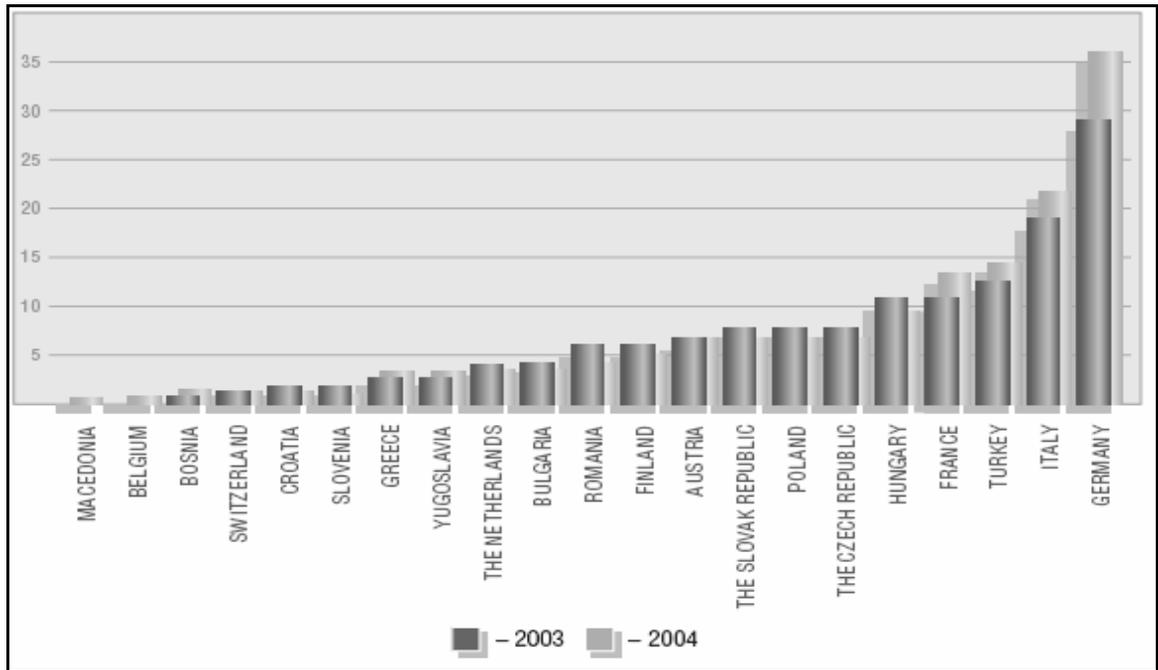
Europe is the key export market for Russian gas. *Gazprom* supplies around one-third of Western Europe's gas imports. The largest importers of Russian gas are Germany, Italy, Turkey and France. With these four major consumers, Russia exports to 28 countries: Hungary, the Czech Republic, the Slovak Republic, Poland, Austria, Finland, Bulgaria, Romania, Yugoslavia, Slovenia, Croatia, Greece, Switzerland, the Netherlands, Bosnia, Macedonia, the UK, Belarus, Moldova, Lithuania, Latvia, Estonia, Armenia and Ukraine (Figure 3.2).

Gazprom carries out major construction projects in order to strengthen and diversify Russia's gas export routes and markets. Europe's increasing demand urges Russia to develop these projects. Therefore, the rising gas demand in Europe is expected to be the primary reason for increasing Russian gas exports in the following decades.

¹¹³ OSW/CES, *Russian Gas to Europe*, (Warsaw: OSW, 2006). p.3.

¹¹⁴ OSW/CES, p.4.

Figure 3.2: Natural Gas Exports to Europe



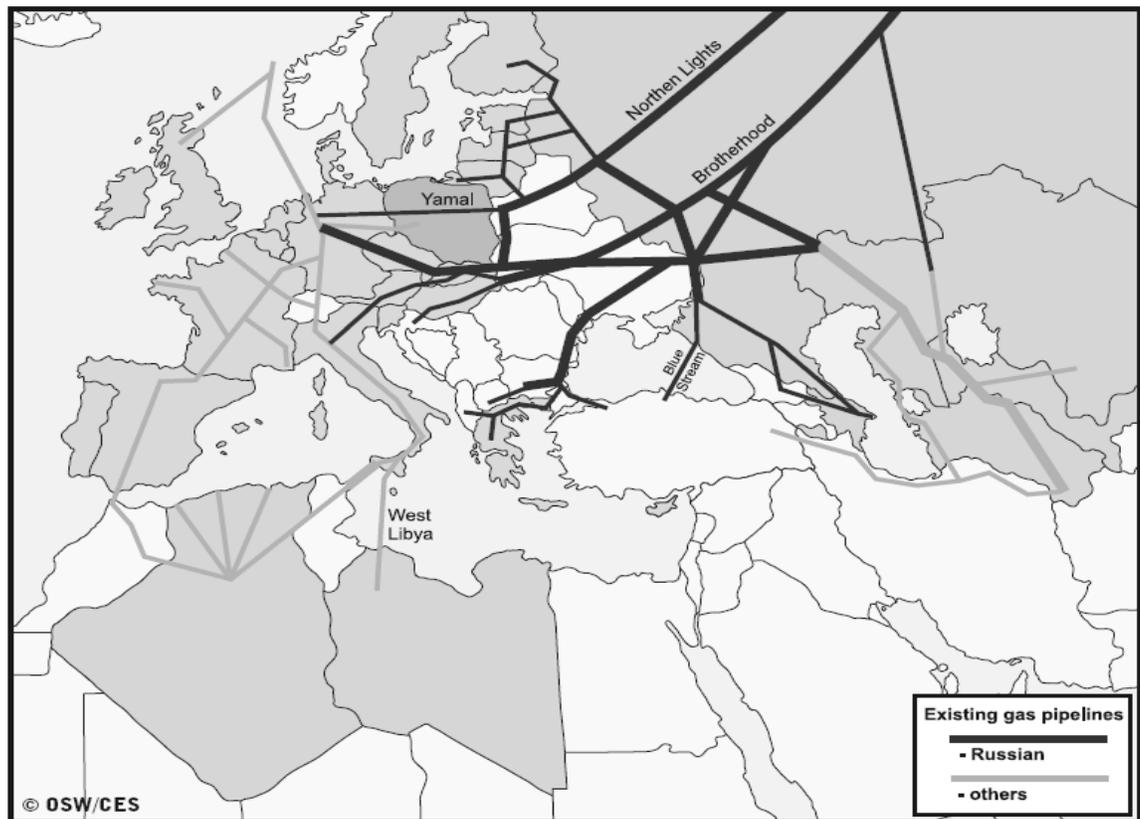
Source: Gazprom

3.3.3.1 The Gas Pipelines and Projects

The Russian gas is transported to Europe via the Blue Stream Pipeline (3.39%), the Yamal-Europe Pipeline (16.27%) and pipelines in the Ukraine (80.34).¹¹⁵ The export pipelines from Ukrainian territory are extended to the west and south. The western branch transports gas via Slovakia to Europe and via the southern branch to the Balkans and to Turkey (Map 3.1).

¹¹⁵ OSW/CES, p.4

Map 3.1: Russian Gas Export Routes



Source: *Osrodek Studiów Wschodnich Centre for Eastern Studies (OSW/CES)*

*The Yamal-Europe Gas Pipeline (YAMAL-1), currently under operation since 1999, links the Yamal gas fields with Western Europe. The annual capacity of YAMAL-1 is 30 BCM per year. The pipeline transports gas from Russia via Belarus and Poland to Germany (Map 3.2). Moreover, there are plans to expand the pipeline from Poland to Slovakia and Central Europe. This proposed pipeline is called the YAMAL-2 pipeline.*¹¹⁶

¹¹⁶ EIA/DOE, *Country Analysis Briefs: Russia*.

Map 3.2: Yamal-1 Pipeline



Source: Gazprom

Another gas pipeline project is the *Northern European Gas Pipeline (NEGP)* or *Baltic Pipeline*. Gazprom and two German companies (E.ON and BASF) are planning to construct a pipeline with a capacity of 28 to 55 BCM, which would run under the Baltic Sea from the Russian coast near St. Petersburg to the German coast, and possibly on to the Netherlands and the United Kingdom.¹¹⁷ The *Yuzhno-Russkoye* field is expected to fill the NEGP (Map 3.3). However, the construction of the NEGP has been criticized by some EU officials as another route that would make the EU more dependent on Russian gas. Therefore, Marina

¹¹⁷ Gazprom, *Gazprom in Questions and Answers*, p.14.

Sisoyeva and Natalya Timakova emphasize that the EU concerns over NEGP may make the construction impossible.¹¹⁸

Map 3.3: Northern European Gas Pipeline (NEGP)



Source: Gazprom

The *Blue Stream* pipeline supplies gas directly to Turkey across the Black Sea. The capacity of the *Blue Stream* pipeline is 16 BCM per year.¹¹⁹ It is planned to extend the *Blue Stream* via Turkey to the Mediterranean Sea. An LNG Terminal

¹¹⁸ Marina Sisoyeva and Natalya Timakova, “Evropa namerena osporit’ kontrol’ ‘Gazproma’ nad severo-evropeyskim truboprovodom”, (July 5, 2007), (Rusenergy, 2007) <http://www.rusenergy.ru/> (accessed July 17, 2007).

¹¹⁹ BOTAS, “Blue Stream Pipeline”, (BOTAS, 2007), <http://www.botas.gov.tr/> (accessed June 20, 2007).

in Ceyhan on the Mediterranean coast of Turkey would be constructed¹²⁰ or the construction of an under-sea pipeline would connect the Blue Stream pipeline to Israel.¹²¹

Turkey is also considered as a transit alternative to the Ukraine and Belarus for Russian gas supplies to Europe. The expansion of the capacity of the *Blue Stream* Pipeline or construction of a *Blue Stream-2* pipeline would transport Russian gas via Turkey to Europe by the Turkey-Greece-Italy Interconnector.¹²² However, the objections of the USA and some EU countries to the extension of Blue Stream to Europe have forced *Gazprom* to make an agreement with Italian gas firm *ENI*. According to the agreement they will construct a pipeline with a capacity of 30 BCM under the Black Sea connecting Russia with Bulgaria.¹²³

As an export alternative to Europe, the Asian energy market is becoming important for Russia. Especially, China, India and Japan are the potential consumers. However, the most prominent energy-hungry state is China. According to *Oil and Gas Journal*, China's current natural gas supply comes entirely from domestic production. Between 1990 and 2004, the average annual growth rate of China's natural gas consumption was 6.6%. That is faster than the growth of its primary commercial energy consumption as a whole. As a result, the share of

¹²⁰ EIA/DOE, *Country Analysis Briefs: Russia*.

¹²¹ Gazprom, *Gazprom in Questions and Answers*, p.54.

¹²² Gazprom, *Gazprom in Questions and Answers*, p.54.

