

UNITED STATES AND RUSSIA IN THE ARCTIC ENERGY FUTURE:
RIVALRY OR HARMONY?

SERAY TOKER

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UNITED STATES AND RUSSIA IN THE ARCTIC ENERGY FUTURE:
RIVALRY OR HARMONY?

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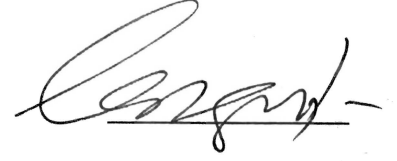
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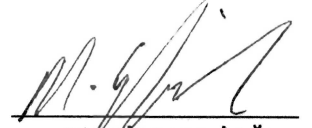
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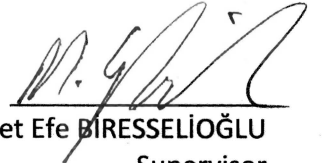
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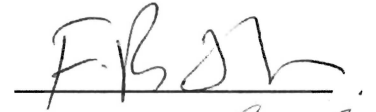


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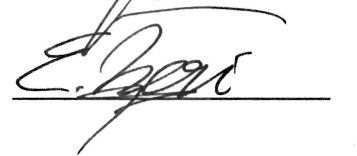
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ABSTRACT

UNITED STATES AND RUSSIA IN THE ARCTIC ENERGY FUTURE: RIVALRY OR HARMONY?

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The Arctic is not a newly discovered region; however, a series of chain of events has increased attention for the Arctic energy resources especially since the beginning of 2000s. The most distinct driving force behind these events was the estimation of the United States' (US) geological survey in 2008 that attributed the Arctic as a new energy region with nearly one quarter of the world's undiscovered oil and natural gas deposits. Afterwards, many scientific and academic studies have been conducted about the future potential of the oil and natural gas production in the Arctic as well as motivations and obstacles behind this production. As differ from the existed general literature on the Arctic, this study mostly focuses on the two Great Powers of the Arctic: The United States of America and the Russian Federation. This study intends to analyze the Arctic Region's significance for these two historical rivals, basing upon the National Arctic Strategies of those through the international relations theories, mainly realism, and the concept of energy security. Within this approach, the study is constructed

three scenarios based upon the three pillars of the game theory: zero-sum game, positive-sum game and negative-sum game. Although the zero-sum game is traditionally the most probable model in the international relations, the study also provides two different scenarios as the structure of the international relations has changed in the course of time. The will to cooperate or compete will determine the future of the Arctic.

Keywords: Arctic Region, Energy Security, The United States of America, The Russian Federation, National Strategies, Realism, Game Theory

ÖZET

ARKTİK BÖLGESİ ENERJİ GELECEĞİNDE AMERİKA BİRLEŞİK DEVLETLERİ VE RUSYA: REKABET YA DA İŞ BİRLİĞİ?

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Arktik Bölgesi daha önce keşfedilmemiş bir alan olmasa da, özellikle 2000’li yılların başından itibaren bir dizi olaylar zinciri Bölge’deki enerji kaynaklarının önem kazanmasını sağlamıştır. Amerika’nın 2008 yılında açıklamış olduğu jeolojik çalışma, dünyanın keşfedilmemiş petrol ve doğal gaz kaynaklarının neredeyse bir çeyreğini içinde barındıran Arktik’i yeni enerji bölgesi olarak atfetmiş ve Bölge’ye olan ilginin artmasındaki en temel itici gücü yaratmıştır. İlerleyen yıllarda, Arktik Bölgesi’ndeki muhtemel petrol ve doğal gaz üretim potansiyeli, bu üretimi belirleyecek olan temel motivasyonlar ve engeller üzerine pek çok bilimsel ve akademik çalışma yürütülmüştür. Arktik Bölgesi’ne ilişkin mevcut genel literatürden farklı olarak, bu çalışma Bölge’nin iki büyük gücü olan Amerika Birleşik Devletleri ve Rusya Federasyonu’na odaklanmaktadır. Bu iki tarihsel rakip için Arktik Bölgesi’nin önemini analiz etmeyi amaçlayan bu çalışma,

bu devletlerin Ulusal Arktik Stratejilerini, uluslararası ilişkiler teorilerinden realizmin temel prensipleri ve enerji güvenliđi kavramı dođrultusunda deđerlendirmektedir. Bu kapsamda, alıřma, oyun teorisinin üç modeli (sıfır-toplamlı oyun, pozitif-toplamlı oyun ve negatif-toplamlı oyun) üzerine kurulmuřtur. Uluslararası ilişkiler tarihinde en muhtemel model sıfır-toplamlı oyun olsa da, uluslararası ilişkilerin de zaman içinde deđiřen dođasını göz önünde bulundurarak bu alıřma diđer iki alternatif model üzerine de açıklama getirmektedir. Arktik'in geleceđini belirleyecek faktör ise rekabet ya da iş birliđi arzusu olacaktır.

Anahtar Kelimeler: Arktik Bölgesi, Enerji Güvenliđi, Amerika Birleşik Devletleri, Rusya Federasyonu, Ulusal Stratejiler, Realizm, Oyun Teorisi

To My Mom

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VITA

Seray Toker was born in İzmir on July 14, 1988. She received her faculty degree in International Relations and European Union as the third highest ranked student of the department from the İzmir University of Economics in June 2012. Same year, she has started Sustainable Energy Master Program. Since then, she has been working as an energy regulation specialist.

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CHAPTER 1

Introduction

The Arctic is not a newly discovered region. Hence, the energy resources exploration activities are not also a new phenomenon of the region as well (Ermida, 2014). Moreover, the substantial share of global oil and natural gas resources of the Arctic presents higher costs than in most other petroleum provinces around the globe (Lindholt and Glomsrod, 2011). Nevertheless, the chain of a series of events has increased attention to the Arctic resources especially since the beginning of 2000s such as extraordinary climatic deviations which resulted with thinning ice cover, flag-planting ceremony of Russia that increased speculations about New Cold War and, instable and higher oil and gas prices of the Middle East. These are some of the main incidents that turned the eyes of the world towards the Arctic. However, “much of the focus has been generated by the US Geological Survey’s World Petroleum Assessment from 2000, which was widely interpreted as attributing 25 percent of the world’s recoverable undiscovered energy resources to the Arctic” (Harsem, Eide and Heen, 2011; Koivurova and Hossain, 2008; Zysk, 2010).

Actually, “the Arctic holds an estimated 13% (90 billion barrels) of the world's undiscovered conventional oil resources and 30% of its undiscovered conventional natural gas resources” (EIA, 2012). This translated into an amount of “around 400 billion barrels of oil equivalent, 10 times the total oil and gas produced to date in the

North Sea” (Shell, 2013). In this respect, Arctic Region currently represents a new energy region that holds nearly one quarter of the world’s undiscovered oil and natural gas deposits. As a matter of fact, the region is not only worthwhile for the bordering countries, but also it holds central focus area for the global energy security that the significant hydrocarbon reserves of the region attract the attention of number of developed and developing countries such as the members of European Union (EU) and China. However, Russia and US remain as the most influential actors.

Since the Cold War Era, the structure of the international system has witnessed significant geopolitical changes, such as the emergence of the «energy security» concept in 1970s, disappearance of the Soviet Union from the international arena in 1991 (Koivumaa, 2013, p. 1), and appearance of globalization have created direct impact on the classical concerns like power, politics, security, economics, and military. Furthermore, as technology has developed in recent years, previously unreachable oil and gas reserves such as reserves in Arctic as well as the unconventional energy resources are available today. Finally, may be the most significantly, the disappeared power, Russia, has started to reborn in the international scene especially by virtue of its valuable energy resources and increasing energy prices.

Nevertheless, recent developments in the oil and gas sector do not mean that the world is on the cusp of a new era of oil abundance (IEA, 2013). The significant amount of undiscovered oil and natural gas reserves of the Arctic Region presents a new back-

door competition area for Great Powers namely the United States (US) and Russia whose competition has determined the direction of global affairs during the Cold War period.

This study as reckoned realizes that the Arctic Region has achieved to attract the attention of not only the littoral states but also the other countries which are geographically far away from the region due to abundance amount of energy resources. However, this study deliberately chooses to focus on two countries or in other words two “Great” powers, namely Russia and the US, rather than all other littoral states or external powers. Not only US and Russia has been chosen for being a great powers or two most influential powers in the region, but also due to leading Russian ownership of the Arctic resources and global hegemonic status of US in global energy affairs. Therefore, from this study perspective, Arctic Region is becoming another area of competition for these two countries.

Therefore, the focal point of this study is to analyze the significance and the clashing interests of the US and Russia in the Arctic energy future. Intending to analyze the Arctic Region’s significance for US and Russia, the main purpose is to construct different scenarios to analyze, assess and compare the Arctic strategies of these two mentioned great powers, looking through the perspectives of the realist theory of international relations, concept of energy security, and game theory. Therefore, this study aims to make a versatile contribution to the existed literature with its three vital

scenarios: *zero-sum game*, *positive-sum game* and *negative-sum game*. The main issue is to scrutinize the future of ongoing relations of these two powers in the Arctic energy future. By doing so, this study also occasionally refers to the other littoral states, namely Canada, Greenland and Norway and other external powers such as China and the EU within the framework of their relationship concerning the US and Russia, together.

Hence this study aims to answer the following research questions:

- i) What is the importance of the Arctic Region?
- ii) What are the challenges and opportunities in the Arctic Region?
- iii) Could the Arctic Region and its hydrocarbon reserves become a matter of competition or cooperation for US and Russia?
- iv) How do US and Russia construct their strategies towards the region?
- v) What are the possible scenarios in the Arctic Region concerning these powers?
- vi) Could international relations theories, energy security concept and game theory be combined to analyze the subject matter by constructing different scenarios?

This thesis is divided into four parts. The first part consists of **Chapter 2**. This study first attempts to highlight the connection between realism and energy security. The main aim here is to explain the role of energy in international relations. Definitions will be

given as key concepts to understand and review the main issues in the subject matter. Afterwards, main theoretical discussion related to game theory and international relations theories, especially realism, will be presented to explain how the scenarios are constructed to determine the optimal relationship between these powers.

The second part of the thesis consists of **Chapter 3**. In **Chapter 3**, this study assesses the political geography of the Arctic Region, including the geographical facts of the region together with the rising challenges and opportunities. Moreover, the oil and gas reserve potential of the region will be examined.

The third part of the thesis includes **Chapter 4**. This chapter analyzes the role of energy and moreover the energy security concept among the US and Russia, starting from the Cold War era to today. Following part of the chapter focuses on the contemporary strategies of US and Russia to evaluate the current position of these powers in the region.

The fourth part consists of **Chapter 5** and **Chapter 6**. In chapter 5, scenarios are presented and analyzed. Chapter 6 is the concluding chapter in which the conclusions of the scenarios and thesis are presented.

CHAPTER 2

2. Theoretical and Conceptual Framework

2.1 The Connection between Energy and Power from the Perspective of Realism

Energy is one of the most indispensable needs of today. Although there are lots of basic definitions for energy, it is not possible to define energy with such simplified sentences because it is directly related to power. The concept of power has several sub-branches such as economic power, military power or political power (Viotti and Kauppi, 1999, p. 64). Therefore, from this study's perspective, the junction point of economic, political, technological, social and security policies of each state might be assumed as energy. Excluding the states, even individuals cannot continue their lives efficiently without sufficient energy. This vital topic, certainly, takes a critical place among the relations of states. It also plays a key role while determining the position of states in the international system. Due to its great importance, energy issue is still a quite popular topic of debates and it is expected that this trend will likely to be continued in the long term. As a matter of fact, at present, power struggles, terrorist attacks, economic developments, geopolitical changes and environmental concerns are directly related to energy security concept (Bireselioğlu, Demir and Kandemir 2012; Yergin, 2006; Youngs, 2007). As the concepts of power and security are mostly attached to realist approaches, which is a consequence of the realist emphasis on states as the main actors of international system (Diez, Bode and Costa 2011, p. 194), this study bases its

argument on the realist theory of international relations, especially from the perspective of energy security.

Realism is accepted as a cornerstone of the theories of international relations and mainly bases on four fundamental principles (Morgenthau, 1947; Waltz, 1979; Mearsheimer, 2001). According to first principle, state is the most important actor in international relations and realists focus on states and interstate relations (Viotti and Kauppi, 1999, p. 55). Secondly, the realists accept the state as both unitary and rational principal actor in world politics. Here, it is also important to note that the root of this theory is the human nature and it is defined as selfish by founding fathers. Thirdly, it is accepted that “state as a rational actor seeks to maximize its own interest or national objectives in foreign policy” (Viotti and Kauppi, 1999, p. 10). Due to the nature of humanity, states always calculate their interests in terms of power and try to increase its power as much as possible. According to realists, “the desire for more power is rooted in the flawed nature of humanity; therefore, states are continuously engaged in a struggle to increase their capabilities” (Elman, 2005). Accordingly, all nation-states pursue their own national interests in order to increase own power and security. Hence, the clashing interests lead to a increase in competition and struggle for power. That’s why power is another fundamental feature of realism. Most of the realist has been discussing that “the struggle for power among states is at the core of international relations” (Viotti and Kauppi, 1999, p. 56). For instance, according to Morgenthau (1966, p. 25) “international politics, like all politics, is a struggle for power

and whatever the ultimate aims of international politics, power is always the immediate aim". Finally, as the international system is anarchic, meaning there is no supreme authority above states for the prevention of conflict, conflict is inevitable as a consequence. That's why national security issues dominate the top of the agenda for realists and eventually for the governments.