¹²³ Gabriel Kahn, "Gazprom Pipeline Plan may fuel worry," *The Wall Street Journal*, (June 25, 2007), <http://www.wsje.com/> (accessed July 23,2007).

natural gas in the primary commercial energy consumption rose to an estimated 2.8% in 2004 from 2.3% in 1990.¹²⁴ In the future it is expected that the increasing gas demand in China will continue. In the beginning of 2006, Russia signed gas sales agreements with China in order to construct a gas pipeline to the border of China. The IEA forecasts that Russian gas exports to Asia will reach 30 BCM by 2030.¹²⁵ However, Russia has a similar problem with China as it does with the EU. China does not want to be excessively dependent on Russia and seeks to diversify its future energy supplies from Central Asian republics.¹²⁶

Gazprom needs to increase its production to fulfill its long-term aim of increasing European and Asian sales. According to the IEA, Russian exports to the European Union are projected to climb to 137 BCM in 2010 and 155 BCM in 2030. In 1997, *Gazprom* began importing natural gas from Turkmenistan to help fulfill its supply contract with its European costumers. Turkmenistan's agreement with Russia guarantees initial natural gas exports of 6 BCM in 2005, significantly increasing to 68 BCM in 2007, and remaining at 80 BCM from 2009 to 2028.¹²⁷ The price of gas is 29 USD per thousand cubic meters that is very below the *Gazprom*'s gas sales price to Europe. The difference between the Turkmen price and *Gazprom*'s sales price the huge amount of profit will contribute to the budget

¹²⁴ Fereidun Fesharaki and Kang Wu, "Higher Natural Gas Demand Has China Looking Worldwide," *Oil and Gas Journal*, Vol. 103, Issue: 27, (2005), <http://www.ogj.com/> (accessed 18 June 2007).

¹²⁵ IEA, *World Energy Outlook 2004*, p.313.

¹²⁶ Yuriy Kogtev, "Gazprom snizhaet eksport gaza na traditsionnyye rynki", March 21, 2007, (Rusenergy, 2007), <http://www.rusenergy.ru/> (accessed June 18, 2007).

¹²⁷ EIA/DOE, *Country Analysis Briefs: Russia*.

of Russia. This agreement may allow *Gazprom* to delay the development of its own expensive reserves in the Yamal and Arctic regions. This situation may also reduce *Gazprom*'s need to buy gas from independent Russian producers. Furthermore, this agreement is expected to eliminate Central Asian producers as competitors for sales to Europe and other export markets, since most of their production will be transported to Russia.

3.3.3.2 The LNG Export Option

Another alternative for export is sales in the form of LNG. It is expected that LNG exports to Asia from *Sakhalin-2* will start in 2008. The other LNG exports are envisaged for the reserves on the Yamal Peninsula and in the *Shtokman* field in the Barents Sea. However, the costs would be very high because of the extremely harsh climate. Therefore, the IEA assumes that no LNG projects other than *Sakhalin-2* will start before 2030.¹²⁸ The *Sakhalin-2* project will construct a facility with the capacity of 9.6 million tones of LNG. The major market for LNG from *Sakhalin-2* is expected to be Japan.

3.3.4 *Gazprom* in Europe

Gazprom is the largest Russian foreign investor. The investments are mostly located in Europe. The main goal of *Gazprom* is to boost its share in the European

¹²⁸ IEA, *World Energy Outlook 2004*, p.313.

gas market from 27 to 33 %.¹²⁹ Therefore, *Gazprom* is willing to acquire firms in Europe in order to secure its supply deliveries. Europe is the core market for *Gazprom* and simply wants more access to gas distribution in Europe. *Gazprom* invests mainly in the gas trade, transport, transit, distribution and storage sectors.¹³⁰

Moreover, Russia has expansion plans in Austria, Belgium, the UK, the Czech Republic, Denmark, the Baltic States, France, Germany, Hungary, Italy, Poland, Slovakia, Turkey, the Ukraine, Romania, Belarus, Asia, the Middle East and the USA.¹³¹ (Map 3.4). Although there are some exceptions, the monopolistic structure of Russian gas market restricts European gas companies from investing in Russia.

The European governments are not keen to be more dependent upon Russia and there is some resistance against Russian investments in the gas sector. The *Centrica* incident is a very prominent case for understanding the response of UK officials to the expansion of *Gazprom*. In 2006, *Gazprom* attempted to buy Britain's biggest gas distributor, but British competition regulators had proposed to change the takeover rules to block *Gazprom* from dominating the British market. *Gazprom* responded with "attempts to limit *Gazprom's* activities in the European market and politicization of the gas supply question would not meet with good

¹²⁹ Reuters, "Gazprom eyes on global expansion" June 11, 2007. (Reuters, 2007), <http://www.reuters.com/> (accessed August 24, 2007).

¹³⁰ OSW/CES, p.7.

¹³¹ Reuters. "Gazprom eyes on global expansion".

results”.¹³² However, Andrei Milovzorov in his article states that the acquisition of *Centrica* by *Gazprom* would be profitable for both sides. A distribution company would simply strengthen its position in the UK gas market with the support of a global gas supplier.¹³³

Europe’s energy commissioner Andris Pielbags stated that Europe will continue talks with Russia about gas supplies, but the bloc is also keen to look elsewhere to satisfy its energy needs. He added that any ruling on *Gazprom*'s acquisition attempts in Europe would be determined by normal competition rules. He emphasized that “Competition should prevail in the market. It's quite normal for Russia to look to diversify customers and for us to look to diversify suppliers.”¹³⁴

On the other hand, the USA is not comfortable with the increasing Russian dominance in the European gas sector. For instance, in April 2006, during her visit to Greece, US Secretary of State Condoleezza Rice warned the Greek government to reject a proposal by *Gazprom* to participate in a Turkey-Greece Interconnector. The US wants both Turkey and Greece to reduce their reliance on Russian gas supplies.¹³⁵

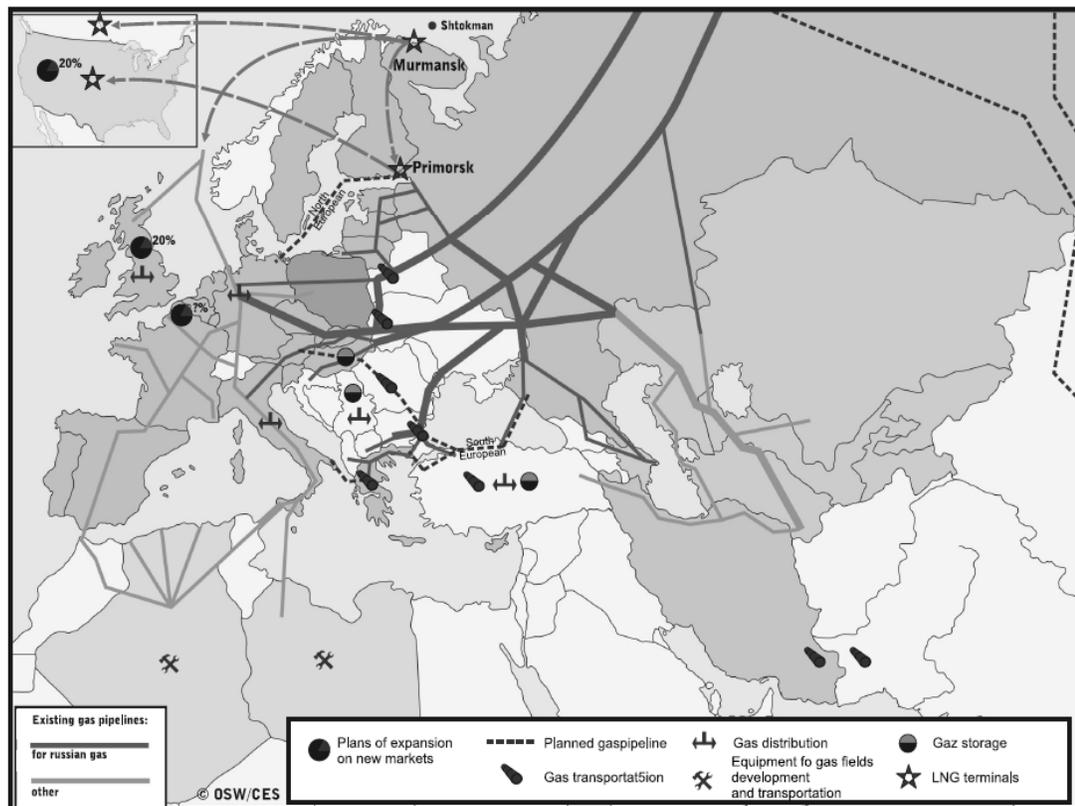
¹³² Peggy Hollinger, “Gazprom threat adds to EU fears on supply”, *Financial Times*, April 24, 2006, <http://www.ft.com/> (accessed May 14, 2007).

¹³³ Andrei Milovzorov, “Gazprom navodit uzhas na Evropu”, *Ekonomika*, March 3, 2006, <http://www.utro.ru/> (accessed 21 June, 2007).

¹³⁴ “EU May Try to Diversify on Energy”, *The Moscow Times*, (April 24, 2006), <http://www.themoscowtimes.com/> (accessed May 13, 2006)

¹³⁵ Kerin Hope, “Rice Bid to Exclude Russian Supplier”, *Financial Times*, April 25, 2006, <http://www.ft.com/> (accessed May 14, 2007).

Map 3.4: Gazprom's Expansion Plans



Source: *Osrodek Studiow Wschodnich Centre for Eastern Studies*

President Putin responded both to the USA and the EU:

"We constantly hear about some threat of dependence on Russia and that Russian companies should have limited access to the energy market, when people come to us, it is investment and globalization, but if we plan to go somewhere, then it is already the expansion of Russian companies".¹³⁶

¹³⁶ Catherine Belton, "Putin Steps Up Gazprom Defense", *The Moscow Times*, April 28, 2006 <http://www.themoscowtimes.com/> (accessed June 21, 2006).

The expansion of *Gazprom* in Europe would increase the level of interdependence between the EU and Russia. But, the expansion would be limited by nationalistic attempts of European governments to protect their gas markets from Russian dominance. On July 10, 2007 the European Parliament adopted a resolution which emphasized that that any company from outside the EU may buy energy infrastructure in Europe if there is reciprocity with that country.¹³⁷

Moreover, the imbalance in the investments of Russia and the EU in their gas sectors would cause some serious dependency problems in the EU gas market. On the other hand, the attempts to limit the Russian expansion in Europe may discourage the future Russian gas projects. For instance, whenever a problem occurs between the EU and Russia, *Gazprom* threatens the gas companies in the EU that it will shift its focus from Europe to the Chinese market.¹³⁸

3.3.5 Russia's Energy Strategy to 2020

The Russian Parliament adopted *The Energy Strategy of Russia for the Period to 2020* in August 2003, which reveals the government's strategic thinking about the evolution of the energy sector and provides a framework for future policy

¹³⁷ Simon Shuster, "Gazprom's EU ties stumble on reciprocity", *The Moscow Times*, (July 17, 2007), <http://www.themoscowtimes.com/> (accessed July 21, 2007).