When the principles of realism are taken into consideration, it is possible to see that all of the above-mentioned principles present in the current global issues and all of them are definitely related to the energy issues. For instance, US invaded Iraq in 2003. The reasons of this invasion were named as bringing democracy and promoting the human rights in the region by US government, but one can easily interpret the underlying reason as the huge oil reserves of Iraq (The Guardian, 2014). Sir Halford Mackinder (1904) defines the world as a closed system. There are no more external areas and this leads to increase in resource competition as predicted by realism. Moreover, the amount and quality of the resources increase the importance of energy producing regions. For example, if there were no oil reserves in the Middle East, most probably this region would not witness such significant and implacable conflicts from the perspective of this study.

In fact, neither the concept of competition nor the struggles for power are new phenomenon. Both exist as the most prominent feature of human nature in all processes of humanity even starting from the primitive ages until today. Similarly,

realists argue that the roots of the realist perspective back to antiquity and its arguments can be even found in the works of Greece and Rome (Elman, 2005). Furthermore, realists also argue that “Thucydides explains Greek city-states’ behavior by their power relations, famously observing that the growth of the power of Athens, and the alarm which this inspired in Sparta, made war inevitable” (Strassler, 1996, p. 49). As a consequence, the world politics has witnessed rise and fall of many states. Even back in primitive ages, the humankind has been competing to meet the basic needs, such as nourishment or sheltering. Today, energy has also become one of the basic needs of the humankind as well as the global economy. Consequently, the world has been experiencing merciless struggles to acquire the energy resources.

As mentioned, power is the main determining factor in international relations. Since, today, energy is directly related to power as well, energy security has emerged as an important factor of politics, economy and military. Hence, energy security has high priority for each nation and increasing concerns on energy security are key driving force for both national energy policies and strategies (Cherp, 2012, p. 327).

It is important to mention that there are different approaches existed to energy security concept. For instance, while Russia is focusing on reviving energy geopolitics¹,

¹ “Geopolitics is about the interaction among states and empires in a particular geographical setting that the geography of a state - its position in a geographical region and in the world as whole – presents opportunities to, and imposes limitations on, the state” (Sempa, 2009, p. 5).

the United States concentrate on energy imperialism². Therefore, it is not possible to mention a general definition or formula for various aspects of energy security. As a result, within the existed literature, there are a great number of definitions of energy security. Yergin (2006) defines the energy security as “availability of sufficient energy supplies at affordable prices”. European Commission (2000) brings a re-definition as “uninterrupted physical availability on the market of energy products at a price which is affordable for all consumers”. Contemporary definition of energy security includes the notions of ‘availability’, ‘accessibility’, ‘affordability’, ‘acceptability’, ‘accountability’, ‘sustainability’, ‘reliability’, ‘sufficiency’, ‘supplies’ and ‘interruptions’ which all have specific interpretations too (Cherp, 2012, p. 330).

Most of the existed literature focuses on the triad or quart combination of these notions. One of the commonly used classification is the 4 A which includes ‘availability’ (geographically or physically availability of resources), ‘accessibility’ (geopolitical aspects associated with accessing resources), ‘affordability’ (economic costs of energy), and ‘acceptability’ (social and environmental concerns of energy) (Kruyt, et al., 2009). Furthermore, some studies discuss the economic, environmental, technical, political, technological and military aspects by focusing on the specific subjects such as high or volatile prices, threats to environment, aging of infrastructure, sabotage or terrorism, technological accidents, weapons of mass destruction respectively.

² “The phenomenon of imperialism has always been at the center stage of international relations since the late 19th century. In essence, imperialism signifies an asymmetrical relationship of interdependence between materially advanced and backward societies” (Harse, 2005, p. 2071). The term energy imperialism is mostly used for the situations where the natural resources are used for political and military purposes.

Apart from these, Cherp and Jewell (2011) present three distinct but complementary perspectives on energy security which are; *resilience*, *robustness* and *sovereignty*. In their analysis, the 'resilience perspective' focuses on the unpredictable factors affecting energy security; therefore, this perspective heavily stress the importance of diversification of energy options (resources, sources and routes) as the main strategy to cope with the potential threats. In contrast, the 'robustness perspective' emphasizes the risks which arise from predictable and mostly controlled characteristic of energy systems such as scarcity of energy resources or failures of infrastructure. In order to minimize those kinds of risks, Cherp and Jewell (2011) argue that "switching to more abundant and accessible energy resources, investment in infrastructure to minimize the risks of technical failures, and decreasing energy intensity to reduce vulnerability to high prices" are the main strategies or precautions. Finally and the most significantly, the 'sovereignty perspective' concentrates on "disruptions potentially arising from actions of external actors such as hostile powers or terrorists, unreliable exporters, foreign energy companies, or overly powerful market agents" (Cherp and Jewell, 2011). Therefore, it is clearly seen that the sovereignty perspective and theory of realism show significant parallelism which both focuses on interests, intentions, independence and power.

2.2 The Role of Game Theory in Explaining International Relations

The nature of the international relations theories is mostly characterized with the interactions among the actors like nation-states, international organizations or multinational corporations and, in most cases, the international system is shaped in line with the main concerns (such as power, security, economic, military, social, political) or interests of those actors. For instance, *realist perspective* argues that self-interested states compete constantly for power or security; on the other hand, *liberals* desires for prosperity; therefore, the concern for power overridden by economic considerations; and much more differently, the *constructivist approach* emphasizes on social behavior that is shaped by elite beliefs, collective norms and social identities (Walt, 1998, p. 10).

Thereby, the publication of «The Theory of Games and Economic Behavior» by von Neumann and Morgenstern (1944) considered as the base for systematic and extensive formal analysis of social interactions that have increased the influence among game theory and international relations (Correa, 2001, p. 187). Immediately afterwards, the political scientists have started to mention about the correlation between the game and international politics. Zagare (2010) defines the game as follows; “A game is any situation in which the choices of two or more actors, called players, are interrelated, that is, where the outcome does not depend solely on the choice of a single actor”. Ultimately, international relations theoreticians have started to use the game theory,

whose objective is the formalized analysis of relationships among two or more actors, for the purpose of explaining the interactions among the actors (Correa, 2001, p. 187).

Bennett (1995) argues that “a game is simply a situation in which there are two or more parties who can affect what happens, all of whom are pursuing their separate aims and, as no actor has complete control over events, each needs to take account of the others' possible actions”.

In fact, the game theory models can be seen a bit ancient in today's modern world scene. However, it is significant to note that the game theory, the science of interactive decision-making, has not only enlightened its own era and only the field of economics but also set light to the future of the many of the social sciences including political science, international relations, international political economy and so on (Zagare, 2010). Furthermore, the game theory models have been accepted as indispensable pillars of political literature and their popularity has increased continuously among the theories of international relations.

Viotti and Kauppi (1999) define game theory in their commendable book of *International Relations Theory: Realism, Pluralism, Globalism, and Beyond* as follows;

«A decision-making approach based on the assumption of actor rationality in a situation of competition. Each actor tries to maximize gains or minimize losses under conditions of uncertainty and incomplete information, which requires each actor to rank order preferences, estimate probabilities, and try to discern what the other actor is going to do. In a two-person

*zero-sum game, what one actor wins the other loses; if A wins 5, B loses 5, and the sum is zero. In a two-person **non-zero-sum** or variable sum game, gains and losses are not necessarily equal; it is possible that both sides may gain. This is sometimes referred to as a positive-sum game. In some games, both parties can lose, and by different amounts or to a different degree. So-called n-person games include more than two actors or sides. Game theory has contributed to the development of models of deterrence and arms race spirals, but it is also the basis for work concerning the question of how collaboration among competitive states in an anarchic world can be achieved...».*

As already mentioned, the theory of realism focuses on the actions and interactions of states, and accepts the state as unitary³ and rational⁴ actor. National interests or objectives, anarchy⁵, power and security issues are the most important and key concepts for most realists. The focal point for this study is to analyze the significance and the clashing interests of the US and Russia in the Arctic energy future; therefore, the study has been mostly constructed upon the realist theory of international relations. Furthermore, as the Cold War Era is one of the most marked examples of struggle for power and the direction of global affairs was mostly determined by superpowers' competition during this era, the Cold War dynamics were also briefly assessed in the following parts of this study.

³ In many realist analyses, states are viewed as unitary (undivided, whole) actors that speak ultimately with one voice.

⁴ To act rationally requires a rank ordering of preferred goals, consideration of all feasible alternatives to attain those goals in the light of existing capabilities, and consideration of the costs and benefits associated with using particular methods to attain particular goals.

⁵ The absence of political authority. International system are said to be anarchic in that there is no central or superordinate authority over states.

At this point it is also significant to note that realism is not a single theory. Although the realism was the dominant theory throughout the Cold War years and it provided comprehensive understanding for conflict and war, struggle for power, obstacles to cooperation as well as American-Soviet rivalry, it has different variations in itself (Walt, 1998, p. 31). While all realists share a clear family resemblance, different dimensions or approaches of realism such as classical realism, neo-realism, offensive and defensive realism constitutes different branches of the same family tree (Burchill, et al., 2005, p. 30). For instance, “Classical realists such as Hans Morgenthau and Reinhold Niebuhr believed that states, like human beings, had an innate desire to dominate other, which led them to fight wars” (Walt, 1998, p. 31). On the other hand, “for neo-realists, generally called as structural realists, human nature has little to do with why states want power, instead, it is the structure or architecture of the international system that forces states to pursue power” (Mearsheimer, 2010, p. 78).

Kenneth Waltz’s *Theory of International Politics* (1979) is the foundational text of the structural realism. According to Waltz, structure is the principal determinant of the behavior of states and principal unit in the international system. Structural realists or in other words neo-realists “are interested in explaining state behavior under conditions of anarchy and they emphasize the importance of the structure of the international system and how this influences and constraints state behavior” (Viotti and Kauppi, 1999, p. 488).

In terms of the distribution of capabilities or power among states, the international system structure may be bipolar, multipolar, or unipolar. Another differentiation between classical and structural realism is seen on this subject. While Morgenthau stressed the virtues of the classical, multipolar system and saw the bipolar rivalry between the US and the Soviet Union as especially dangerous, on the contrary, Waltz argued that bipolarity was more stable than multi-polarity (Walt, 1998, p. 31).

Actually, it is not possible to define realism with a single coherent definition because as mentioned there are at least two main brands which are classical realism and neo-realism (Segbers, 2006, p. 13). As the scope of this study does not include a well-defined comparison of realist perceptions, the study touched upon the classical and neo-realist approaches in line with their relation to game theory. Munck (2001) argues that game theory provided a decision making model for the questions of realism. According to Bennet (1995) game theory models have been framed with the terms of realism such as unitary, rationality and “modellers have been influenced by the realist tradition in which nations are the relevant players”. Furthermore, specific empirical assumptions are necessary for game theory models. “For instance, by assuming that power-maximizing states are the principal actors, game theory subsumes the Realist position” (Snidal, 1985, p. 35).

Following the current discussion, here, it is also important to mention that this study has been focusing on the concept of energy security due to the significant amounts of

undiscovered oil and natural gas reserves of the Arctic Region that presents a new back-door competition area for US and Russia as reckoned. In order to analyze and explain possible outcomes of the interaction between US and Russia in the region, scenarios should be constructed. Accordingly, especially within the scope of the realist approach, this study will be constructed upon the three pillars the game theory which are namely; zero-sum game, positive-sum game and negative-sum game following in the Chapter 4 and 5. However, first it is crucial to analyze the political geography of the region, the role energy security among these powers and their current strategies towards the region before entering into a debate concerning the scenarios.

CHAPTER 3

3. The Political Geography of the Arctic Region

3.1 Defining the Arctic Region

“The term *Arctic* comes from the ancient Greek word *Arktikos* - the country of the Great Bear-.” (Hassol, 2004, p. 4). The Arctic is a region above the Arctic Circle, an imaginary line that spans the globe at 66.56° (66°34′) north latitude (Budzik, 2009, p. 1). The Arctic Region encircles the North Pole and consists of a large ice-covered ocean which is named as the Arctic Ocean. At the Arctic Circle, the sunlight either entirely exists or absent for a long period of time. In other words, “the sun rises once each year and sets once each year: there are six months of continuous daylight and six months of continuous night” (National Snow and Ice Data Center⁶, 2013) While the sunlight uninterruptedly exists for 24 hours on the summer solstice, it does not rise on the winter solstice.

There are also other definitions of the Arctic Region. For instance, on the one hand “some scientists define the Arctic as the area north of the arctic tree line where the landscape is frozen and dotted with shrubs and lichens” (NSIDC, 2013), on the other hand, some experts take temperature as a base for their definitions. In this definition, the borders of the Arctic Region cover the areas where the average summer

⁶ National Snow and Ice Data Center hereinafter referred to as NSIDC.

temperature does not exceed the 10 degrees Celsius or 50 degrees Fahrenheit (Geography, 2010).

According to the United States Geological Survey - USGS (2008), the size of the Arctic is almost same as the African continent; however, most of the Arctic is oceanic. Moreover, “the majority of the Arctic is composed of the Arctic Ocean which was formed when the Eurasian Plate moved toward the Pacific Plate thousands of years ago” (Geography, 2010). Although the most of the region composed of the Arctic Ocean, it is the smallest ocean of the world. “It reaches depths of 3,200 feet (969 m) and is connected to the Atlantic and the Pacific via several straits and seasonal waterways such as the Northwest Passage (between the US and Canada) and the Northern Sea Route (between Norway and Russia)” (Geography, 2010).

The Arctic Region can be divided into three parts which; about one-third of the Arctic is occupied by land, another one-third of the region consists of offshore continental shelves located in less than 500 meters of Arctic Ocean water and the remaining one-third of the Arctic is in Arctic Ocean waters deeper than 500 meters (Budzik, 2009). Geographically, the Arctic is 14.5 million square km which is almost same size as Antarctica (Polar Discovery, 2013) and consists of eight countries which are; Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, Sweden, and the United States. However, as Finland and Sweden do not have border with the Arctic Ocean, these two countries do not claim any jurisdictional rights in the Arctic Ocean. Although today

there is significant oil and gas activity in the Arctic Region, Iceland has withdrawn its exploration activities in 2008 due to the huge economic costs. Therefore, it is possible to say that; at present there are five countries that have overlapping and disputed claims in the Arctic namely; Russia, the USA, Canada, Norway and Greenland, as shown in figure 1.

Figure 1
Resource Basins in the Arctic Circle



Source: (Directly taken from) US Energy Information Administration

As mentioned, the Arctic Region has 24 hours of darkness during the winter due to the coordinates of the latitudes that the region is turned away from the sun; however, the sunlight is present for 24 hours continuously during the summer as the Earth is curved toward the sun (Cessna, 2009). Nevertheless, the region has freezing temperatures for most of the year due to the axial tilt of the Earth. Actually, the Arctic Region takes the sunlight at an angle of much less than 90 degrees over much of the year (Budzik, 2009, p. 1). Although the average summer temperature is around 10 °C and although in some places, it can increase up to 30 °C for very short periods (Geography, 2010), “the central Arctic Ocean is ice-covered year-round, and snow and ice are also exist on land area for most of the year” (NSIDC, cited in Budzik, 2009, p. 2).

Therefore, at this point it can be questionable that how the region preserves its ice-covered structure with these relatively high temperatures. The main reason is the angle of incidence of the sun’s rays which the sunlight never directly hits the region; therefore, it gets less solar radiation (MacCracken, et al., 2013). As the Arctic takes the sun’s rays indirectly, almost all parts of the region is cool even in the summer months. Secondly, as the region is ice-covered for most of year, it reflects solar radiation back into the space (Geography, 2010). Moreover, although the Arctic Ocean helps to mitigate freezing temperatures, the region receives very little precipitation mostly in the form of snow due to the cold air (Budzik, 2009, p. 2).

3.2 Challenges and Opportunities in the Arctic Region from the Perspective of Energy Security

The need for diversification of energy sources is one of the most significant aims of the energy strategies of states. Although other alternative energy sources such as renewable sources have started to develop rapidly in the recent years, fossil fuels are still among the main energy sources of growing populations and expanding economies. It is projected that world energy consumption will grow by 56 % between 2010 and 2040 (EIA, 2013). Furthermore, despite the fastest-growing rates of renewable energy and nuclear power, almost 80 % of world energy supply continue to come from fossil fuels through 2040 (EIA, 2013).

As the world's energy demand is expected to rise, fossil fuels continue to play a strategic role in energy supply due to their abundance, affordability and availability. However, human activities, especially the burning of fossil fuels have significantly increased the carbon dioxide, sulphur dioxide and other greenhouse gases emissions from these resources. The trap heat in the atmosphere has caused a rise in the temperature of the world and this change has led to a disruption of the weather patterns (Bireselioğlu and Karaibrahimoğlu, 2012, p. 30). As a consequence of that climate change has opened access to the Arctic waters.

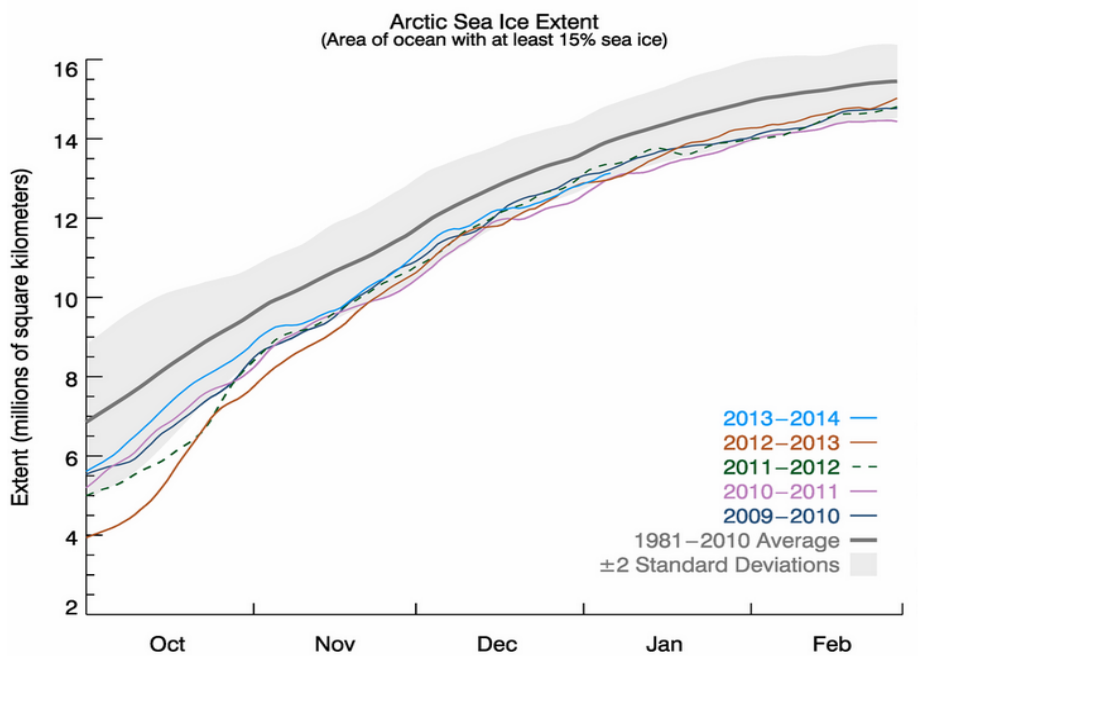
Generally, the annual average temperature increase is almost two-times more in the Polar Regions than the other geographies. According to Hassol (2004, p. 20), there are

mainly four reasons of this double increase in the Arctic. First, as snow and ice have started to melt due to the human activities, the high reflectivity feature of the Arctic decreases; therefore, dark land and ocean surfaces catch more solar energy that results increasing warming. At this point, it is possible to say that sea ice acts as a protective mirror on the ocean. “When there is a lot of bright, white snow and ice, it reflects sunlight back into the atmosphere, insulating the region and maintaining lower temperatures; however, less ice exposes more dark ocean, which absorbs the sun’s energy and raises the ocean temperature” (Naranjo, 2013). Second, while in the tropics, a greater fraction goes into evaporation; in the Arctic, increasing concentrations of the greenhouse gases goes directly into warming the atmosphere. Third, the depth of the atmospheric layer is very thin in the Arctic; therefore, little affects results with larger temperature increases in the region. Finally, “as warming reduces the extent of sea ice, solar heat absorbed by the oceans in the summer is more easily transferred to the atmosphere in the winter, which makes the air temperature warmer” (Hassol, 2004, p. 20).

As the average temperature increase is as twice as in the Arctic because of the shape of the earth and atmosphere, the thickness of ice is less than before. Moreover, while the sea level and land temperature is higher than before, the number of snowy days is less. The following figure shows the Arctic sea ice extent. According to the monthly analysis of National Snow and Ice Data Center (2014), “ice grew at rates slower than average through most of December, at 59,500 square kilometers per day, compared to the

1981 to 2010 average of 62,400 square kilometers per day, and at the end of the month the extent was 750,000 square kilometers which was below the average of 1981 to 2010”.

Figure 2
Arctic Sea Ice Extent



Source: (Directly taken from) National Snow and Ice Data

It seems that changing environment conditions or global warming pave the way for oil and gas activities in the Arctic. On the one hand, these changing climate conditions can increase the number of exploration, production, drilling, and transportation activities; on the other hand, unpredictable climate conditions can prevent the activities of oil and gas companies. The thickness and extent of the Arctic ice have been declining for the past five decades with an average of 3.7 % and model simulations assume that the Arctic Region will be ice-free during the summer season around the year 2040 (Hassol,

2004). Therefore, it is possible to say that Arctic Region will present more suitable conditions for petroleum activities during the long period of summer; however, it is also important to note that extreme winter conditions will continue.

On the one hand, climate change creates some opportunities especially during long period of summer; on the other hand, there are many risks and uncertainties for the companies. For instance, melting ice will pave the way for new shipping routes in the summer; however, on the other hand, “as an ice-free Arctic is only likely to take place during the summer, pipelines are still the most likely solution in the foreseeable future for transporting oil and gas from offshore Arctic fields” (Harsem, Eide and Heen, 2011). It is possible to develop new fields and petroleum activities during the summer. In fact, Greenland is a good example of this case. “Iceberg Alley”, new shipping route, is now ice-free from May to September thanks to the ice melting and it is expected that, as the temperature increases this ice-free period will be longer thus it will improve the conditions for oil and gas exploration in the region (Harsem, Eide and Heen, 2011). On the other hand, melting and fragile ice structure is likely to create new problems such as movement of icebergs which can give damage to the equipments, vessels or petroleum platforms. In addition to the huge cost of damages on equipments, interruption of the drilling activities is most likely to result with more cost. However, new technology presents significant solutions for this problem. Some of the huge petroleum companies such as ExxonMobil, Statoil and Chevron have a new technology that enables oil rigs and vessels to handle larger movements of ice (Ryerson, 2008). For

instance, “the platform Hibernia is designed to with stand the impact of a one-million tonne iceberg without damage and also it is able to manage contact with icebergs of up to 6 million tonnes, which are the largest icebergs that are able to drift, with repairable damage” (Hibernia, 2010).

New technology presents a bright future for the developments in Arctic. For example, ice tracking radars has increased the offshore development in the region. Moreover, new models of cargo ships and oil tankers have the ability to navigate through the polar region, and most significantly can break up ice (Hammer, 2010). However, despite the technological improvements, there are still some uncertainties that create barriers for the development of the region. Unpredictable characteristic of weather conditions in the region is one of the most significant obstacles for the activities of oil companies. Some studies suggest that polar storms and hurricanes are likely to increase in the coming years (Kolstad and Bracegirdle, 2008). Extreme weather conditions increase the risks for oil companies because natural hazards ruin drilling, production, and transportation activities. However, on the other hand some other studies argue that Arctic hurricanes are likely to decrease in the coming years (Zahn and Storch, 2010). In fact, this uncertainty is one of the most significant barriers for the activities of oil companies.

In the recent future, petroleum activities are likely to be easier thanks to global warming. However, another important obstacle for the Arctic projects is the increasing

environmental concerns. The environmental awareness rises significantly with the negative effects of serious events. For example, oil spill from the tanker Exxon Valdez in Alaska in 1998 and the Deepwater Horizon accident in the Gulf of Mexico in 2010 are the main events that created public awareness about the potential negative consequences of drilling activities (Østhagen, 2013). Moreover, “Save the Arctic” campaign of Greenpeace and the protests of local non-governmental organizations are most likely to result with delays in the oil and gas projects. Potential risk of oil spills and unsuitable soil structure of the region make drilling and transportation activities almost impossible. Despite the huge potential of the region, it is necessary that these environmental considerations and possible problems should be carefully analyzed.

3.3 Oil and Natural Gas Potential and Exploration Activities in the Arctic Region

Although the Arctic Region has recently started to become a hot topic on the international agenda, the oil and natural gas exploration activities in the Arctic is not a new event. In fact, in the 19th century, Russia has initiated geological studies on the Barents and Kara Seas and deep drilling activities near Franz Josef Land have gained velocity during the 1980s (Piskarev and Shkatov, 2012). While Exxon Mobil’s Arctic activities date back to 1920s, some other international oil companies such as Drome Petroleum, Gulf Canada Resources and Imperial Oil have drilled approximately 150 wells in the Canadian and Alaska Beaufort Sea between the years 1970s to 1990s (Timco and Frederking, 2009).

However, the chain of a series of events has intensified competition for Arctic resources since the beginning of 2000s. The most dominant link of this chain is of course increasing effects of global warming and its consequence of ice melting in the Arctic which paves the way for transportation routes in the Northwest east passage. Secondly, in 2007 Russia planted a deep sea flag at the North Pole in order to disclose its leadership; therefore, it clearly showed the significance of Arctic Region to the world (Harsem, Eide and Heen, 2011). Thirdly, merging of higher oil prices of 2008 and beyond with rapidly increasing energy demand of emerging powers like India and China has created fear about future oil supply (Koivurova and Hossain, 2008). Lastly, the US Geological Survey (2008) estimated that “nearly one quarter of the world’s undiscovered oil and natural gas deposits is probably located in the Arctic”. As a result of this series of significant events, the Arctic has attracted the attention of not only the littoral states but also the other countries which are geographically far away from the region.

At present, the only issue in the Arctic is not about the huge potential of natural resources. There are also other problematic fields such as biodiversity, transportation, indigenous population, environmental concerns and fishing industry (Arctic Council, 2014). However, increasing number of exploration licenses given to international oil and gas companies within the last decade shows that the interests will mostly clash for the energy related issues in a very recent feature.

In fact, “the Arctic holds an estimated 13% (90 billion barrels) of the world's undiscovered conventional oil resources and 30% of its undiscovered conventional natural gas resources” (EIA, 2012). “This amounts to around 400 billion barrels of oil equivalent, 10 times the total oil and gas produced to date in the North Sea” (Shell, 2013).

According to the study of Budzik (2009), “ ‘large’ oil and natural gas fields are those that exceed 500 million barrels of oil equivalent of recoverable oil and natural gas”. As mentioned, increased attention to the Arctic is not a new phenomenon. Putting the basic geological studies aside, Russia has started to discover large oil and natural gas fields of the Arctic in 1962 with the discovery of the Tazovskoye Field and only five year later than the Russia, the United States followed it with the discovery of the Alaskan Prudhoe Bay Field (Budzik, 2009). While the provinces around Alaska cover most of the Arctic’s oil reserves, Russian provinces are dominated by natural gas. According to the Ermida (2014), gas resources are mostly concentrated in Eurasia (63 %) and oil resources are mostly found in North America (36 %). Furthermore, while Russia and Norway hold 72 % of the Arctic gas resources, other littoral countries, the US, Canada, Greenland, hold the remaining 28 % (Ermida, 2014, p. 267).