¹³⁸ "Gazprom may lose interest in Europe and turn to Asia", *Nezavisimaya Gazeta*, (July 18, 2007) <http://www.ng.ru/> (accessed via Factiva on August 21, 2007).

and regulatory actions. It forecasts trends in energy production and demand and identifies the main challenges facing the sector. These include: mobilizing investments in production and export capacity; restructuring the gas, electricity and coal industries; limiting the social impact of energy-price rises; and improving energy efficiency.¹³⁹

Specifically, the aim of the strategy document for the gas sector is to create a stable Russian gas industry that is economically effective and uninterrupted to meet the domestic and foreign gas demand.¹⁴⁰ Moreover, it is emphasized that the integration of the gas networks within the Russian Federation is expected to serve connecting new gas production fields to the gas infrastructure.¹⁴¹ On the other hand, the liberalization of the Russian gas market is perceived to increase the profitability of the gas sector.

Therefore, there are some duties in the document given to the Russian state to reach the above mentioned goals such as increasing efficiency in the production and transportation of gas, decreasing the economic costs of gas production and transportation, minimizing the losses during the production and transportation phases of gas, the development of new gas fields in Eastern Siberia, Yamal Peninsula, Eastern Russia and on the eastern coasts of Russia (the most prominent

¹³⁹ IEA, *World Energy Outlook 2004*, p.292.

¹⁴⁰ Energeticheskaya strategiya Rossii na period do 2020 goda. Decree of Government of the Russian Federation. No:1234-p, (August 28, 2003). p.71.

¹⁴¹ Energeticheskaya strategiya Rossii na period do 2020 goda, p.71.

one is considered to be Sakhalin Island), development of technology in the gas sector and the development of gas transportation sector for diversification of gas supply from new fields.¹⁴²

The strategy document also provides information about the future gas production scenarios. In the optimistic scenario, the gas production is expected to be 645-665 BCM in 2010 and 710-730 BCM in 2020.¹⁴³ In the pessimistic scenario, the gas production would be 635 BCM and 680 BCM in 2020.¹⁴⁴ Although the independent producers are encouraged to invest in gas production, the strategy document gives a central role to *Gazprom*. In the scenarios, *Gazprom* would increase its gas output and may produce 80% of the total production in 2020.¹⁴⁵

In general, there are some factors that may determine the future gas production between the levels of the optimistic and pessimistic scenarios. The factors that would affect the production are given as the future rate of the domestic gas demand, the pricing policy of the Russian state, the volume of future investment in the gas sector, the dynamics of the liberalization process and the reform of the gas sector.¹⁴⁶ A more specific factor that would determine the future

¹⁴² Energeticheskaya strategiya Rossii na period do 2020 goda, p.72.

¹⁴³ Energeticheskaya strategiya Rossii na period do 2020 goda, p.72.

¹⁴⁴ Energeticheskaya strategiya Rossii na period do 2020 goda, p.72.

¹⁴⁵ CERA, *Russia's Energy Strategy to 2020: An Incomplete Road Map*, (Cambridge: CERA, 2003), p.14.

¹⁴⁶ Energeticheskaya strategiya Rossii na period do 2020 goda, p.73.

production is the decline rate of the Western Siberian fields, which have a major role in the current production, and the compensation of this decline with the future production from new fields in the Yamal Peninsula and the Northern Sea.¹⁴⁷

On the other hand, the necessary measures should be taken by the Russian state to protect the profitability of the gas export incomes by pursuing long-term effective policies. More specifically, the strategy document underlines that the interdependence with European countries is very significant and Russia should protect its interests with long-term contracts.¹⁴⁸ According to CERA, Russia may export 160-165 BCM of gas to Europe in 2020.¹⁴⁹ Nevertheless, the relations with FSU countries should be maintained to import gas supplies with long-term agreements on an equal basis considering the interests of both sides.¹⁵⁰

In order to increase gas exports, the strategy document encourages decreasing the use of gas in the electricity sector in favour of other sources.¹⁵¹ According to the World Nuclear Association, Russia is planning to increase its nuclear capacity from 21.7 GWe to 49.3 GWe in 2020 with 25 new nuclear reactors. Nuclear power is expected to increase to 25% in total Russian power

¹⁴⁷ Energeticheskaya strategiya Rossii na period do 2020 goda. p.74.

¹⁴⁸ Energeticheskaya strategiya Rossii na period do 2020 goda, pp.78-79.

¹⁴⁹ CERA, *Russia's Energy Strategy to 2020: An Incomplete Road Map*, p.15.

¹⁵⁰ Energeticheskaya strategiya Rossii na period do 2020 goda, p.79.

¹⁵¹ CERA, *Russia's Energy Strategy to 2020: An Incomplete Road Map*, p.16.

generation by 2020 and the gas share in power generation is expected to decline from current level to 28%.¹⁵²

In general, the document gives detailed information about the Russian state's perspective of its future strategy. The reorganization of the Russian gas industry is envisaged not only to meet the future energy demand, but also to strengthen the Russian economy by securing future energy exports as well. In this respect, the natural gas deliveries to European countries play a strategic role for the Russian economy and it is expected to increase its importance in future.

On the other hand, the Russian state and the strategy document have been criticized by Yuriy Batalin, the head of Russian Gas and Oil Constructors Union. In his article, Batalin emphasizes that, despite the major role of gas in Russian economy, a long-term economic strategy for Russia to use the huge export revenue efficiently is lacking. Therefore this situation may endanger the realization of the necessary investments to decrease the dependence on volatile energy prices.¹⁵³

¹⁵² World Nuclear Association, "Nuclear Power in Russia," (World Nuclear Association, 2006), <http://world-nuclear.org/> (accessed May 19, 2006).

¹⁵³ Yuriy Batalin, "Vostochnyy vektor razvitiya", *Ekonomika Rossii*, No. 19, <http://www.ruseconomy.ru/> (accessed on August 27, 2007).

3.4 Conclusion

Russia, with its immense gas reserves, is the major natural gas supplier of the world. However, Russia has some structural problems in its gas industry. The old infrastructure and declining fields are inherited from the Soviet Union and need to be reconstructed and rehabilitated. The construction of new gas transportation pipelines and the development of new gas fields seem to be inevitable in order to maintain the unique position Russia has in the global gas market. Moreover, Russia tries to control Central Asian republics to feed its export supplies and makes efforts to prevent the transportation of Central Asian gas by alternative routes to Europe.

After the collapse of the Soviet Union, the reorganization of the gas industry, the establishment of *Gazprom* and the regulatory issues of the internal gas market have had significant impact on the economic and efficient use of natural gas. The domestic pricing policy and the measures to decrease the losses in the internal transportation system are considered as the priorities of the Russian gas market.

The dependency on gas export revenues forces Russia to establish strong ties with consumers, especially the EU. In this context, the expansion of *Gazprom* in Europe aims to secure future gas demand that would increase the level of the interdependence between the EU and Russia. However, the EU has serious

concerns about Russian intentions in Europe as it constructs new pipelines and acquires gas facilities because it will force them to be more dependent on a single supplier. On the other hand, Russia is seeking to diversify its export routes by constructing new pipelines to Asian markets and by developing LNG facilities.

CHAPTER IV

NATURAL GAS IN THE EUROPEAN UNION

4.1 Introduction

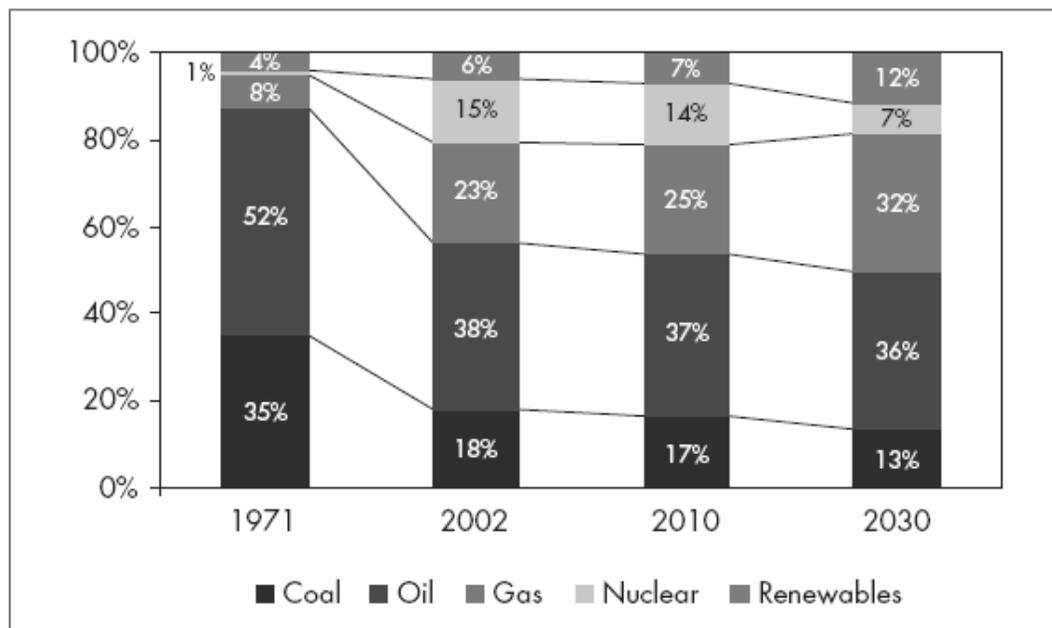
Energy is necessary for the European Union to function. Historically, energy has played a very important role. The energy issue was the one of the major elements that brought the member states together to sign the Coal and Steel Treaty in 1952 and the Euratom Treaty in 1957.

Currently, the European Union is one of the biggest energy markets of the world. However, the energy sector of the EU primarily faces the problems of environmental issues (increasing greenhouse emissions), the competitiveness of the energy market and the security of the energy supply. Natural gas has a very significant position with the potential to shape the future EU energy market.

4.2 Primary Energy Consumption of EU

According to IEA, in 2003 EU energy consumption broke down as follows: oil 43%, natural gas 24%, nuclear 14%, coal 13%, hydroelectric 4% and other renewables 2%. IEA expects the EU's primary energy demand will grow by nearly 0.7% every year in the period covering 2002-2030.¹⁵⁴ While the share of coal and nuclear power are expected to decrease in primary energy consumption, the share of natural gas and renewables are expected to increase in 2030¹⁵⁵ (Figure 4.1).

Figure 4.1: The Fuel Shares in the European Union



Source: IEA WEO 2004

¹⁵⁴ IEA, *World Energy Outlook 2004*, p.251.

¹⁵⁵ IEA, *World Energy Outlook 2004*, p.251.

The EU's primary energy consumption is very much dependent on energy imports. The main suppliers are the OPEC countries and Russia. The EU's dependence on imported crude oil and natural gas is gradually growing.¹⁵⁶ The import percentage of the EU's energy is expected increase from 50% to 71% by 2030.¹⁵⁷ In the EU's primary energy consumption projection by the IEA, the need for energy imports is expected to become more crucial in future.

4.3 General Natural Gas Outlook of EU

The establishment of the European gas market on a large scale was started in 1959, with a major discovery in the Netherlands.¹⁵⁸ In the 1960s and 1970s, the availability of abundant and cheaper gas supplies promoted the development of gas transmission and distribution infrastructure in Europe.¹⁵⁹ The convenient economic situation and the competitive pricing of natural gas resulted in strong demand growth, which included domestic production in other EU countries such as Italy, Denmark and Germany. In the following years the indigenous production was supported with the imports from Norway, Russia and Algeria.