At present, the Canada, the USA, Norway and Russia are active oil and gas producers in the region. Moreover, according to the Budzik (2009), these littoral states have discovered more than 60 large oil and natural gas fields. In fact, the largest oil and gas

reserves of the Arctic Region are discovered in Russia. It has 43 large oil and gas fields that exceeds 500 million barrels of recoverable oil and natural gas resources (Harsem, Eide and Heen, 2011). Moreover, Canada, Alaska and Norway have discovered large oil and natural gas fields which are respectively; 11, 6 and 1 (Budzik, 2009).

However, it is significant to note that despite huge reserve potential of the region, Arctic development is inherently dependent on many factors such as commercial profitability, combination of high demand with high petroleum prices, technological improvements, emergence of new resources, political relations and financial crisis. Nevertheless, the leading international oil companies such as Exxon Mobil, Statoil and Royal Dutch Shell have acquired exploration licenses in the last decade (Shell, 2011). Furthermore, the region is not only sphere of interest of the bordering countries but also countries from remote geographies show significant attention to the Arctic.

Generally, large quantities of oil and gas resources are found in politically unstable regions like Middle East. For most of the time, International Oil Companies have to deal with these national problems. Although the Arctic has some significant challenges such as high drilling costs due to the remoteness and technical issues, it is new option for international oil companies which presents a stable environment for petroleum-related activities at least for now.

When estimations for the total amount of undiscovered oil and gas resources are taken into consideration, Arctic gas estimated reserves rank number one in the world and the region holds the fourth rank for oil resources among the Middle East and Africa, South America and the Caribbean, Sub-Saharan Africa, and Asia-Pacific (Ermida, 2014, p. 267). Therefore, the Arctic Region attracts the attention of countries by courtesy of the combination of resource potential with low political risk. However, according to Harsem, Eide and Heen (2011), complex variables such as climate change, government activities of the bordering countries and economic conditions can influence activities in the Arctic. Furthermore, Lindholt and Glomsrod (2012), argue that the region will not become an important gas producer in the recent future because of the cheaper production in countries such as Qatar and Iran.

Despite the potentially large conventional oil resources of the Arctic and despite the increasing number of companies exploration projects (such as, Shell in the Chukchi and Beaufort Seas; Cairn in offshore Greenland; Rosneft/ExxonMobil in the Kara Sea and Rosneft/ENI in the Russian Barents Sea), costs are quite high; that's why less than 200 thousand barrels per day are projected to be produced from the offshore Arctic by 2035 (IEA, 2013). In light of these projections, it is possible to say that the Arctic Region will preserve its privacy during the next two decades.

The study of Ermida (2014) shows the oil and gas production portfolio of the five major international oil companies namely Exxon Mobil, British Petroleum, Shell, Total and

Chevron in the Arctic Region for the year 2012. While making this analyzes, the author uses data from the annual reports of international oil companies. According to that “Arctic and Sub-Arctic Regions represent 15 % of the oil produced in 2012, the largest amount being extracted by BP and Exxon, mostly in the US and Russia” (Ermida, 2014, p. 268). While BP, Exxon and Shell are active oil producers in the Arctic, Chevron and Total does not have any oil production activities in the region.

Despite the huge potential of Arctic gas than oil, the amount of gas extracted by five international oil companies is about 6 % that mostly comes from Russia and Norway (Ermida, 2014, p. 269). In fact, international oil companies have already extracted more amount of oil than the natural gas from the Arctic. However, investments for both oil and gas resources have been increasing every passing day. For instance, during the 2007 and 2008 the bids for the Canadian Beaufort Sea exploration licenses were around \$2 billion dollars (Callow, 2012). The US also initiated a new license era in 2005, 2007 and 2008 for explorations in the Beaufort and Chukchi Sea with an amount close to \$2.2 billion dollars (BOEM, 2012). Furthermore, Russia holds the largest offshore project with an expected investment of \$50 billion dollars (IEA, 2012). These values clearly indicate that the significance of the Arctic cannot be underestimated. That’s why all littoral states, but especially, US and Russia, have national strategies for encompassing the Arctic Region.

CHAPTER 4

4. The Past, Present and Future of Energy in Russo-American Relations

4.1 The Impact of Energy Security Concept on the Relationship between US and Russia

Historically, the states are in a constant power struggle. The Cold War Era is one of the most marked examples of this struggle for power. The Cold War lasted longer than the combination of the wars of 1914-1918 and 1939-1945 (Thomas, 1968, p. 183). It has created tension in the international arena for more than four decades. "Practically, on the political military level all the important zones of the world characterized by local balance were connected to the central balance between the two superpowers USA and USSR" (Gherghina, Ramona and Mariana, 2012).

During the Cold War era, superpowers' competition determined the direction of global affairs. In the aftermath of the World War II (WW II), "US and the Soviet Union imposed a bipolar order that had worldwide repercussions" (Nijman, 1992, p. 681). Throughout the Cold War, the world has witnessed many regional conflicts around the globe, from the Horn of Africa to Cuba and from Czechoslovakia to Vietnam (Nijman, 1992, p. 681). Therefore, sphere of influences of the US and the Soviet Union has increased worldwide.

In addition to “ideological struggle between two antithetical political systems, each of which is intolerant of the values, objectives and policies of the other” (Williams, 1989, p. 274), a series of energy crisis such as Yom-Kippur war in 1973, Iranian Revolution in 1979, Iran- Iraq war (1980-1988) showed that there is also another power issue for states which is oil weapon.

Consequently, the issue of energy security has started to emerge with the 1970’s oil crisis. Since then, the concept of energy security has begun to gain more and more importance. In fact, in the Carter Doctrine (1980), it was stated that the importance of oil to the economic welfare of both individual countries and the global economy was seen to justify the use of force in assuring the availability (Bireselioğlu, Demir and Kandemir, 2012, p. 145). Hence, the world realized that energy is not only a strategic issue but also it has direct effect over economy, security, military, policy and environment. While in the beginning stages energy security was only including the security of supply in terms of accessibility, affordability and adequacy, “at present, it is impossible to discuss energy security without considering economic developments, geopolitical changes, environmental concerns and terrorism, and other threats to energy supply” (Bireselioğlu, Demir and Kandemir, 2012, p. 145).

That’s why many scholars argue that the states seek to be independent in terms of energy subjects (Yergin, 2006; Verrastro and Ladislaw, 2007; Chevalier, 2006). However, both resource countries and consumer countries have significant problems

for most of the time and generally those problems define the relationships and ways for strategies.

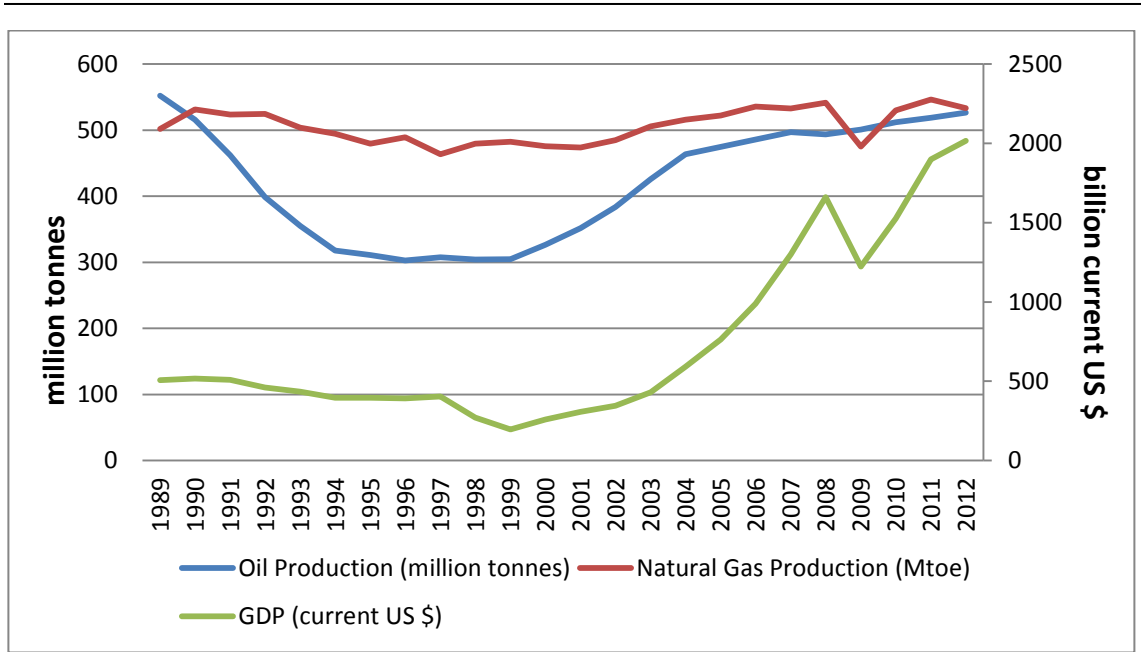
In fact, prior to 1973, energy policy was neither major concern of the US government nor the citizens thanks to abundant and inexpensive energy supplies (Thompson, 1983, p. 97). However, this situation has immediately changed after the supply and price shocks of 1973 and afterwards. Although the US import of crude oil was about 6 % in 1973, the 'energy crisis' have increased the government involvement to areas where governments had rarely involved before (Light, 1976, p. 82). As a matter of fact, almost half the states had provided their governors with specific emergency powers regarding energy matters since crisis of 1970s (Light, 1976, p. 86).

On the other hand, the USSR has become an essential source of energy during those years. "In addition to the 1.22 million barrels a day delivered to the West in 1979, the Soviets sold 1.55 million barrels a day to Eastern Europe and 0.35 million to other communist allies" (Gustafson, 1981, p. 67).

Certainly, political dangers and the negative economic consequences of reliance on foreign energy sources were obvious at that time too (Stobaugh, 1981, p. 23). When the Cold War has ended and Soviet Union has disintegrated, the US is the only remaining superpower that has been contemplating its role in the shaping of a new

unilateral world order (Nijman, 1992, p. 681). However, despite leader role of the US at the end of the Cold War, Russia has never been completely undermined.

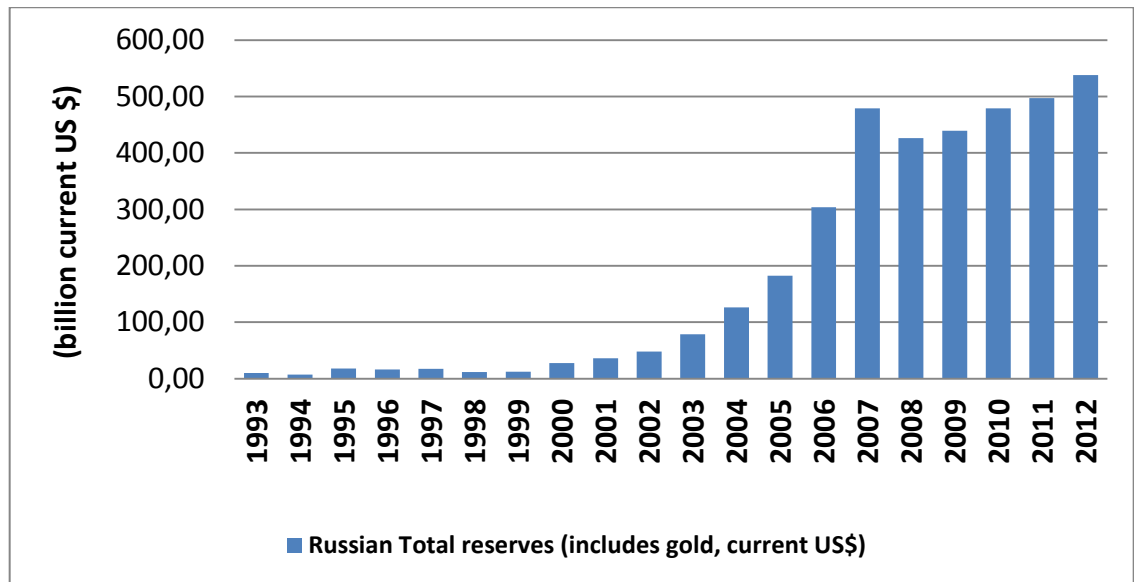
Figure 3
Russian GDP, Oil & Natural Gas Production



Source: BP Statistical Review of World Energy (2013) & the World Bank (2014).

As shown in the Figure 3, after the collapse of the Soviet Union, Russian economy faced serious problems and depressions during the 1990s. For instance, economic crisis which started in Asia in 1998 affected Russian economy negatively because of the decline in oil prices (Viciu, Toma and Tampu, 2013, p. 163). However, this situation has not continued for a long period of time and Russian economy has started to show significant growth with the election of Vladimir Putin in 2000. Leonard and Popescu (2007, p. 7) argues that, oil money has increased the state budget and has dramatically decreased the Russian state's dependence on foreign funding.

Figure 4
Total Reserves of Russia (includes gold, current US\$).