¹⁵⁶ Oliver Geden, Celemece Marcelis and Andreas Maurer, "Perspectives for the European Union's External Energy Policy", *Stiftung Wissenschaft und Politik Working Paper*, December 2006 <http://swp-berlin.org/> (accessed February 14, 2007), p.5.

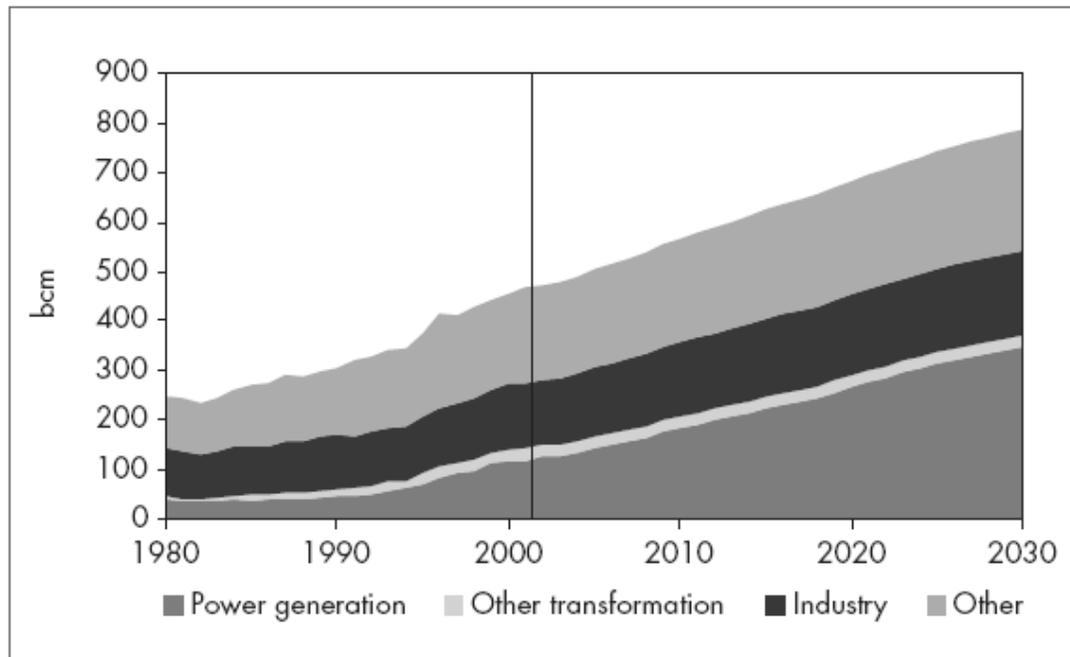
¹⁵⁷ Geden, Marcelis and Maurer, p.5.

¹⁵⁸ Yergin and Stopgard, p.104.

¹⁵⁹ CIEP, *Tomorrow's Mores: International System, Geopolitical Changes and Energy*, p.140.

In 2006, according to CERA, the natural gas market of the EU consumed 504.7 BCM.¹⁶⁰ The gas is consumed in EU in the sectors: Residential and commercial (37.5 %), Industry (29.1 %), Power generation (29.3 %) and others (4 %).¹⁶¹ In gas consumption the most strategic sector is the power sector. According to the IEA the power sector will determine the increase of consumption in the future, the share of the power sector in gas consumption is expected to increase 3.7% per year to 2030¹⁶² (Figure 4.2).

Figure 4.2: Gas Demand in the European Union by Sector



Source: IEA WEO 2004

¹⁶⁰ CERA. *European Gas Watch Supply and Demand Tables*, p.3.

¹⁶¹ CERA. *European Gas Watch Supply and Demand Tables*, p.3.

¹⁶² IEA. *World Energy Outlook 2004*, p.154.

4.4 The Natural Gas Supply and Demand of the EU

The European Union is a net importer of natural gas. In 2006, the natural gas proven reserves of the EU were nearly 2% of the world's total¹⁶³ and the total supply of natural gas in EU was 511.1 BCM.¹⁶⁴ The EU's indigenous production was 208.6 BCM, the imports were 377.1 BCM and the exports were 74.6 BCM.¹⁶⁵

The major indigenous suppliers are the United Kingdom and the Netherlands. In 2006, the indigenous supply came from the Netherlands (50 BCM) and the UK (6.2 BCM).¹⁶⁶ According to the IEA, the total EU gas production is expected to decrease to 225 BCM in 2010 and 147 BCM in 2030, respectively.¹⁶⁷ However, the natural gas demand is estimated to increase within the EU in the following decades. According to IEA, the share of gas imports in the region's total gas demand is expected to rise from 49% in 2002 to 81% by 2030. Rising demand and the declining indigenous production are projected to result in an increase of imports, from 233 BCM in 2002 to 342 BCM in 2010 and 639 BCM in 2030 (Figure 4.3).¹⁶⁸ A significant portion of the future gas imports is expected to be met by the additional LNG imports.

¹⁶³ EIA/DOE. "Country Analysis Briefs: European Union", (EIA/DOE, 2007), <http://www.eia.doe.gov/> (accessed May 27,2007).

¹⁶⁴ CERA, *European Gas Watch Data Center*

¹⁶⁵ CERA, *European Gas Watch Supply and Demand Tables*, p.3.

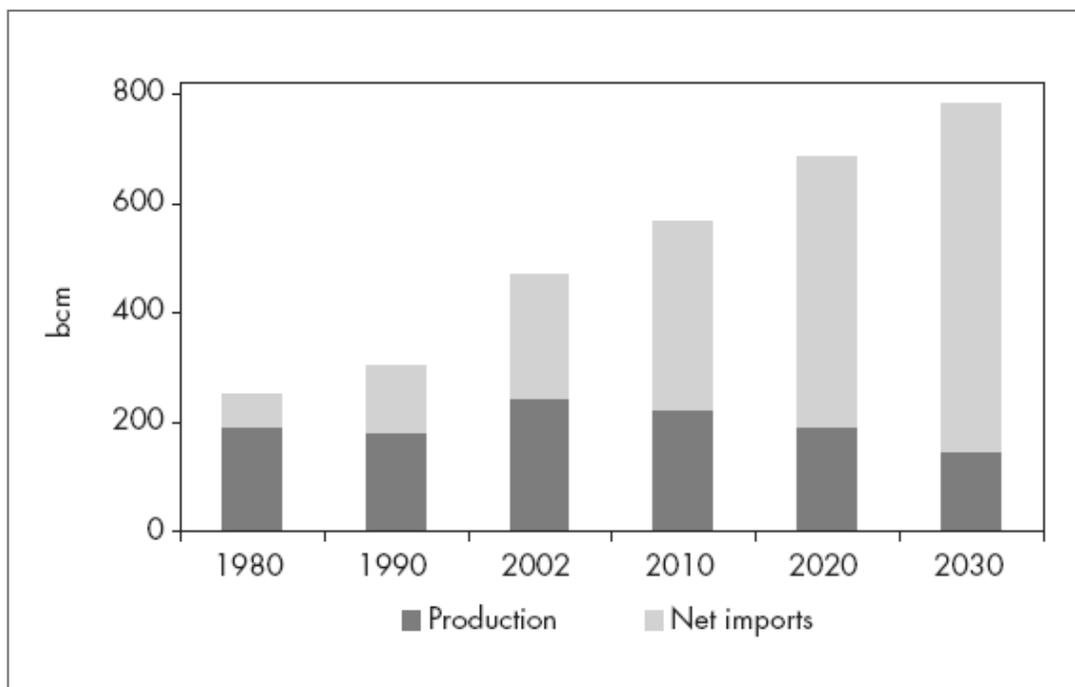
¹⁶⁶ CERA, *European Gas Watch Data Center*.

¹⁶⁷ IEA, *World Energy Outlook 2004*, p.154.

¹⁶⁸ IEA, *World Energy Outlook 2004*, p.155.

Currently, Russia, Norway and Algeria are the main import suppliers for the EU. According to CERA, the EU imported 118.7 BCM from Russia, 85.3 BCM from Norway and 56.4 BCM from Algeria in 2006.¹⁶⁹ The total LNG imports were 57 BCM in 2006.

Figure 4.3: Gas Supply Balance in the European Union



Source: IEA WEO 2004

4.5 The Future Significance of Natural Gas for the EU

According to The Clingendael International Energy Programme (CIEP), in the next 50 years, Europe needs an uninterrupted and increasing supply of fossil

¹⁶⁹ CERA, *European Gas Watch Data Center*.

fuels to create a sustainable energy economy.¹⁷⁰ Among other fossil fuels, natural gas offers the least environmental hazard. According to the European Commission, 80 % of the greenhouse gas (GHG) emissions, which are the cause of climate change and air pollution, are generated by energy consumption in the EU.¹⁷¹ In the communiqué of the European Commission on “An Energy Policy for Europe” it is emphasized that the energy policies of EU are not sustainable and if the necessary measures are not taken immediately, CO₂ emissions would increase by nearly 5 % by 2030. Moreover, in January 2007, The European Commission proposed an integrated energy and climate change package to cut the CO₂ emissions for the 21st Century. In the commission package it is stated that the energy demand should be reduced by 20 % by the year 2020.¹⁷²

However, as a result of the economic growth of the EU, the energy needs are expected to increase within the next 50 years with the growth of demand ranging from 0.5 to 1.5 per year.¹⁷³ In the memo it is also underlined that the greenhouse gas emissions should be reduced by 20% and renewables should make up 20% of the EU’s primary energy demand.¹⁷⁴

¹⁷⁰ CIEP, *The Case for Gas is not self-fulfilling*, (The Hague: The Clingendael International Energy Programme, 2003), p.10.

¹⁷¹ European Commission, *Communication from the Commission to the Council and the European Parliament “An Energy Policy for Europe,”* COM 1, Final, 2007, p.3.

¹⁷² European Commission Press Release. “An Energy Policy for Europe: Commission steps up to the energy challenges of the 21st Century.” (January 10, 2007), <http://www.europa.eu/> (accessed June 22, 2007).

¹⁷³ CIEP, *Tomorrow’s Mores: International System, Geopolitical Changes and Energy*, p.129.

¹⁷⁴ European Commission Press Release.

Although the share of renewables are planned to increase, the share of oil and gas is also expected to increase in the following decades.¹⁷⁵ Therefore another positive feature of gas is its easy substitution for other fuels. In the EU energy sector, between 1991 and 2003, there was a trend of substituting coal with natural gas because of high coal prices.¹⁷⁶ As a result of high oil prices and environmental concerns, many fossil-fuel power plants are already gasified.

Nevertheless, the gas infrastructure is considered as the most convenient system for the use of hydrogen in the future.¹⁷⁷ Therefore, natural gas is presented as “the bridge fuel” for a sustainable energy system. Therefore, natural gas has a strategic position because of its features of being relatively clean and economically preferable.

4.6 EU Natural Gas Market Integration and Liberalization

In order to fulfill the necessary requirements to use gas efficiently and economically, the integration and liberalization of the gas market became inevitable. In general, the integration of the EU energy market is perceived as a similar process to the Monetary Union; there will be a shift of policy making from

¹⁷⁵ CIEP, *Tomorrow's Mores: International System, Geopolitical Changes and Energy*, p.129.

¹⁷⁶ EIA/DOE, *Country Analysis Briefs: European Union*.

¹⁷⁷ CIEP, *The Case for Gas is not self-fulfilling*, p.10.

member states to the EU level. The aim of the integrated energy market is the organization of production, transportation, processing and distribution.¹⁷⁸

The directives of the European Parliament of 1998 and 2003 generally aim to achieve a competitive, secure and environmentally sustainable gas market.¹⁷⁹ The benefits of the creating a reorganized gas market are given as efficiency gains, price reductions, better standards of service and increased competitiveness.¹⁸⁰

On the other hand, the European Commission is using many instruments to reorganize the future of the gas industry. The most prominent one is the legal unbundling. The goal of legal unbundling is the separation of vertically integrated gas companies into transmission operators, supply and marketing companies.¹⁸¹ Moreover, this separation gives an opportunity to all customers to purchase gas from any supplier. Therefore, the market would have efficient, competitive and non-discriminatory transmission and distribution.

The EU gas market liberalization process changes the very structure of the EU gas market quite dramatically. However, as a result, opportunities will be given to new actors to enter the gas market on a non-discriminatory basis and this would

¹⁷⁸ CIEP, *Study on Energy Supply Security and Geopolitics*, p.265.

¹⁷⁹ Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC, *Official Journal of the European Union*, (July 15, 2003), p.62.

¹⁸⁰ Directive 2003/55/EC, p.57.

¹⁸¹ CERA, *Legal Unbundling: Disassembling the European Gas Puzzle*, (Cambridge: CERA, 2004), p.1.

complicate the sustainable solution of the security of supply issue. Despite the ongoing liberalization process of the EU market, the gas markets of the gas suppliers are far from the EU level of liberalization. This imbalance between the EU and suppliers on liberalization levels will meet some problems in future. The major supplier of the EU, Russia, does not favor this liberalization. The deputy Chairman of *Gazprom*, Alexander Medvedev, pointed out that “EU liberalization of the gas market may disrupt entire system of gas security in the region”.¹⁸² On the other hand, the major gas companies of the EU are against true competitiveness in the gas market, underlining that the strong companies like *Gazprom* of Russia may guarantee the security of supplies.¹⁸³

4.7 EU Natural Gas Supply Security

Helmuth Weisser, in his article “The security of gas supply-A critical issue for Europe”, classifies four kinds of security of supply dependence for the EU: source, transit, facility dependence and structural risks.¹⁸⁴ In November 2000 the European Commission issued a report named *Green Paper: Towards a European Strategy on Energy Supply Security*. This report carried a strong warning about European source dependence on imported energy, which could increase from 50%

¹⁸² Nicholas J. Watson, “Why the EU has got its gas strategy wrong”, *Europe’s World*, Spring, Issue 5, (2007), p.123.

¹⁸³ Watson, p.123.

¹⁸⁴ Hellmuth Weisser, “The Security of Gas Supply-A Critical Issue for Europe”, *Energy Policy*, Vol. 35, Issue 1, (2007), p.2.

in 2000 to 70% in 2030.¹⁸⁵ In 2030, the imports are expected to be supplied from Russia (33%), Africa (27%) and the Middle East (17%).¹⁸⁶

The transit dependence of the EU is the issue of being dependent to the transit countries that are located on the route of gas import pipelines from Russia. The majority of these pipelines are located in Eastern Europe. The dependence on transit states threatens the security of gas deliveries to the EU. For instance, the Ukrainian crisis of 2006 demonstrated the significance of the transit states. On the other hand, the gas supply transmission, storage and distribution system of the EU is mostly established by monopolies of member states and this structure gives very little flexibility that will create facility dependence.¹⁸⁷ If one element of the system is to fail for any reason, the gas market will face serious problems.

There are also structural risks that endanger the security of the gas supply. In the EU, the gas is mainly transported via pipelines, which makes the system less flexible to operate efficiently. Although a pipeline system poses transit security issues, LNG does not have such a problem.¹⁸⁸ LNG has minor risks of transportation problems in contrast to pipelines. As well, the development of new LNG facilities in Europe could be considered as a good sign of system flexibility.

¹⁸⁵ European Commission. *Green Paper "Towards a European strategy for the security of energy supply,"* COM, 769, Final, 2000.

¹⁸⁶ Weisser, p.2.

¹⁸⁷ Weisser, p.2.

¹⁸⁸ CIEP, *The Role of Liquefied Natural Gas (LNG) in the European Gas Market,* (The Hague: The Clingendael International Energy Programme, 2003), p.11.

In the given sorts of dependence, the question remains as to which level of mechanisms the EU should be dealing with the security of supply issue. The liberalization of the EU gas market transfers the responsibility from governments to market players.¹⁸⁹ Previously, the old monopolistic system enabled states to deal with the security problem. However, with the liberalization process the market players are getting the prime responsibility for securing the gas supplies. The main concern occurs with the question of how business units will manage the prime responsibility when the necessary financial burden of additional security of supply costs decreases the profitability of the business. Therefore, the necessary measures to mitigate the risks of the security of the supply should be taken at the national governments and EU level. The European Parliament and the Council of Ministers passed agreements stressing the importance of minimizing the enormous risks of dependency for the European Union and its member states.¹⁹⁰

However, with the accession of new member states from Eastern Europe in 2004, the dependence on Russia has increased accordingly. The diversification of supply for the new members is limited due to the fixed infrastructure and the connections with the gas industry in Russia.¹⁹¹ As a consequence of the EU enlargement, the vulnerability of the EU to a disruption of gas supplies is growing dangerously. As in 2004, the European Commission has released its *Directive on*

¹⁸⁹ Weisser, p.3.

¹⁹⁰ CERA, *European Energy; Revisiting Security of Supply*, (Cambridge: CERA, 2005), p.3.

¹⁹¹ CIEP, *Study on Energy Supply Security and Geopolitics*, (The Hague: The Clingendael International Energy Programme, 2004), p.59.

Security of Gas Supplies; in this document it is underlined that member states have to define the role and responsibilities of the market players and to set up minimum security-of-supply standards.¹⁹²

4.8 A Common EU Energy Policy and Security of Supply

Nevertheless, another issue for securing the gas supplies is the common vision of the member states. In this vision a certain degree of freedom should be given to member states, while there might be a binding authority over the members to regulate the mechanisms. CERA defines this structure as the common European energy vision through a process of regulation that is “in concert”.¹⁹³

In 2006, the Commission issued a Green Paper titled *A European Strategy for Sustainable, Competitive and Secure Energy*. The aim of the Green Paper was to underline the need to develop a new, common European strategy for energy, and whether sustainability, competitiveness and security should be the core principles to strengthen the strategy. It is believed that a coherent external policy is essential to deliver sustainable, competitive and secure energy. It would be a break from the past, and would show the member states’ commitment to common solutions to

¹⁹² Directive 2004/67/EC of the European Parliament and of the Council of 26 April 2004 concerning Security of gas supplies in the framework of the energy internal market, *Official Journal of the European Union*, (April 26, 2004).

¹⁹³ CERA, *European Energy; Revisiting Security of Supply*, p.14.

common problems. For this reason, in order to establish a common external policy, the European Commission declared the necessary actions:

- “Identifying European priorities for the construction of new infrastructure necessary for the security of EU energy supplies.
- Developing a Pan-European Energy Community Treaty.
- A new energy partnership with Russia.
- A new Community mechanism to enable rapid and co-ordinated reaction to emergency external energy supply situations impacting EU supplies.
- Deepening energy relations with major producers and consumers.
- An international agreement on energy efficiency”.¹⁹⁴

After the negotiations within the EU, more concrete steps were taken by the Commission. In 2007, the European Commission released a communiqué titled *An Energy Policy for Europe* mainly aimed at creating a common energy policy for the EU. The communiqué defined a new European Energy Policy that is ambitious, competitive and long-term; this policy should also provide benefits for all Europeans.¹⁹⁵ Specifically, the security of supply question has been underlined as a common issue for the EU. According to the communiqué, the members should take necessary measures for the limitation of EU’s external vulnerability to imported gas and oil.¹⁹⁶

¹⁹⁴ European Commission, *Green Paper “A European Strategy for Sustainable, Competitive and Secure Energy”*, COM, 105, Final, 2006.

¹⁹⁵ European Commission, *Communication from the Commission to the Council and the European Parliament “An Energy Policy for Europe”*, p.3.

¹⁹⁶ European Commission, *Communication from the Commission to the Council and the European Parliament “An Energy Policy for Europe”*, p.5.

On the other hand, it is emphasized that the level of solidarity among the member states is not sufficient to mitigate these risks.¹⁹⁷ More cooperation among the industrial and political entities of member states is necessary to decrease the vulnerability level of the EU to gas disruptions or crises. According to CERA, a common energy policy will promote the development of alternative sources, energy efficiency, the diversification of supply and storage in order to mitigate the risks of supply disruptions.¹⁹⁸ These possible developments within the EU market may decrease the vulnerability level and may facilitate negotiations with Russia about gas issues under better circumstances.

4.9 Conclusion

Since the first agreements establishing the European Union had been signed, energy played a very significant role for integrating member states. Moreover, among other hydrocarbon sources, natural gas is the most prominent in primary energy consumption. In order to increase efficiency and competitiveness, the liberalization of the EU gas market is in progress. Despite the achievements in

¹⁹⁷ European Commission, *Communication from the Commission to the Council and the European Parliament "An Energy Policy for Europe"*, p.4.

¹⁹⁸ CERA, *Does Europe Needs Common Energy Policy?*, (Cambridge: CERA, 2006), p.13.

liberalizing the gas market, there are some problems for the shift of energy policy from member states' levels to the EU level.

On the other hand, the decline in the indigenous production in EU member states and increasing import dependence upon Russia endangers the security of gas supplies. Therefore, the EU is trying to develop a common energy policy to negotiate with Russia on a stronger basis. Moreover, with a common energy policy the EU may take necessary measures to diversify its gas supplies from Middle East and Caspian region via alternative routes such as Turkey.

CHAPTER V

THE ANALYSIS OF THE EU-RUSSAIN INTERDEPENDENCE AND ALTERNATIVES FOR THE EU

5.1 Introduction

The EU is Russia's most important trading partner and source of foreign investment. The EU's main objective is to engage with Russia to build a real strategic partnership, founded on common interests and shared values, to which both sides are committed in the relevant international organizations.¹⁹⁹ However, several problems have occurred with many political issues between Russia and the EU. According to CERA, there are many areas of common interest: building new gas lines, development of new fields, compliance with the Kyoto protocol and

¹⁹⁹ European Commission the Directorate-General for External Relations, "EU-Russian Relations", (EC, 2007) <http://ec.europa.eu/> (accessed April 12, 2007).

cooperation in the nuclear industries. These issues should contribute to their interdependence.²⁰⁰

The growing interdependence due to these areas of common interest between the EU and Russia may serve to stabilize the gas supply security for the EU. However, the EU is also seeking to diversify its gas supplies from alternative gas suppliers to decrease its level of vulnerability to any disruption of gas imports from Russia.