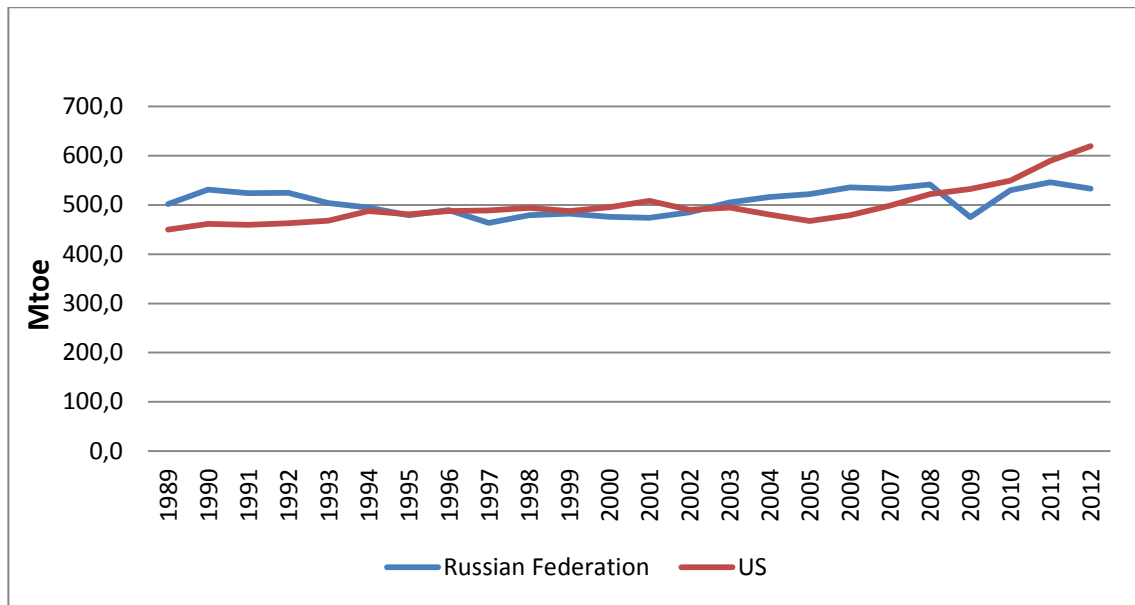
Source: The World Bank (2014). (<http://data.worldbank.org/indicator/FI.RES.TOTL.CD>)

Figure 4 clearly demonstrates the increase in Russian total reserves levels especially starting from the 2000. In this figure, the year 2007 presents a sharp increase which makes Russia's hard currency reserves are the third largest in the world after China and Japan respectively (The World Bank, 2014). According to 2012 data of the World Bank, at present, although Russian Federation holds the fifth rank (after China, Japan, Saudi Arabia and the United States respectively) in terms of total reserves, Russia is running a current account surplus and paying off the last of the debts accumulated in the early 1990s" (Leonard and Popescu 2007, p. 7). Thus, it can be said that, petroleum and natural gas resources are vital for Russian economy and hence an independent Russian foreign policy. Therefore, it is possible to say that the US did not hold a long-termed unilateralism.

During the competition era, “the United States and the USSR meet one another, not face to face, but in the territories of third parties” (Jay, 1979, p. 486). As it will be explained in a detailed way in the Russia section of this study, Russia has achieved to turn its weakness into power thanks to its huge amount of natural resources. Russia is the second country in terms of proved natural gas reserves after Iran and it is the second largest natural gas producer after the US by the end of 2012 (BP, 2013). Moreover, although Russia holds the eighth rank among the top ten oil reserve holders, it is the second country with a share of 12.8 % of the world total oil production after the share of 13.3 % of Saudi Arabia (BP, 2013). However, in order to continue its energy leadership, Russia needs to increase production from the Arctic. Otherwise, over boosting will result with the depletion of oil and natural gas resources.

According to the World Energy Outlook (IEA, 2013), “The United States moves steadily towards meeting all of its energy needs from domestic resources by 2035”. In parallel with this purpose, the US also displays a significant increase in terms of both oil and natural gas production. With 4.7 % increase in natural gas production from the year 2011 to 2012 (BP, 2013), the US takes the leader position of Russia and it becomes the largest natural gas producer. Figure 5 illustrates the natural gas production of Russia and the US. As shown in the figure, natural gas production of the US is an increasing trend especially from the year 2005 while Russia presents a declining trend and the most remarkable downfall has been experienced from 2008 to 2009 because of the economic crisis.

Figure 5
Natural Gas Production of the US & Russia

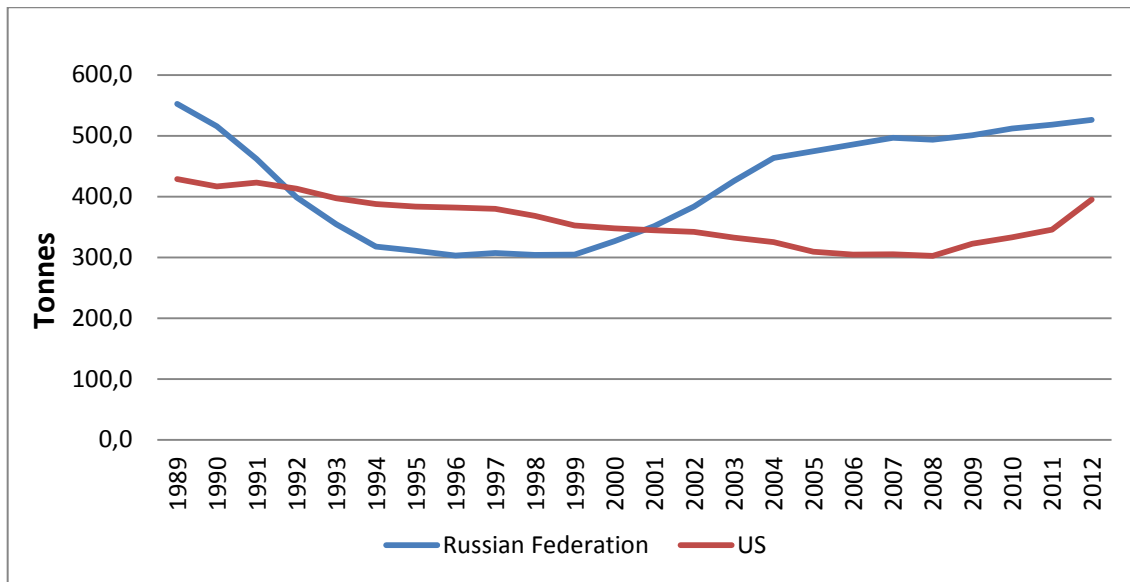


Source: BP Statistical Review of World Energy (2013).

Moreover, US also shows 13.9 % increase in oil production for the same period (BP, 2013), and becomes the third largest oil producer after Saudi Arabia and Russia respectively. Following figure illustrates the oil production of two great powers. Since 1999, Russian oil production increases steadily; on the other hand, despite the long-term declining oil production, the US displays an increasing trend from 2008 and the most significant jump has been experienced from 2011 to 2012 through unconventional development.

More significantly, World Energy Outlook (IEA, 2013) estimates that the US will be the largest oil producer thanks to advanced technologies which unlock new types of resources or in other words, unconventional resources such as light tight oil.

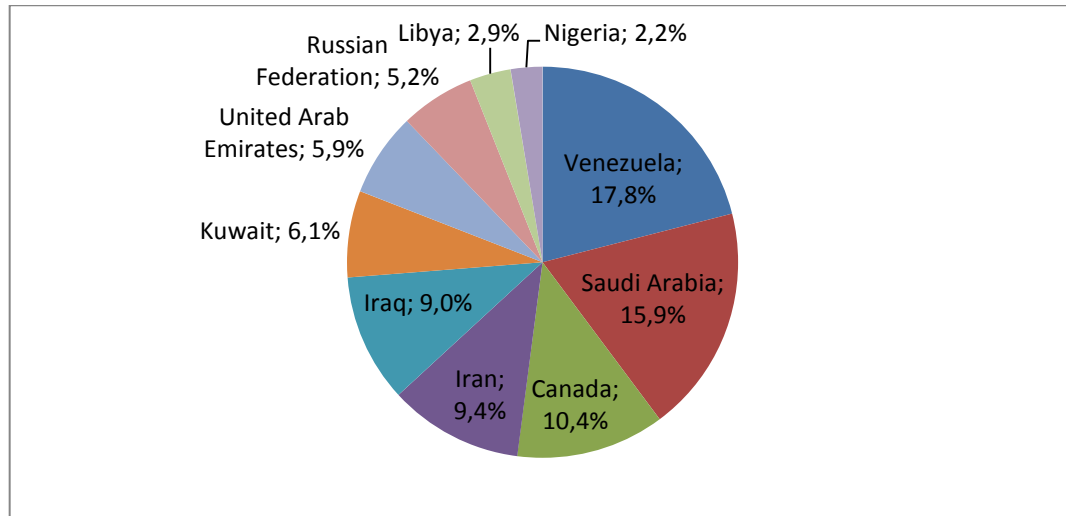
Figure 6
Oil Production of the US & Russia



Source: BP Statistical Review of World Energy (2013).

However, this recent developments in the oil and gas sector does not mean that the world is on the cusp of a new era of oil abundance (IEA, 2013). Therefore, in light of all of the above-mentioned chain of events, the significant amount of undiscovered oil and natural gas reserves of the Arctic Region presents a new back-door competition area for Great Powers.

Figure 7
Top 10 (Proved) Oil Reserve Holders



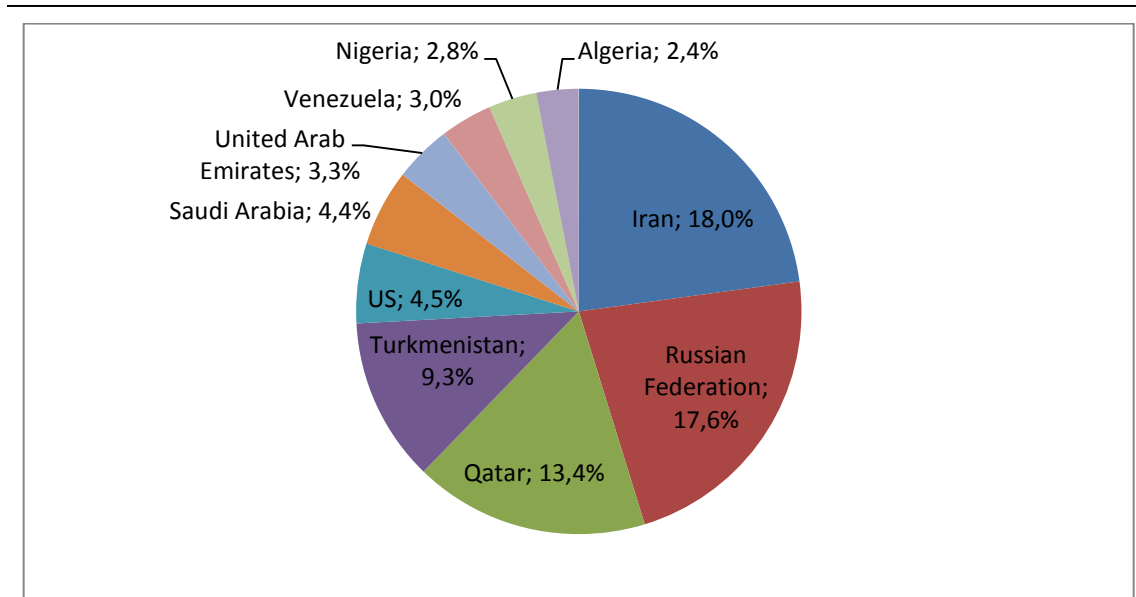
Source: BP Statistical Review of World Energy (2013).

According to the BP Statistical Review of World Energy (2013), Russia holds the 5.2 % of the total share of the proved oil reserves by the end of 2012, while the US holds the 2.1 % and Saudi Arabia holds the second rank with 15.9 % after Venezuela, as shown in figure 7. As the Russia does not have huge oil reserves as does Saudi Arabia, it is expected that the Russian oil reserves will be exhausted in the near future; therefore, Russia seeks for new reserves and the Arctic Region seems a good opportunity for continuity of Russian energy leadership.

As shown in the following figure, Russia holds the second rank by a narrow margin after Iran, in terms of proved natural gas reserves. On the other hand, being a leading country in terms of energy consumption (BP, 2013), the US does not have huge natural gas reserves as does Russia. Therefore, when both oil and natural gas reserves are

taken into consideration, it is possible to say that Russia has more advantageous position than the US.

Figure 8
Top 10 (Proved) Natural Gas Reserve Holders



Source: BP Statistical Review of World Energy (2013).

Interestingly, the White House has recently announced that the US will be an energy self-sufficient country by 2035 (Bloomberg, 2014). Furthermore, Adam Sieminski, administrator of Energy Information Administration, has also pointed out that there will be no energy import by the US by 2035 (EIA, 2012). Although the shale gas revolution, advanced technologies and fuel efficiency in the industry and transportation sector are the face value of this energy independency or in other words self-sufficiency, the Arctic Region may represent the invisible part of the iceberg. Accordingly, both US and Russia have been developing Arctic strategies. Following section will examine the strategies of these two countries.

4.2 Examining the Arctic Strategies of US and Russia

4.2.1 Russian Arctic Strategy

In today's world, fossil fuels are still owner of throne, despite the rapid increasing share of renewable energy. Furthermore, as technology has developed in recent years, previously unreachable oil and gas reserves such as reserves in Arctic are available now. Therefore, it is projected that almost 80 % of world energy supply continue to come from fossil fuels through 2040, despite the fastest-growing rates of renewable energy and nuclear power (EIA, 2013).

Russia has a dominant role in global energy market. Being an energy exporting country, there are many countries which are either completely or highly dependent on Russia. According to the BP Statistical Review of World Energy (2013), Russia has the world's second largest proved natural gas reserves by a narrow margin after Iran, possessing about 17.6 % of the world's total and 18 % respectively. Also, it is the second largest natural gas producer with a share of 17.6 %, after the share of 20.4 % of the US by the end of 2012 (BP, 2013). Moreover, although Russia holds the eighth rank among the top ten oil reserve holders with a share of 5.2 %, it is the second country with a share of 12.8 % of the world total oil production after the share of 13.3 % of Saudi Arabia (BP, 2013). Thanks to these valuable energy reserves, "Russia's economic growth is largely driven by energy exports, with oil and gas revenues accounting for 52 % of its federal budget revenue" (Jacobs, 2014). More significantly, according to the analysis of

Business Insider⁷ (2014), Russia holds the first rank among top 17 countries sitting on the most valuable energy reserves with its *87 billion barrels* of proven oil reserves, *1,163 trillion cubic feet* of proven natural gas reserves, *157 million tons* of proven coal reserves and *\$ 40.7 trillion value* at current prices.