5.2 EU-Russia Trade Balance and the Significance of Natural Gas

According to the Statistical Office of the European Communities (Eurostat), Russia is the third largest trade partner with the EU and the EU is Russia's largest trade partner, accounting for more than 52 % of its overall trade. In 2006 the goods exported from the EU to Russia were valued at 72.4 billion euros and the exports from Russia to the EU were valued at 140.6 billion euros.²⁰¹ It is obvious that the trade deficit between the EU and Russia is almost 70 billion euros. In 2005 the Foreign Direct Investment (FDI) made by the EU in Russia was 8.9 billion euros, while Russian FDI in the EU was 4.1 billion euros.²⁰²

²⁰⁰ CERA, *European Energy; Revisiting Security of Supply*, p.16.

²⁰¹ Eurostat, Eurostat News Release "A EU27 external trade deficit of almost 70 bn euro with Russia", (May 15,2007), <http://epp.eurostat.ec.europa.eu/> (accessed 21 June, 2007), p.1.

²⁰² Eurostat, p.1.

The main items Russia imported from the EU were medicine, motor cars, communication equipment and electronics, while the main items the EU imported from Russia were raw materials such as oil, gas, coal, nickel, aluminum and copper.²⁰³ The Russian energy exports to the EU were valued at 99.7 billion euros. In the EU's total energy imports from Russia, natural gas has a very strategic position. Therefore, the asymmetry in the trade balance of EU and Russia is not only limited to a trade deficit, but also the level of the significance of the goods.

Natural gas is one of the most strategic goods exported from Russia to the EU. As mentioned in the previous chapters, the increasing dependence on Russian gas is expected to affect the trade deficit in the following decades. Therefore, the EU is trying to establish a strong dialogue with Russia to reach a common interest in this asymmetrical interdependence relationship.

5.3 EU-Russia Dialogue

During the EU-Russia Summit in Paris in 2000, a bilateral energy dialogue was commenced to discuss their mutual dependencies. The basic idea behind the dialogue is a simple balancing of interests: Russians need more European investment to develop their energy resources while Europeans need secure long-

²⁰³ Eurostat, p.1.

term access to Russian oil and gas.²⁰⁴ As indicated in the Green Paper *Towards a European strategy for the security of energy supply* adopted by the European Commission on 30 November 2000, the idea of strengthening competition in the internal energy market and defending the sustainable development and guarantee external supply security has been discussed as a concrete action in the framework of the energy dialogue with Russia.²⁰⁵

Furthermore, in 2003 the communiqué *On The Development of Energy Policy for The Enlarged European Union, its Neighbours and Partner Countries*, issued by the European Commission, explains the aim of the EU and the expectations from Russia more vividly:

“For the European Union, it is important to maintain and enhance Russia’s role as a supplier of gas and oil and to strengthen Russia as a secure and reliable supplier through technology transfers and investments to upgrade Russia’s energy infrastructure.”²⁰⁶

In 2001, the Russia-EU Summit identified a list of priority projects, on which feasibility studies could be co-financed by the European Union in the framework of the Trans-European Energy Networks (TEN) programme.²⁰⁷ The TEN programme

²⁰⁴ Charles Grant and Katinka Barysch, *The EU-Russian Energy Dialogue* (London: Center for European Reform, 2003), <http://www.cer.org.uk/> (accessed April 12, 2007), p.1.

²⁰⁵ European Commission, *Green Paper “Towards a European strategy for the security of energy supply”*.

²⁰⁶ European Commission, *Communication from the Commission to the Council and the European Parliament “On the Development of Energy Policy for the Enlarged European Union, Its Neighbours and partner Countries,”* COM, 262/2, Final, 2003.

²⁰⁷ European Commission, “The EU’s Relations with Russia: Joint Statement of EU-Russia Summit in 2001”, (EC, 2007) <http://ec.europa.eu/> (accessed June 25, 2007).

included a number of electricity and gas infrastructure projects involving the Russian Federation. The most prominent project was the Northern European Gas Pipeline (NEGP) project, which is supported by TEN programmes.

It is expected that with the development of the EU-Russia relationship and the integration of their economies, the EU and Russia could establish a transparent and strong relationship.²⁰⁸ Generally, there are two common interests. From the Russia's perspective it is the need of investments in energy saving and energy efficiency. From the EU's perspective it is securing an uninterrupted and safe energy supply from Russia with sensitivity to environmental issues.²⁰⁹ Therefore, the awareness of the need to further integrate the Euro-Russian gas market is growing, but there are differences in the priorities of Russian and the EU administrations regarding the gas issues.

5.4 EU and Russian Energy Market

The EU is very interested in Russian energy sector reforms in order to establish interdependence between the EU and Russia. The European Commission, in its communiqué *The Energy Dialogue between the European Union and the Russian Federation between 2000 and 2004* emphasizes that a relationship of

²⁰⁸ CIEP, *Study on Energy Supply Security and Geopolitics*, p.60.

²⁰⁹ F. Laroui, E. Tellegen and K. Tourilova, "Joint Implementation in Energy between the EU and Russia", *Energy Policy*, Vol.32, Issue 2, (2004), p.913.

interdependence between the EU and Russia may include the “establishment predictable trade rules, improvement networks and encourage investments by promoting a more stable and transparent legal framework and encourag[ing] key reforms in the Russian energy sector.”²¹⁰ On this topic, companies such as BP, Shell, Total and ENI have made significant investments in Russia.

According to the Centre for European Reform, the Russian energy market reforms are significant for the EU mainly for three reasons. First, Russia has a dual-pricing policy in which there is a great difference between domestic and export prices of Russian gas. Therefore, the EU officials argue that this policy gives Russian industry and *Gazprom* an unfair advantage.²¹¹ This dual-pricing policy issue is so critical that it is considered as one of the main obstacles keeping Russia from WTO membership.

The second reason is the growing inequality between the energy market liberalization of EU and the monopolist structure of the Russian market, which provides ultimate control of *Gazprom*. EU countries have decided to liberalize their gas markets for better standards of gas transactions. However, Russia supplies its EU customers under long-term supply contracts and with restrictions on re-export clauses that prohibit selling gas to any other third-party country. These contracts

²¹⁰ European Commission, *Communication from the Commission to the Council and the European Parliament*, “The Energy Dialogue between the European Union and the Russian Federation between 2000 and 2004,” COM, 777, Final, 2004, p.9.

²¹¹ Spanjer, p.2890.

and their clauses directly breach the EU's single market rules.²¹² On the contrary, *Gazprom* is free to sell gas to different EU countries at different prices.

The third reason for the EU's interest in Russian energy market reforms concerns *Gazprom*'s position as the single supplier of all Russian gas, which may endanger meeting the growing EU gas demand. The concerns have risen since the Presidential Decree in 2006 when *Gazprom* became the only gas export monopoly.²¹³ *Gazprom*'s gas production has not increased in the last few decades and *Gazprom* has failed to invest enough in the development of new gas fields. Therefore, Europeans believe that the investment in Russian gas infrastructure is an urgent requirement and market reforms may require that necessary measures be taken.²¹⁴

Therefore, the future of interdependence between the EU and Russia would be very much affected by the Russian market reforms. If Russian market reforms are carried out with consideration to EU concerns, the gas issue may be the strongest instrument to contribute to their interdependence.

²¹² Grant and Barysch, p.3.

²¹³ *The Moscow Times*, "Gazprom's Export Monopoly Cemented", (June 14, 2006), <http://www.themoscowtimes.com/> (accessed June 21,2006).

²¹⁴ Grant and Barysch, p.2.

5.5 Energy Charter Treaty

In the energy sector, the EU and Russia are also engaged in the Energy Charter Treaty (ECT). The European Energy Charter Treaty was founded in 1994 to provide the political, technical and promotion of East-West cooperation in the energy sector. The ECT mainly covers the protection and promotion of foreign energy investments, free trade of energy goods based on WTO rules, freedom of energy transit via pipelines, energy efficiency and sensitivity to environmental issues and mechanisms to settle any disputes among states.²¹⁵ Fifty-one countries with EU have signed the treaty and 46 of them have ratified it. Russia has signed, but has not ratified it yet. Moreover, there are still ongoing negotiations on the transit protocol to regulate the transit issues of the signatory states.

The further ratification of the ECT by Russia is very significant for the EU. Article 8 of the Transit Protocol Draft requires *Gazprom* to open its pipeline system to other third-party suppliers like Turkmenistan, the Ukraine or the EU.²¹⁶ Moreover, Article 20 offers to open internal distribution networks of the regional organizations like the EU to third countries. Therefore, one outcome of the ratification of ECT and its Transit Protocol is expected to be the integration of the energy systems of the EU and Russia.

²¹⁵ Energy Charter Secretariat, *Energy Charter Treaty and Related Documents*, (Brussels: ECT, 2004), p14.

²¹⁶ Michael Emerson, Fabrizio Tassinari and Marius Vahl. *Policy Brief: A new agreement between the EU and Russia: Why, What and When?*,(Brussels: Centre for European Policy Studies, 2006), <http://www.ceps.be/>, (accessed on June 21, 2007), p.7.

5.6 The Security of Russian Natural Gas Supplies for the EU

Despite the achievements in the EU-Russia dialogue and in the ECT, the Ukrainian gas crisis forced Europeans to reconsider the reliability of Russia as a secure supplier. It is clear that the Russian gas delivery reduction, risking a temporary supply disruption to Europe, would emphasize the need to build Russian pipelines bypassing the Ukraine as a result of concerns over energy security in Europe and dependence on imported gas.²¹⁷ However, the geography of Russia's existing pipeline export infrastructure through the Ukraine, Belarus and Moldova to Europe may not be changed easily. According to Jonathan Stern, in his article *The Russian Ukrainian Gas Crisis of January 2006*, even when the NEGP is completed as an alternative route and will be in operation in 2010, the Ukraine will control around 70% of Russia's gas export capacity to EU countries.²¹⁸

The Russian-Ukrainian gas crisis proved to Europe that it is not good for any country or region to become too dependent on a single supplier or a single supply route. Even disputes which do not directly involve third countries can affect those countries in the event of bilateral problems between a supplier and a customer which is also a transit country. All parties need to be part of international dispute

²¹⁷ CERA, *Russia and Ukraine's New Gas Agreement; What Does It Mean and How Long Will It Last?*, (Cambridge: CERA, 2006), p.10.

²¹⁸ Jonathan Stern, *The Russian Ukrainian Gas Crisis of January 2006*, (Oxford: Oxford Institute for Energy Studies, 2006), <http://www.oxfordenergy.org/> (accessed April 12, 2007), pp.13-14.

resolution procedures that are provided by the Energy Charter Treaty and its draft Transit Protocol, which Russia has yet to ratify.

5.7 Diversification of the Natural Gas Supply for the EU

Aside from the relations with Russia, the EU would diversify the sources of gas supplies to keep the share of Russian gas at a certain level in domestic gas consumption. The EU has two alternatives to Russian gas in order to diversify and secure its deliveries. The first is LNG and the second is the Caspian, Middle Eastern and North African gas supplies via new pipeline systems.

5.7.1 The LNG Option

The natural gas system of the EU is very much dependent on gas supplies by pipelines. Therefore, the role of LNG in the future is very much dependent on the amount of future gas supplies by pipelines. According to CERA, if the Russian gas in the EU market is limited, LNG is expected to play a strategic role to secure and diversify the gas supply. By 2015, the total capacity of the re-gasification

terminals is planned to be 228 BCM.²¹⁹ The additional deliveries of LNG are expected to come from the Atlantic Basin or the Middle East.