Actually, although the Russian economy faced serious problems and depressions during the 1990s especially after the collapse of the Soviet Union, this situation did not continue very long period of time and Russian economy has started to show significant growth thanks to its valuable energy reserves. According to the World Bank data (2012), today, Russian Federation holds the fifth rank (after China, Japan, Saudi Arabia and the United States respectively) in terms of total currency reserves and it is “running a current account surplus and paying off the last of the debts accumulated in the early 1990s” (Leonard and Popescu, 2007, p. 7).

The important point in the Russian energy sector is that major energy industries have been concentrated in the hands of the Russian government. For instance, when the major energy companies of Russia are examined, Rosneft is the leader of Russia’s petroleum industry and ranks among the world’s top publicly traded oil and gas companies with main activities of exploration and production of hydrocarbons, production of petroleum products and petrochemicals, and marketing of outputs

⁷ The analysis uses data from BP 2013 statistical review of world energy with current global prices of Brent Crude **oil** price on Bloomberg Markets, BP’s 2013 average **natural gas** price in diverse world markets (such as Japan, United States, Germany) and World Bank’s 2013 trading price for Australian **coal**- which is commonly used as a benchmark for global markets.

(Rosneft Official Website, 2014). More significantly, “the state holds 69.50 % in the company through OJSC ROSNEFTEGAZ which is in 100 % federal ownership” (Rosneft Official Website, 2014). Another state-controlled company Gazprom “holds the world’s largest natural gas reserves and the Company’s share in the global and Russian gas reserves makes up 18 % and 72 % respectively” (Gazprom Official Website, 2014). At present, the Company actively performs large-scale exploration and production projects in Yamal Peninsula, Arctic Shelf, Eastern Siberia and the Far East, and by virtue of its huge reserves it exports gas to more than 30 countries (Gazprom Official Website, 2014). “The Russian government holds over 50 per cent of its shares and it also has a monopoly on gas pipelines in Russia” (Woehrel, 2009, p. 2). Even, “Gazprom owns the world’s largest gas transmission network – the Unified Gas Supply System of Russia with the total length of over 168 thousand kilometers” (Gazprom Official Website, 2014).

As mentioned, “Russia's economy is highly dependent on its hydrocarbons, and oil and gas revenues account for more than 50% of the federal budget revenues” (EIA, 2014). By courtesy of huge energy reserves, Russian petroleum companies make the largest contribution to the Russian government’s budget; therefore, they control banks, industrial holdings and media. Moreover, energy companies of Russia “have determining influence on the state and prospects of development of the national economy providing for about a quarter of gross domestic product” (Kaveshnikov, 2010, p. 594). Indeed, the impact of Russian petroleum companies is quite significant because

they do not only make financial contribution to the state budget but also they give direction to both internal and external politics. For instance, most European and especially former Soviet countries are concerned that by controlling energy infrastructure in their countries, Russian energy firms are able to manipulate the internal political situation by favoring certain local businessmen and politicians” (Woehrel, 2012, p. 404)

According to the US Energy Information Administration (2013), the vast majority of Russian oil exports (approximately 84 %) went to European countries while the remaining was destined for Asia and Americas, in 2012. However, recent unconventional developments especially in the United States, Canada and Brazil have considerably displaced Russia's crude oil exports to North and South America. Nevertheless, Russia has many customers by way of its geographical location. Germany, Netherlands, China, Poland, Belarus, Finland, Sweden, Lithuania, Japan, Italy, France, Spain, United Kingdom, Bulgaria and Hungary are the main oil export routes of Russia.

Similar to oil export, Russia sells approximately 76% of its natural gas exports to customers in Western Europe, with Germany, Turkey, Italy, France, and the United Kingdom receiving the majority of these volumes (EIA, 2014). Due to the huge energy import amount of European Countries from Russia, “many countries of Central and Eastern Europe fear that Russia may use their energy dependency to interfere in their

domestic affairs or to force them to make foreign policy concessions” (Woehrel, 2012, p. 410).

As the Europe is the main market and the European countries are the most valuable customers of Russia, general information about the energy-related relations of the European Union and Russia will shed a light on the significance of Arctic reserves for Russia. For this reason, this section of the study briefly focuses on the EU – Russia relations on the field of energy.

Initiatives for establishing a European Union Energy Policy started with the single market. The state of natural gas and petroleum markets of the EU was investigated in the White Paper on Energy Policy which published by the Commission in 1988 (Kantörün, 2010, p. 98). The White Paper was considered as the starting point of European energy policy which includes three main principles: diversification of security of supply, competitiveness and environmental protection (Belyi, 2003, p. 351). Since the adoption of White Paper, promotion of internal energy market, liberalization of gas and electricity sectors, providing sustainable development and creating supporting schemes for renewable energy resources are the main objectives of the EU that’s why a number of directives and proposals⁸ has been implemented so far. It was projected

⁸ See. European Commission, White Paper for a Community Strategy and Action Plan, *Energy for the Future: Renewable Sources of Energy* COM (98) 571, Directives of the Council and the Parliament 96/92/EC on internal electricity market and 98/30/EC on internal gas market, Communication from the Commission to the Council and the Parliament, *Completing the internal energy market*; COM (2001) 125 final, European Commission Proposal to the European Parliament and the Council, *The internal market in energy: Coordinated measures on the security of energy supply*, COM(2002) 488 final.

that with enlargement, oil and gas import dependency of EU is likely to increase from its current 50 % to 70 % by 2020 and it will become the world's largest energy consumer; therefore, in order to reduce the rapidly emerging risks of energy security the European Commission published the Green Paper in 2000⁹.

The EU heavily emphasizes the importance of supply safety due to its dependence on petroleum and natural gas import, and it tries to develop various policies and strategies in order to ensure secure supply of energy. For this purpose, the EU focuses on the renewable energy sources and develops the supporting schemes for renewables. Within this scope, the EU has set three key objectives for 2020 which are known as 20-20-20 targets. Thanks to good progress towards meeting these 2020 energy targets, the 2030 framework for climate and energy policies presented by the European Commission on January 2014 that aims to build a competitive and secure energy system by ensuring affordable energy for all consumers, increasing the security of the EU's energy supplies, reducing the Union's dependence on energy imports (European Commission, 2014).

As a matter of fact, because of the huge fossil reserves of Russia, the EU aims to establish long-term energy partnership with Russia. Therefore, with the purpose of cooperation, the EU's policies toward Russia bases on three dimensions in the widest

⁹ See. European Commission, *Green Paper Towards a European strategy for the security of energy supply*, COM (2000) 769 and European Commission, *Communication from the Commission to the Council and the European Parliament*, final report on the Green Paper, (2002), p. 104.

sense. Belyi (2003) classifies these dimensions as political, economic and normative dimensions. According to this classification, political dimension aims reduction of energy import dependency while economic dimension tries to achieve competitive market and reasonable energy prices. Lastly, EU wants to establish a normative dimension with Russia through international multilateral frameworks like Kyoto Protocol in order to create an additional arena for energy policy.

However, despite the momentous efforts of the EU, today Russia defines the progress for EU-Russia relations not the EU. Most importantly, “while in the 1990s everybody was talking about Russian dependence on Western credits, now everyone talks about Western dependence on Russian gas” (Leonard and Popescu, 2007, p. 7).

When the Russian energy policies toward EU are shortly examined, Russia has different energy policies for almost every member state. As the European countries are the primary export market for Russia, it develops several strategies and scenarios such as fast development of gas production and pipeline capacity that mainly associated with its long-term gas strategy. However, energy transition via transit routes creates a significant obstacle for Russia because it exports the majority of its energy resources via pipelines and this makes Russia critically dependent on Ukraine and Belarus for transit. Actually, the transit problem has become more problematic after the interruptions to European gas supply in 2004. For this reason, Russia tries to achieve

greater independence from the transit countries. Therefore, Russia has to consider the significance of this problem while applying its Arctic strategy.

As mentioned, “Russia prefers to cultivate bilateral relations with EU member states while playing up internal divisions within the European Union” (Kulhanek, 2010, p. 51). The statement of EU Commissioner for Trade can be shown as the most obvious evident of this. Peter Mandelson, has claimed that: “No other country reveals our differences as does Russia and this is a failure of Europe as a whole, not any member state in particular” (Mandelson, 2007, p. 3).

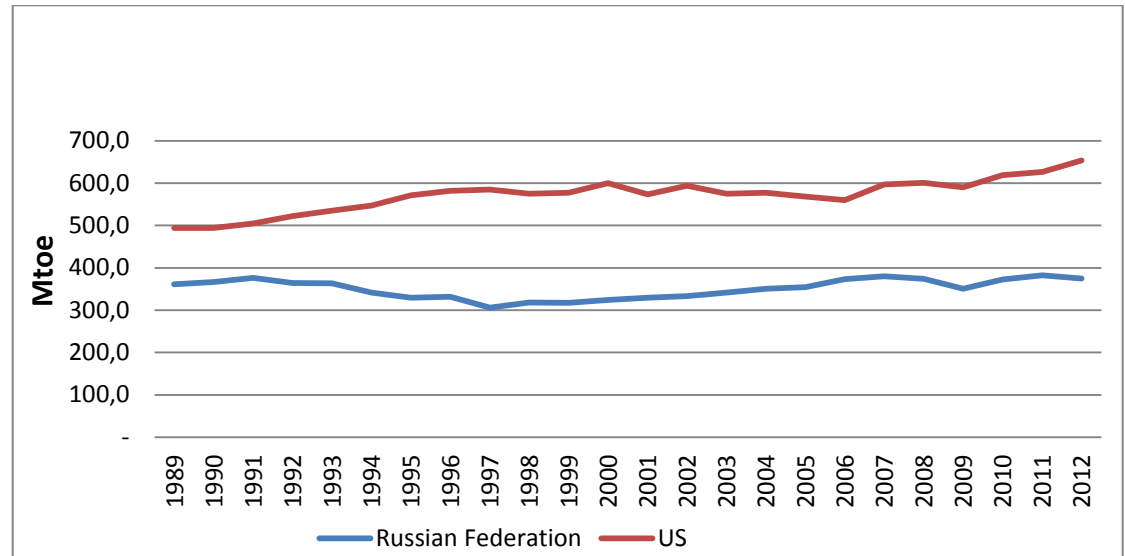
Actually, there are serious efforts to create a practically common European energy policy. For instance, European Commissioner for the energy portfolio, Günther Oettinger, has emphasized the importance of a coordinated European approach in energy matters mainly toward the major energy partner (Neuman 2010, p. 347). As can be seen, EU tries to find some solutions; however, it is difficult to say that there is a specific solution for the EU as a whole due to the different interests of the member states.

In the literature, although there are a number of discussions about the dependency problem of EU, the relations of EU and Russia are the most obvious example of interdependency. Russian dependence on the EU is only economic because as mentioned before, export of oil and natural gas comprises more than half of the state

budget. On the other side, the EU is heavily dependent on Russia in terms of energy. At this point, it can be questionable that why Russia takes place at the top of the supplier list of Europe. The most fundamental reason is the geographical location of Russia. As mentioned, Russia has the world's second largest proved natural gas reserves (after Iran) and it is also the second largest natural gas producer after the US (BP, 2013). Additionally, Russia locates right next to Europe. Although the US is the number one natural gas producer of the world, which has 619 mtoe natural gas production in 2012, is ocean away from Europe that makes impossible to export natural gas unless liquefied natural gas (IEA, Natural Gas Report, 2012). However, in such an option, LNG is likely to become more expensive due to the transport and process costs like liquification, regasification.

Another reason is that even though Russia produces less natural gas than the US, the natural gas consumption of US, is more than the Russia's consumption, as shown in the following figure. In 2012, Russia's natural gas consumption was 374,6 mtoe while US needed 654 mtoe natural gas to satisfy its domestic demand. Therefore, with 32,9 tcm (trillion cubic metres) of proved natural gas reserves and low transportation costs thanks to the existing infrastructure, Russia stays as the major natural gas supplier for Europe.

Figure 9
Natural Gas Consumption of the US & Russia



Source: BP Statistical Review of World Energy (2013).

Russia is also a significant player in terms of oil production and export. Moreover, despite its eighth rank in terms of oil reserves, Russia had surpassed Saudi Arabia as the top crude oil producer in four out of the first six months of 2012 (EIA, 2012). Furthermore, since the end of the 1990s, Russia has increased its oil production continuously while Saudi Arabia has showed some fluctuations, in other words, some decreases during the same period. Therefore, it is possible to say that Russia has achieved to turn its weakness into power thanks to its huge amount of natural resources; however, it has over boosted its oil and natural gas production. As the Russia does not have huge oil reserves as does Saudi Arabia, the Russian oil reserves will be exhausted in the near future; therefore, Russia seeks for new reserves and the Arctic Region seems as a good opportunity for continuity of Russian energy leadership.

In order to continue its energy leadership, Russia needs to increase production from the Arctic. Otherwise, over boosting is likely to result with the depletion of oil and natural gas resources. Although the Russian government has ratified the Kyoto treaty, it is not likely to take any constraining measures on the Russian hydrocarbon industry (Harsem, Eide and Heen, 2011).

In fact, Russia has the most developed infrastructure of all the Arctic nations and “two major ‘Arctic Projects’ are currently under development and more likely to represent a substantial part of the new Russian production” (Harsem, Eide and Heen, 2011). The Shtokman project is estimated to contain 3.8 trillion m³ of gas while the Yamal megaproject contains 16 trillion m³ of gas reserves (Bambulyak and Frantzen, 2009).

According to Gazprom, the Shtokman field is quite strategic because it will not only become “a pivotal point to form a new gas producing region on the Russian Arctic shelf but also it will provide a resource base for building up Russian pipeline gas and liquefied natural gas supplies to the domestic and foreign markets” (Gazprom Official Website, 2014).

Figure 10
Shtokman field of Russia



Source: Gazprom (2014).

It has been planned that the project will be completed in three stages. At the first stage, the annual production will become 23.7 billion cubic meters of gas, 47.4 bcm at the second stage and finally it will reach the design capacity of 71.1 bcm with completion of the last stage (Gazprom Official Website, 2014). As shown in the figure above, by means of diversification¹⁰ of routes, the project has potential to supply both pipeline natural gas to Europe and liquefied natural gas to the world market without any transit problem.

¹⁰ Diversification is one of the most basic elements that locate at the heart of the energy security concept. According to the Yergin (2006) diversification means that “as multiplying one’s supply sources reduces the impact of a disruption in supply from one source by providing alternatives, serving the interests of both consumers and producers, for whom stable markets are a prime concern” (cited in Bireselioglu, 2012). It can be achieved by three ways which are; diversification of resources, sources and routes.

Although the Arctic Region presents a substantial share of global petroleum resources, the cost of petroleum activities are higher than most other petroleum provinces (Lindholt and Glomsrod, 2011). Moreover, the petroleum activities in the Arctic require more complicated technology than the usual one; therefore, Russia needs to attract the interest of foreign companies in order to learn or acquire new technology. However, Russian investors have blocked the BP-Rosneft Arctic offshore venture (The Guardian, 2011). Another major problem is the legislative procedures of Russia that restricts foreign investments. Actually, both Gazprom and Rosneft, two major government-owned petroleum companies of Russia, need investment and capital. For instance, Gazprom has announced that there is a need an annual investment of around 18 billion US\$ until 2030 in order to maintain its output (Simmons and Murray, 2007). However, Russian government does not seem close for cooperation that's why it is creating indirect barriers for foreign investment. Nevertheless, it is also important to note that Russian government significantly supports the increased Arctic oil and gas activity thanks to its huge amount of undiscovered energy resources. That's why Russia planted a deep sea flag at the North Pole in 2007 and just one year later Russian Security Council adopted the new Arctic Strategy (Fundamentals of State Policy of the Russian Federation in the Arctic for the Period up to 2020 and beyond – originally *Osnovy gosudarstvennoi politiki Rossiiskoi Federatsii v Arktike na period do 2020 goda i dalneishuiu perspektivu*) which emphasizes the significance of (energy production in the) Arctic to national economy as the main source of revenue (Gira, 2010; Zysk, 2010). “The ultimate objective of the strategy is to transform the Arctic into Russia’s foremost

strategic base for natural resources by 2020” (Zysk, 2010). The Arctic strategy of Russia, which was ratified on 18 September 2008 by former President D. Medvedev, “aims to transform the region into Russia’s future resource base by providing greater investments, protecting Russian borders and safeguarding territory, ensuring environmental safety, promoting science and research, and contributing to international stability” (Kefferpütz, 2010, p. 6). Furthermore, Zysk (2010) argues that while in the short-term Russia aims to increase extraction of natural resources in the Arctic, in the long-term it intends to fasten up the role of Russia as a leading Arctic Power.

Russia holds vast territories than the other Arctic countries like US and Canada. Moreover, Russia has started industrial activities in the Arctic decades before than the other polar countries; therefore, it has the most powerful resource sector of the Arctic economy in the world (Pelyasov, 2013). Kefferpütz (2010) argues that this is mainly because of the belief that moving fast will create more advantageous position for Russia thus it will be able to establish a firm and more consolidated position in the region to the detriment of its competitors. Actually, the expression of Nikolai Patrushev, Secretary of the Security Council, is the most obvious evident for this approach of Russia that he has pointed out that *“if we do not become active now, we will simply be forced out”* (Schepp and Traufetter, 2009).

As a matter of fact, the Arctic issue is not a new subject in the Russian government agenda. Even, in 1987, Soviet President Mikhail Gorbachev has stressed the geopolitical significance of the Arctic for Russia (Heininen, 2012, p. 17). The significance of Arctic does not only arise from the huge amount of natural resources, the region also hosts militarily strategic points.

Although at the turn of the 21st century, Russia has mostly remained on the global agenda with its relations with EU, Arctic is covertly seen as a reservoir for long-standing EU-Russia relations from the Russian perspective. In fact, up to September 2008, there was no politically concrete indication; nevertheless, Russia has continued its scientific expeditions in the Arctic (Heininen, 2012, p. 18). In the course of time, those discoveries attract the attention of international media thus the Arctic has started to be transform a highly political subject. With the adoption of the official Arctic Policy in 2008, Russia (re)defined itself as an Arctic state and, national interests and main objectives of the Russia in the Arctic Region has been indicated. More importantly, the Arctic Strategy was also satisfied with number of official documents such as “*the Russian Maritime Doctrine of 2001, the Foreign Policy Concept of the Russian Federation; Russia’s National Security Strategy to 2020; Energy Strategy of Russia For the Period up to 2030; and The Concept of Sustainable Development Of the Small-numbered Indigenous Peoples of the North, Siberia and Far East*” (Heininen, 2012).

The Russian Arctic Strategy document is consists of six main sections. The document, which starts with **general statements**, focuses on **Russian Federation's national interests in the Arctic** at the second section. While **main goals and strategic priorities of the Russian state's policy in the Arctic** and **fundamental tasks and steps to put into effect the Russian state's policy on the Arctic** are respectively presented at the following sections, **the timetable for implementing the Russian state's policy on the Arctic** defines the roadmap at the final section (Main, 2011, p. 11).

The Arctic Strategy document of Russia, which was approved by Medvedev in 2008 and published on March 2009, not only emphasizes the significance of Arctic as the main source for Russian national revenue but also clearly displays the Russia's aims to maintain its status as the main state in the Arctic (Zysk, 2010). In parallel with this purpose, Gira (2010) argues that the practical implementation of Russian Arctic Strategy concentrates on three phases which can be also considered as indicators of Russia's degree of activity in the Arctic;

«First Phase (2008-2010): Russia's preparation for the legitimization of the external boundaries of its sector in the Arctic (carrying out geological, cartographic research, etc.); development of opportunities for international cooperation (in pursuit of effective absorption of Arctic natural resources in the Russian sector); implementation of miscellaneous projects based on state-private partnership with the objective of promoting the development of energy as well as other economy spheres in Russia's Arctic sector,

Second Phase (2011-2015): Legitimization at the international level of the external boundaries of Russia's sector in the Arctic and implementation of Russia's competitive advantage in the sphere of resource extraction and transportation. During this

period it is expected to begin the process of restructuring the economy of the Arctic sector in order to accelerate the absorption of Arctic mineral raw materials as well as ocean biological resources and the development of the infrastructure of the Northern Sea Route,

Third Phase (2016-2020): During this period the transformation of Russia's sector in the Arctic into the main natural resource base of strategic importance has to be implemented».

According to Kefferpütz (2010), Russia has followed a relatively successful road for the first phase and it has not only directed a good number of technological, scientific and infrastructural missions during the first phase but also Russia signed the Ilulissat Declaration in 2008 with other circumpolar states in order to reaffirm the sovereignty of the five Arctic Countries thus isolating the Arctic from other interested actors.

As understood, according to Russian authorities, the region is highly crucial for Russia's further wealth, social, economic and military development as well as its competitiveness on global markets (Zysk, 2010). That's why "Russia intends to use all of the means at its disposal to realize this strategy and protect its interests in the Arctic Region" (Kefferpütz, 2010, p. 7). For that purpose, Russia is following a multi-directional way. As mentioned, while on the one hand it is increasing the scientific and technological operations, on the other hand it is struggling for isolating the region from non-Arctic actors as well as blocking the EU's efforts to join the Arctic Council (Kefferpütz, 2010). Heininen, (2012) argues that the Arctic Strategy of Russia is the

most obvious indication of national interests and fundamental objectives of the Russian Federation in the region.

According to Zysk (2010), putting rich energy reserves aside, Northern Sea Route is one of the most fundamental interests of Russia through the entirely integrated transportation link and focal point in maritime connections between Europe and Asia; therefore, Russia defines the Northern Sea Route as 'national transportation route' under the jurisdiction of Russia. Moreover, the strategy documents states that "navigation via this sailing channel has to be carried out in compliance with Russian laws and the country's international agreements" (Zysk, 2010, p. 2). That's why many experts advocate that the Strategy document of Russia clearly declares the active expansionism of Russia in the Arctic (Gira, 2010, p. 9). Nevertheless, Russia is working to increase its capabilities in the Arctic both theoretically and practically. For instance, Russia has already have considerable seafaring capacity; "it owns not only a large fleet of polar-class nuclear-powered icebreakers, including the world's biggest vessel of this class '50 Years of Victory' (*Pyatdesyat Let Pobedy*), but also a large fleet of non-nuclear and nuclear-powered commercial and scientific vessels" (Kefferpütz, 2010, p. 7). Nonetheless, Russia is allocating significant budget for the construction of new vessels.

Although Arctic Strategy document of Russia states the Federation's defense policy for the region in an implicit form, Russia underlines the significance of maintaining necessary combat potential in the Arctic in order to secure the country's national

interests thus the Strategy discloses that one of the fundamental aim of Russia is to establish special Arctic military formations to protect the Russian national interests in various political and military situations (Zysk, 2010).

As argued by realism, by increasing its military and security presence in the Arctic, Russia intends to guarantee its interests in the region. Kefferpütz (2010) argues that “Nikolai Patrushev, former Director of the Russian Federal Security Service (FSB), created a special Arctic Directorate at the FSB in 2004, while in March 2009 the Security Council called for the establishment of a military unit, in line with the Arctic Strategy, that will safeguard the security of Russian territory in the Arctic Ocean in any military and political environment”.

As explained in detail before, Arctic Region is mostly composed of the Arctic Ocean and its sea¹¹ as well as the northern borders of the North America and Eurasia. According to Gira (2010), due to the huge petroleum reserves and due to the lack of mechanism regulating the region’s issues, the Arctic is a potential tension point in international relations. As argued by realism, all nation-states pursue their own national interests in order to increase its own power and security; therefore, clashing interests lead to increase in competition and struggle for power. Furthermore, as the international system is anarchic, the conflict is inevitable. That’s why national security issues

¹¹ “The Arctic Ocean is comprised of the Baffin Bay, Beaufort Sea, Chukchi Sea, East Siberian Sea, Greenland Sea, Hudson Bay, Hudson Strait, Kara Sea, Laptev Sea, White Sea and other tributary bodies of water. The Arctic Ocean is separated from the Pacific Ocean by the Bering Strait and from the Atlantic Ocean – the Greenland Sea and Labrador Sea” (Gira, 2010, p. 2).

dominate the top of the agenda for realists. Although the tension in the Arctic has continued relatively low up to now, the region is not subject to any military or arms control mechanism that creates one of the significant challenges for both the region and bordering countries (Gira, 2010).

As taking into consideration the assumptions of realism, Russia is increasing its military capacity in the Arctic both strategically and operationally. For instance, Russia is conducting multifarious exercises in the Arctic, including paratroop drops, patrols, submarine fleet as well as reinforcing the army's combat readiness along the Arctic coast (Kefferpütz, 2010, p. 7). More significantly, "in August 2007, the Russian Air Force, acting on a directive from Putin, resumed long-range bomber flights over the Arctic" (Kefferpütz, 2010, p. 7).

Moreover, Russia does not refrain from defining the Arctic as a main scene for future military conflict. "The State Policy in the Arctic is strongly linked with and supported by other federal policies and strategies as the region is a strategic resource base for the whole Federation" (Heininen, 2012, p. 19). In addition to the Arctic Strategy, namely the Fundamentals of State Policy of the Russian Federation in the Arctic for the Period up to 2020 and beyond, "Russia has revamped its National Security Strategy, taking into account the ever-changing security environment in Russia's Far North" (Main, 2011, p. 3).

The Kremlin Strategy for National Security until 2020¹² constitutes the legal base for military exercises of Russia in the Arctic and “identifies the Arctic Region as prone to future military conflict, especially over its energy resource” and regardless of the West, “Moscow demonstrates its military prowess in the region with mock bombardments and elbows possible competitors aside” (Kefferpütz, 2010, p. 8).

As mentioned above, Russian Arctic Strategy document is made up of six main sections. Although it has been satisfied with number of other official documents, the Strategy document is accepted as a main source within the scope of this study. Hence, in addition to the above-mentioned details, this part of the study presents a general summary of the Strategy document.

The initial section of the document (namely the *general statements*) outlines the specific features of the region such as geographical definition of the Arctic zone, extreme weather conditions, low population, etc. The second section details the *Federation’s national interests in the Arctic* which defines the region as a ‘national strategic resource base’ for sustainability of socio-economic development throughout the country (Blank, 2011, p. 18). Parallel to this purpose, Russia describes its fundamental national interests as;

- preserving the Arctic as a zone of peace and security,
- use of the Northern Sea Route as a national unified transportation route and,

¹² Strategy for National Security until 2020 (Strategiya natsional’noy bezopasnosti Rossiizkoy Federatsii do 2020 goda), No. 537, 12 May 2009.

- protecting the region's ecological system (Main, 2011).

That's why Russia creates military formations and armed forces in order to provide security under various military and political circumstances (Blank, 2011).

Parallel to second section, the document comprehensively draws up the main goals and strategic priorities of the Russian state's policy in the Arctic. The central strategic priorities can be summarized as follows;

- Extension of Arctic activities of Russia for hydrocarbons, maritime biological resources and other strategic raw materials,
- Guaranteeing defense and protection of the Federation's state border with group of forces, troops, combat units and organs based in the region,
- Maintaining and preserving ecology and environment from increasing number of economic activities and global climate change as well as improving life quality for indigenous people,
- Improving scientific and technological capabilities like communication and developing resource base as well as modernizing and developing infrastructure for Arctic transportation and fisheries,
- Delimitation of maritime areas, strengthening of bilateral relationships with regional organizations such as the Arctic Council, contributing to international Arctic forums through the EU-Russia partnerships etc... (Heininen, 2012; Main, 2011 cited in Rossiyskaya Gazeta, 2009).