Although the new pipeline projects and the current domination of pipelines in EU gas market could prevent LNG from being a major type of gas supply, LNG will meet the short-term gas shortages and diversify the gas supplies of the EU.²²⁰

5.7.2 New Natural Gas Pipeline Options for the EU

The Caspian and Middle Eastern countries have proven 35 trillion cubic meters of natural gas reserves and are the potential new gas suppliers for the EU.²²¹ Iran, with its nearly 28 trillion cubic meters of proven gas reserves, is the first candidate to sell its gas to Europe. However, the political uncertainty and US embargo on Iran are the main obstacles for importing Iranian gas in the short-term and even in the medium term. The other gas import options are focused on the possible pipelines from Azerbaijan, Turkmenistan, Kazakhstan and Uzbekistan in the Caspian region and from Egypt, Syria and Iraq in the Middle-East.

²¹⁹ CERA, *Testing the Boundaries for Gas to Europe: Russian Pipeline vs. LNG*, (Cambridge: CERA, 2007), p.3.

²²⁰ CIEP, *The Role of Liquefied Natural Gas (LNG) in the European Gas Market*, p.19

²²¹ BP, p.22.

The North African region provides the EU with 8% of its total natural gas consumption.²²² The EU is willing to receive more gas from North Africa via two new pipeline projects. The other options for EU are the *GALSI* Pipeline that will supply gas from Libya to Italy with a capacity of 20 BCM²²³ and the *Medgaz* Pipeline to transport Algerian gas to Spain with a capacity of 8 BCM.²²⁴ However, it is obvious that the additional quantities of North African gas are very limited and cannot meet the future demand of Europe.

In this context the most significant issue is the secure transportation of Caspian and Middle Eastern gas to Europe. The EU aims at interconnecting its network with those of the other Caspian, Middle-Eastern and African gas producer countries. The Interstate Oil and Gas Transport to Europe (INOGATE) programme, established by the EU and other participating countries in 1995, aims at improving the security of Europe's energy supply by promoting the regional integration of the oil and gas pipeline systems and facilitating their transport both within the region and towards the export markets of Europe and the West in general, while acting as a catalyst for attracting private investors and international financial institutions to these pipeline projects.²²⁵ Therefore the EU is proactively supporting the new pipeline projects in order to diversify its gas supplies.

²²² CERA, *European Gas Watch Supply and Demand Tables*, p.6.

²²³ IEA, *World Energy Outlook 2004*, p.156.

²²⁴ CERA, *Testing the Boundaries for Gas to Europe: Russian Pipeline vs. LNG*, (Cambridge: CERA, 2007), p.2.

²²⁵ INOGATE, *INOGATE 1996-2000*, (Brussels: INOGATE, 2001), p.6.

5.8 The Significance of Turkey in the EU Security's of Gas Supply

The EU considers Turkey to play a key role in a route that has access to the Caspian, Middle Eastern, other Southern and Eastern resources and which could be carried to the West.²²⁶ In addition, Turkey consumed nearly 30 BCM of gas in 2006,²²⁷ which makes it a prominent gas consumer in the region. Another point that contributes to the significance of Turkey is its accession process to the EU. Moreover, the latest Turkish energy legislation, which was the adoption of law (no: 4646) on 18 April 2001, has been inspired by the EU internal energy market. Turkey has ratified the Energy Charter Treaty in 2001, further contributing to its strategic position.

In general, Turkey may assist the EU in securing gas supplies in two ways. Firstly, Turkey can be an alternative transit route for Russian gas to Europe via new pipeline projects. The construction of the *Blue Stream II* pipeline from Russia via Turkey to Hungary may be an alternative route to Belarus and Ukraine in transporting gas to Europe.²²⁸ It is important to say that this project would undermine the efforts of the EU to diversify its gas imports. Nevertheless, there are political obstacles for this project. As mentioned above, the US administration generally opposes the transportation of Russian gas via Turkey to Europe. Because,

²²⁶ CERA, *European Gas Country Profiles-Turkey*, (Cambridge: CERA, 2006), p.1.

²²⁷ BOTAS, "Natural Gas Trade", (BOTAS, 2007), <http://www.botas.gov.tr/> (accessed 21 July, 2007).

²²⁸ Gareth Winrow, "Geopolitics and Energy Security in the Wider Black Sea Region," *Journal of Southeast European and Black Sea Region Studies*, Vol.7, Issue 2, (2007), p.223.

it is believed that the transportation of Russian gas via Turkey may endanger the realization of the alternative gas pipelines connecting Turkey to other gas suppliers.

Secondly, Turkey may play a very strategic role for the EU's diversification of gas supplies with new gas pipelines transporting gas from the Caspian and Middle East to Europe. The Green Paper, *Towards a European strategy for the security of energy supply*, by the European Commission, has emphasized the significance of Turkey in the transportation of Caspian and Middle Eastern gas to Europe.²²⁹ The new gas pipeline projects from Turkey to Europe have been considered as priority projects of the TEN programme.²³⁰

Furthermore, Turkey is also dependent on Russia, which supplies 66% of Turkish gas consumption via three separate pipelines.²³¹ Therefore, Turkey shares similar concerns with the EU about being extensively dependent on Russian gas.²³² The development and construction of new pipeline projects connecting the EU via Turkey to Caspian and Middle Eastern gas suppliers may be beneficial for both the EU and Turkey.

²²⁹ European Commission, *Green Paper "Towards a European strategy for the security of energy supply"*.

²³⁰ Trans European Networks (TEN), "Priority Projects for Gas," (TEN, 2006) <http://ec.europa.eu/ten/> (accessed 21 July,2007).

²³¹ BOTAS, *Natural Gas Trade*.

²³² Gareth Winrow, "Turkey and the East-West Gas Transportation Corridor", *Turkish Studies*, Vol.5, Issue 2, (2004), p.29.

5.8.1 The Gas Pipelines and Projects connecting Turkey to Caspian and Middle East

Other than connection to Russia, Turkey is already connected to Iran and Azerbaijan by gas pipelines. The pipeline that carries gas from Iran to Turkey has been in operation since 2001 with a maximum capacity of 10 BCM. Moreover, in July 2007 Turkey and Iran signed a Memorandum of Understanding (MoU) regarding the transportation of Iranian and Turkmen gas through Turkey to Europe and the Turkish development of three gas fields in the South Pars region of Iran.²³³

The Baku-Tblisi-Erzurum (BTE) Gas Pipeline that carries the Shah Deniz gas of Azerbaijan has been in operation since 2006 with a maximum capacity of 6.6 BCM.²³⁴ The connection of the BTE with the Turkmen and Kazakh gas fields via a planned Trans-Caspian Pipeline was expected to be the accomplishment of the South Caucasus Gas Ring.²³⁵ However, in 2003 the 25-year gas sales agreement of Turkmenistan with Russia with a maximum capacity of 80 BCM remains the main obstacle for the construction of a Trans-Caspian Pipeline.²³⁶ Although there are uncertainties about the realization of the Trans-Caspian Pipeline Project, there is still hope for the South Caucasus Gas Ring to be another gate through which the

²³³ Platts Commodity News, "Turkey Iran confirm historic deal for gas transit to Europe," (Platts, 2007), (accessed via Factiva on July 21, 2007).

²³⁴ BOTAS, "Azerbaijan-Turkey Natural Gas Project", (BOTAS, 2007) <http://www.botas.gov.tr/> (accessed June 20, 2007).

²³⁵ CERA, *European Gas Country Profiles-Turkey*, p.1.

²³⁶ Winrow, "Turkey and the East-West Gas Transportation Corridor," p.31.

EU can reach Caspian gas sources. In addition, Azeri officials have warned the EU to give more attention to the construction of Trans-Caspian Pipeline, which may enhance the energy security of EU.²³⁷

Another region with abundant gas reserves is the Middle East. The Arab Gas Pipeline Project will transport Egyptian gas to Turkey. The Egypt-Syria section is in operation and the connection of the Syria-Turkey section will be another source of gas supplies.²³⁸ Furthermore, the possible connection of Iraq to Turkey by a separate pipeline or by a connecting pipeline from Iraq to the Syria section will contribute to the quantity of gas to be transported in Arab Gas Pipeline.

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5.8.2 The Natural Gas Pipelines and Projects connecting Turkey with the EU

There are two major pipeline projects for transporting the gas supplies from Turkey to Europe. The first one is the interconnection of the Turkey-Greece-Italy line. This project has been developed as a result of the studies undertaken for the interconnection of a natural gas grid for Turkey, Greece and Italy and the creation

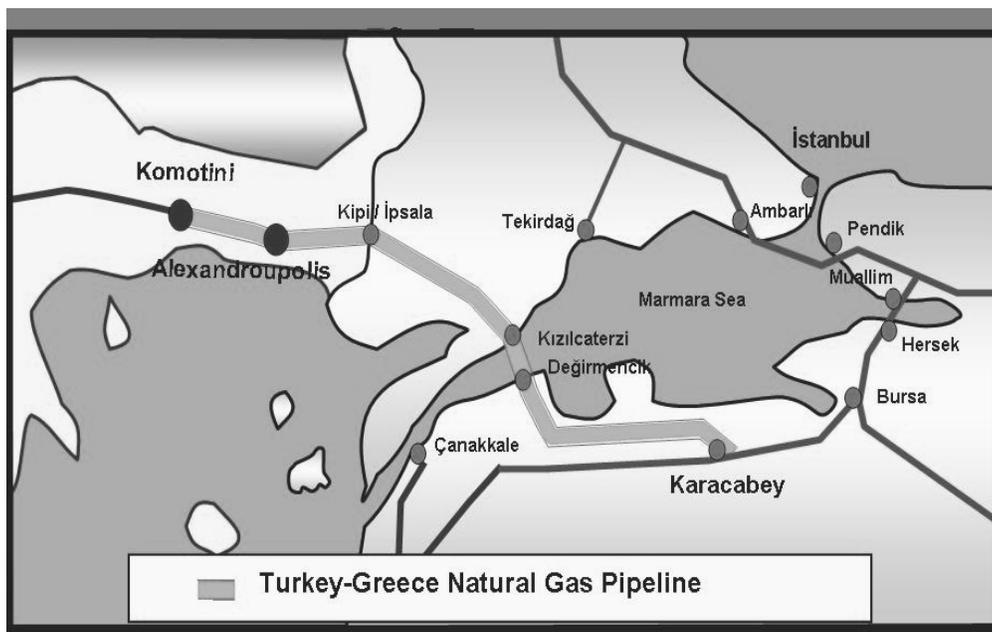
²³⁷ *Nezavisimaya Gazeta*, “Azerbaijan Advises the EU to Reduce Dependence on Russia”, (March 22, 2007), <http://www.ng.ru/> (accessed via Factiva on March 25, 2007).

²³⁸ EIA/DOE, “Country Analysis Briefs: Turkey”, (EIA/DOE, 2007) <http://www.eia.doe.gov/> (accessed May 27, 2007).

²³⁹ CERA, *European Gas Country Profiles-Turkey*, p.1.

of the Southeastern Gas Ring. The feasibility study of the project was funded by the EU TEN programme. The pipeline will transport 11 BCM of gas at the plateau level.²⁴⁰ The Turkey-Greece section was commissioned in 2007 (Map 5.1) and the Greece-Italy phase is expected to operate by 2012.

Map 5.1: Turkey-Greece Natural Gas Pipeline



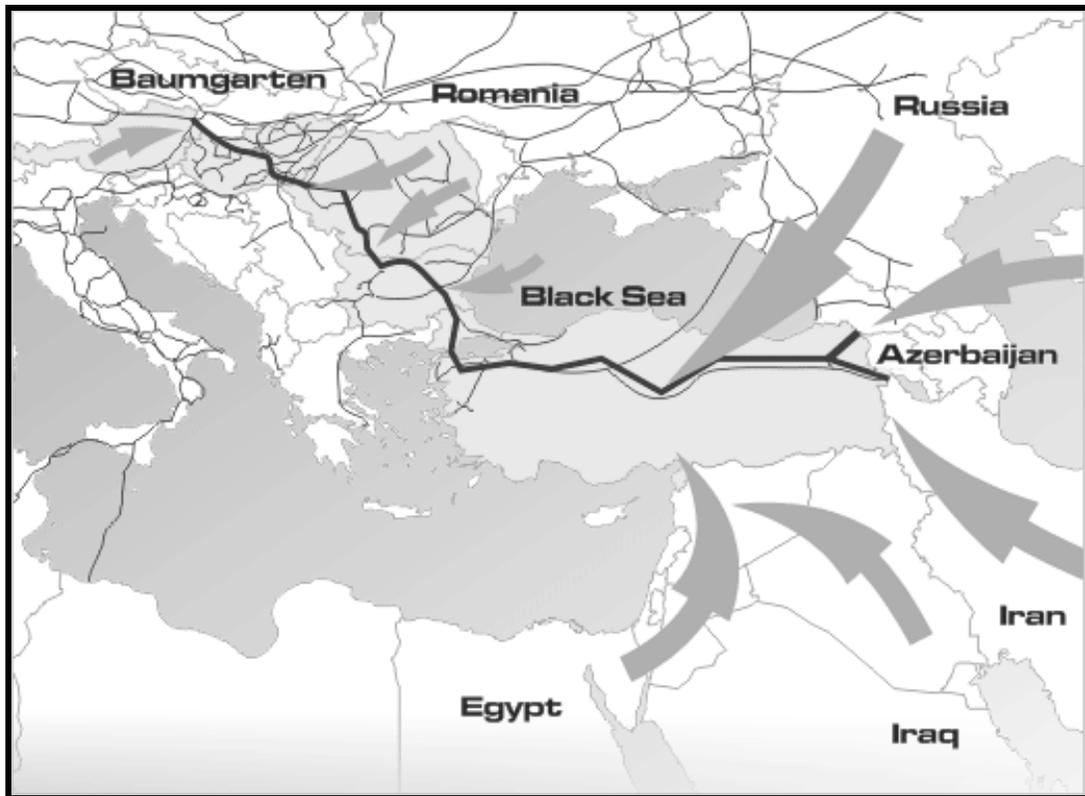
Source: BOTAŞ

The second project is the Turkey-Bulgaria-Romania-Hungary-Austria (NABUCCO) Gas Pipeline project. This pipeline route is planned to pass through Bulgaria, Romania and Hungary to reach Austria, which will be a new gate to Europe (Map 5.2). The feasibility study of NABUCCO was funded at a certain level by the EU TEN Programme. The total capacity of NABUCCO will be 25-30

²⁴⁰ BOTAŞ, “Turkey-Greece Natural Gas Pipeline Project”, (BOTAŞ, 2007) <http://www.botas.gov.tr/> (accessed June 20, 2007).

BCM of gas per year to Europe as well as to the Balkans. Natural gas will be supplied by the planned pipeline to the countries with emerging markets like Bulgaria, Romania, Hungary, Slovakia, and the Czech Republic and later on to the other European markets through Austria. The pipeline is expected to be in operation by 2009.²⁴¹

MAP 5.2: Turkey-Bulgaria-Romania-Hungary-Austria (NABUCCO) Pipeline



Source: BOTAŞ

²⁴¹ BOTAŞ, “Turkey-Bulgaria-Romania-Hungary-Austria Natural Gas Pipeline Project (NABUCCO)”, (BOTAŞ, 2007) <http://www.botas.gov.tr/> (accessed June 20, 2007).

Turkey has a unique position through its geographical proximity to the supplier and consumer countries. Turkey has a huge consumption of gas with new infrastructure that may facilitate its role as secure and reliable energy corridor. The gas pipelines and projects connecting Turkey with major suppliers in the region and the connections of these projects to the EU gas transmission lines make Turkey a determining energy player in the region.

On the other hand, negotiations between Turkey with the EU for full membership and the ongoing harmonization process to the EU *acquis communautaire* make Turkey a unique country for EU to cooperate in gas transportation pipelines. Therefore, among other transit routes, the Turkish option may be the most secure alternative transit route for EU.

5.9 Conclusion

Natural gas issue is the determining factor for interdependence between the EU and Russia. The Russians wish to secure the future gas demand together with decreasing dependence on transit routes in the Ukraine and Belarus. However, on the European side the security and the diversification of supplies to decrease the level of vulnerability for the dependence on Russian gas are predominant.

The gas issue is one of the most important topics of the EU-Russia dialogue and the negotiations within ECT member states. The achievements in these platforms to settle the gas issue on a healthy and transparent basis may be reached by a mutual understanding between the EU and Russia. On the other hand, Turkey has a very strategic role that intersects the interests of both the EU and Russia. Therefore Turkey may contribute to the rehabilitation of the interdependence between the EU and Russia. The EU may reach alternative gas sources via Turkey to Middle Eastern and Caspian sources and Russia may decrease its dependence on the problematic transit routes by constructing new pipelines via Turkey to the European gas market.

CHAPTER VI

CONCLUSION

Natural gas is one of the most prominent hydrocarbon energy sources that has very much affect on international relations. The development and widespread usage of gas had been directly influenced by global historical incidents. The first rise of the use of natural gas during World War II urged some energy-hungry countries to switch their energy consumption to gas at a certain level. When the OPEC oil crisis of the 1970s forced oil dependence countries to find an alternative energy source, natural gas was one of the best choices.

In the beginning of the 21st century, in global primary energy consumption, the share of natural gas has increased and is expected to continue to increase. The features of being the cleanest fossil fuel and its easy substitution with oil make natural gas a preferable energy source. The development of gas fields and the construction of new pipeline systems enhance the global natural gas market.

Because of technological developments, the transportation of gas in liquefied form (LNG) enables short-term contracts and spot sales that are making the trade of natural gas easier.

The priorities of consumer and supplier countries vary from each other. On the consumer side, the relations of with suppliers are re-evaluated in terms of securing the supplies and diversification of gas sources. On the supplier side, the optimization of export revenues with internal gas market regulations, securing the demand on the export markets and finding new markets for the diversification of exports are the most prominent priorities for gas producing countries. As analyzed in Chapter II, the unique gas relationship and interdependence between the EU and Russia is the most important one in the global gas market.

The EU-Russia interdependence could be simply explained that the EU is dependent on Russian gas and Russia is dependent on gas export revenues from the EU. The EU-Russia interdependence has a history of uneasy relationships which have seriously affected the current gas debates between the EU and Russia. During the Soviet Union years, the development of the Russian gas industry and the first export transactions to Europe had been very much affected by the dynamics of the Cold War. Specifically, the Reagan sanctions of the 1980s aimed to prevent the Soviets from making necessary investments in gas fields and exporting gas to European markets. However, despite the harsh conditions of the Cold War, the gas

pipelines connecting the Western Siberian fields to Europe were constructed by the Soviet Union and its partners in Western Europe.

After the collapse of the Soviet Union, *Gazprom* had absolute control over gas export pipelines and major production fields with the ultimate support of the Russian state. Now, *Gazprom* is the leading global gas giant and has more gas reserves than any country in the world. *Gazprom* is the only Russian gas supplier to Europe. Therefore, in EU-Russia interdependence, *Gazprom* is located in the center of this relationship.

Gazprom's gas exports to the EU are very critical for Russia in that the development and reconstruction of the Russian economy is financed by the energy gas export revenues at a certain level. Therefore Russia needs to take necessary measures to maintain its advantageous position and to decrease its vulnerability in its interdependence with the EU. Regarding gas production and transportation, the rehabilitation of the declining major fields in Western Siberia, the investments for the development of new fields and the construction of new transmission lines and export pipelines are priority issues for Russia. In addition, Russia plans to diversify its export transit routes to Europe, which is currently very dependent on the Ukraine and Belarus.

There are also critical issues of Russian domestic gas market, which include deregulation and the gas pricing policy, which may affect interdependence with the EU. If the deregulation of Russian domestic market brings liberalization, it may be easier for the EU to invest in Russia. Moreover, Russia's dual-pricing policy is not advantageous for Europeans who consumes gas at higher prices than Russian domestic prices.

The domestic gas policy of the EU is another dimension of the EU-Russia gas relationship. In EU primary energy consumption, the share of natural gas is expected to increase, which is supported by studies conducted by the EU and IEA. The decline of the indigenous production and dependence on gas imports create great risks for the EU. Therefore the EU seeks to secure and diversify gas imports to decrease its vulnerability and import dependence on Russia. In the internal gas market, the EU is trying to fully integrate the gas markets of the member states. The ongoing liberalization and unbundling processes aims at creating more efficient and competitive markets to prevent monopolies. Therefore, in order to achieve a fully integrated market and secure gas supplies, a common European energy policy was perceived as the strongest instrument to deal with major gas issues.

Moreover, there are concerns over the reliability of the Russian gas imports to the EU. The European fear of using natural gas as a Russian foreign policy

instrument forces the EU to take the necessary measures for being less vulnerable to gas interruptions. The initiatives taken by *Gazprom* to invest in Europe have been perceived as Russian expansion over the European economy in the EU circles.

In the EU-Russia gas relationship, the problems and concerns may be settled by mutual understanding and negotiations. The EU-Russia Dialogue and the ECT would be the convenient platforms to discuss these issues. The high level of cooperation between the EU and Russia may facilitate the establishing of business level relations with *Gazprom* and prominent European gas companies. As has been discussed in Chapter V, another opportunity for the EU and Russia is the strategic position of Turkey that may satisfy their priorities. Turkey has very strong ties with the EU and Russia which gives it a unique position in the region. For the EU, Turkey may contribute to the EU's diversification of supply and secure transit pipelines connecting Middle Eastern and Caspian reserves to the EU. For Russia, Turkey may be an export outlet for Russian gas to the Mediterranean and provide an alternative transit route to Europe.

Consequently, natural gas is becoming a very strategic energy source for the future. Therefore, natural gas may enhance the interdependencies or may create conflicts among states. The most significant interdependence between the major gas consumer, the EU, and major supplier, Russia, should be maintained by mutual understanding and cooperation. In this relationship, Turkey, which has strong ties

with each of them, is the key country that may contribute to bringing this interdependence to a healthier level by satisfying the priorities of both sides.

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