As opposed to basic assumptions of realism, these strategic priorities show that collaborative work with other states and international organizations seems possible with the purpose of further development of the region as a whole (Main, 2011). At this point, it is possible to say that while the second part of the strategy document that heavily emphasizes making the region as a national strategic resource base of Russia, is completely compatible with the classical realist theory, the third part envisages the cooperation through institutions.

The following section of the document, namely fundamental tasks and steps to put into effect the Russian state's policy on the Arctic, brings more detailed explanations about the issues on socio-economic development of the region, military-security, ecology, environment, scientific researches and technology; however, only the military-security section, which emphasizes the necessity of armed forces, troops and military organs, has created paramount agitation in the West (Main, 2011).

Finally, as deeply explained before, the last two sections of the document present the mechanisms and roadmap for implementation of the Russian Federation's policy on the Arctic with a specified timetable that focuses on three phases. As of today, Russia has completed the most part of the second phase and it is also possible to say that it has achieved to turn Russia into the leading power of the Arctic. Furthermore, it has been continuing on its road successfully. Parallel to this progress, Russia has recently published a new document in order to "outline the policy directions and the

mechanisms needed for the relocation of oil and gas production into new areas” (Filimonova, 2013, p. 3). This latest published document, namely ‘Strategy for the Development of the Arctic Zone of the Russian Federation and National Security for the Period up to 2020’ which approved by the President Vladimir Putin on February 20, 2013, is the main indicator of this worthy progress of Russia that also likely to cooperation between state and business organizations as well as foreign entities especially in the fields of natural resource based technology development and infrastructure projects (Filimonova, 2013, p. 3).

4.2.2 US Arctic Strategy

During the Cold War, the Arctic was one of the most geopolitically significant fronts for international security that’s why NATO was highly concerned about nuclear forces of the Soviet Union as well as the concentrated naval forces of it in the High North (Zakrzewska, 2013, p. 10). Although the attention to the region has naturally moved away following the end of the Cold War and the dissolution of the Soviet Union, the Arctic has again started to be an international focus point especially within the last decade (Zysk, 2011, p. 92).

As mentioned, especially since the beginning of 2000s, the chain of a serious of events has attracted the attention of the world toward the region. Extraordinary climatic deviations which resulted with thinning ice cover, flag-planting ceremony of Russia that increased speculations about New Cold War and, instable and higher oil and gas prices

of the Middle East are the main dynamics that turned the eyes of the world toward the Arctic. However, “much of the focus has been generated by the US Geological Survey’s World Petroleum Assessment from 2000, which was widely interpreted as attributing 25 percent of the world’s recoverable undiscovered energy resources to the Arctic” (Harsem, Eide and Heen, 2011; Koivurova and Hossain, 2008; Zysk, 2011). As a consequence of this series of significant events, the region has attracted the attention of not only the littoral states but also the other countries which are geographically far away from the region. Thereupon, in December 2006, the Norwegian Government has published a comprehensive document about the strategic priority of the High North, namely the Norwegian Government’s High North Strategy (Arctic Council, 2014). In September 2008, Russian Security Council adopted the new Arctic Strategy namely the Fundamentals of State Policy of the Russian Federation in the Arctic for the Period up to 2020 and beyond which has also been supported with number of other official documents (Heininen, 2012). In the following year, Government of Canada was published the Northern Strategy document namely the Canada’s Northern Strategy: Our North, Our Heritage, Our Future. In August 2011, Kingdom of Denmark Strategy for the Arctic 2011-2020 was released.

During those periods, “the United States has also shown some interest in Arctic affairs; however, has taken little concrete action” (Zakrzewska, 2013, p. 7). The early official document on the Arctic policy of the US was released in January 2009 by the former President George W. Bush’s Administration. Namely the National Security Presidential

Directive (NSPD-66) and Homeland Security Presidential Directive (HSPD-25) aim to “establish the policy of the US with respect to the Arctic Region and direct related implementation actions” (Homeland Security Digital Library, 2014). In May 2013, the latest Arctic Region Policy of the US namely the United States of America National Strategy for the Arctic Region that predominantly focuses on security-related issues in the region was published by the White House Administration. “Accordingly, security concerns, such as missile defence and early warning and regional deployments of sea and air systems for strategic sealift, strategic deterrence and maritime security operations are Washington’s main concerns for the Arctic” (Zakrzewska, 2013, p. 7).

Before moving in details of the National Security and Homeland Security Directive (hereinafter referred to as Directive) and the National Strategy for the Arctic Region (hereinafter referred to as Strategy document/paper), it is important to note that the US has not specifically focused on the Arctic both domestically and internationally. For instance, in 1994, although the Clinton Administration had issued the Arctic policy objectives of the US such as protection of environment, use and management of natural resources as well as meeting post-Cold War national security and defense needs, the US did not explicitly verbalize these objectives (Macnab, 2009). However, “after the Russian expedition to the North Pole in August 2007, experts on political subjects argued that the United States was falling behind Russia in the Arctic race” (Heininen, 2012, p. 22). Therefore, the flag-planting scene of Russia has prompted to the US and it has started to emphasize the necessity of an Arctic agenda or program.

Consequently, in 2009, the above-mentioned Directive was released by the White House that “supersedes the 1994 Presidential Decision Directive¹³ (PDD-26) with respect to Arctic policy but not Antarctic policy; PDD-26 remains in effect for Antarctic policy only” (White House, 2009, p. 1).

It is significant to note that the 2009 Directive defines the US as “an Arctic nation with varied and compelling interests in that region” (White House, 2009, p. 1). The Directive (NSPD-66) addresses the Arctic Region Policy of the US. Accordingly, the Arctic policy objectives of the US can be lined up as follows;

- “Meeting national security and homeland security needs relevant to the Arctic Region,
- Protecting the Arctic environment and conserving its biological resources,
- Ensuring that natural resource management and economic development in the region are environmentally sustainable;
- Strengthening institutions for cooperation among the eight Arctic nations (namely the US, Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, and Sweden),
- Involving the Arctic's indigenous communities in decisions that affect them, and
- Enhancing scientific monitoring and research into local, regional, and global environmental issues” (White House, 2009, p. 2).

¹³ The subject of the PDD-26 is the United States Policy on the Arctic and Antarctic Regions.

Apart from these policy objectives, the 2009 Directive includes seven detailed sections which are respectively; National Security and Homeland Security Interests in the Arctic, International Governance, Extended Continental Shelf and Boundary Issues, Promoting International Scientific Cooperation, Maritime Transportation in the Arctic, Economic Issues Including Energy, and Environmental Protection and Conservation of Natural Resources.

The following figure illustrates the Arctic policy objectives of the US in 1994 and in 2009 comparatively. As shown in figure below, the 2009 Directive contains most of the objectives of the 1994 Directive. Although the objective about indigenous people does not publicly take part among the seven detailed sections of the 2009 Directive as differ from the previous Directive, it has been mentioned within the policy body of that Directive that has also been lined up above. Unlike the former one and being a clear outcome of the climate change, the 2009 Directive involves two new objectives which are; extended continental shelf and boundary issues and maritime transportation. However, the most remarkable change between two Directives is seen obviously in the order of the objective lists. While 'protecting the Arctic environment and conserving its biological resources' was at the top of the 1994 Directive, it reappears as 'environmental protection and conservation of natural resources' at the bottom of the 2009 Directive (Macnab, 2009, p. 23).

Table 1
Arctic Policy Objectives of the US in 1994 and in 2009.

In 1994	In 2009
Protecting the Arctic Environment and Conserving its Biological Resources	National Security and Homeland Security Interests
Environmentally Sustainable Natural Resource Management and Economic Development	International Governance
Strengthening Institutions for Cooperation among the Eight Arctic Nations	Extended Continental Shelf and Boundary Issues
Involving the Arctic's Indigenous People in Decisions that Affect Them	Promoting International Scientific Cooperation
Enhancing Scientific Monitoring and Research on Local, Regional, and Global Environmental Issues	Maritime Transportation
Meeting Post-Cold War National Security and Defense Needs	Economic Issues Including Energy
	Environmental Protection and Conservation of Natural Resources

Source: Federation of American Scientists.

Another and most probably the most significant difference in the order of the objective list emerges on the issue of security. “The item at the bottom of the 1994 list, meeting post-cold war national security and defense needs, has been transferred to the top of the 2009 list as national security and homeland security” (Macnab, 2009, p. 23). Accordingly, “the US has broad and fundamental national security interests in the Arctic Region and is prepared to operate either independently or in conjunction with other states to safeguard these interests” (White House, 2009, p. 2). As argued by realism, the international system is anarchic; therefore, conflict is inevitable. That’s why realists put the national security issues at the top of the agenda. Parallel to this

theory, the US heavily “emphasizes national and homeland security and borders, particularly dealing with maritime areas through increased military presence and the projection of sea power throughout the region” (Heininen, 2012, p. 23).

In relation to the second objective of the 2009 Directive, which is the international governance, the US takes part in a variety of forums, international organizations, and bilateral contacts (such as the Arctic Council, the International Maritime Organization etc.) in order to promote its interests in the Arctic (White House, 2009, p. 3). According to Directive (2009), the Senate should act favorably on US accession to the U.N. Convention on the Law of the Sea (UNCLOS) in order to protect and advance the Arctic interests of the US; however, in practice, this is a locked issue in the US Congress. It is significant to note that, “although the US has not as yet ratified UNCLOS, it would like to establish the outer limits of its continental shelf as well as push Russia towards ratification of the 1990 US-Russian boundary agreement” (Heininen, 2012, p. 23). Furthermore, within the scope of the third objective -extended continental shelf and boundary issues- exercising sovereignty rights over the natural resources like oil, natural gas is crucial for the US’ national interests especially under the scope of energy security (White House, 2009, p. 3). As mentioned, without ratifying the US accepts UNCLOS as legitimate mechanism. Nevertheless, “the US acknowledges its unresolved boundary with Canada in the Beaufort Sea, and is ready to honor the 1990 US-Russian agreement for maritime boundary in the Chukchi Sea, once the Russian Parliament ratifies the agreement” (Macnab, 2009, p. 24).

The 2009 Directive also emphasizes the importance of promotion of scientific research, protection of maritime transportation and commerce as well as conservation of unique and changing Arctic environment. However, as the energy issues have key importance within the scope of this study, a brief assessment of the energy-related objective of the 2009 Directive is crucial too. Accordingly, the Directive emphasizes the significance of energy development in the Arctic as a way of solution for the rapidly increasing global energy demand. Hence, while on the one hand the US seeks to increase efforts with other Arctic nations such as oil and gas development projects including exploration, production and infrastructure projects, on the other hand it attempts to guarantee the interests of the US with respect to hydrocarbon reserves.

Actually, the above-mentioned general comparison of the 1994 and 2009 Directives of the US related to its Arctic policy displays that historically the US has expressed its interests in the region in a sort of way; however, the main objectives in these documents have mostly reaffirmed the previous versions. Hereof, it has been argued that despite dramatic shifts in the world scene like end of the Cold War or increasing scope of climate change, the basic Arctic objectives of the US have not changed significantly such that the US has mostly preserved the basic policy tenets of its Arctic strategy “from Richard Nixon’s 1971 National Security Decision Memorandum (NSDM-144), Ronald Reagan’s 1983 National Security Decision Directive (NSDD-90)¹⁴, and Bill

¹⁴ National Security Decision Directive (NSDD-90), “United States Arctic Policy,” April 14, 1983.

Clinton's 1994 Presidential Decision Directive (PDD/NSC-26)¹⁵, to the waning days of George W. Bush's administration when he signed NSPD-66/HSPD-25 in January 2009" (Conley, et al., 2013, p. 15).

Ultimately, in July, 2012, the Senators (namely Lisa Murkowski and Mark Begich) emphasized the necessity of a comprehensive national Arctic strategy for the US with a letter to President Obama and they stated that "the US policy has advanced in a less than organized fashion, with multiple federal agencies creating their own departmental policies, roadmaps, and vision and strategy statements to help guide future development; however, now it is time to take the next step in this policy development: creation of an overall national US strategy for the Arctic" (Murkowski and Begich, 2012 cited in Conley et al, 2013, p. 14). Following year, the Obama Administration published the 'National Strategy for the Arctic Region' that supplements the 2009 Directive (NSPD 66/HSPD 25) rather than supersede it (O'Rourke, 2014, p. 8).

The National Strategy for the Arctic Region, dated on May 10, 2013, broadly focuses on three main lines of effort which are respectively: advance security interests, pursue responsible Arctic Region stewardship, and strengthen international cooperation (Department of Defense, 2013, p. 3). The following part of this study will be focus on the 2013 National Strategy Document and the 2014 Implementation Plan for the

¹⁵ Presidential Decision Directive/National Security Council (PDD/NSC-26), "United States Policy on the Arctic and Antarctic Regions," June 9, 1994.

National Strategy for the Arctic Region as well as the Arctic Strategy of the Department of Defense.

The Obama Administration published the National Strategy document for the Arctic Region on May 10, 2013 in an effort to define the national security interests of the US in the Arctic Region and identify prioritized lines of effort (National Arctic Strategy Document¹⁶- hereinafter referred to as NASD, 2013). The Strategy was shaped in accordance with the idea that ‘where opportunities exist the action is needed’ and it has been accepted as a supplementary to the 2009 Arctic Policy Directive (O’Rourke, 2014). Furthermore, the NASD 2013 is supported with the May 2010 National Security Strategy Paper that both documents states that:

*«The United States is an **Arctic Nation** with broad and fundamental interests in the Arctic Region, where we seek to meet our national security needs, protect the environment, responsibly manage resources, account for indigenous communities, support scientific research, and strengthen international cooperation on a wide range of issues».*¹⁷

The NASD 2013 defines the changing conditions in the Arctic with newly emerging opportunities and challenges. Additionally, the US defines its principal interests in the Arctic which can be ranged as; sustainable security of the US, protection the free flow of resources and commerce, environmental protection, providing the needs of indigenous communities, as well as enabling scientific research (NASD, 2013). Within

¹⁶ National Strategy for the Arctic Region, May 2013.

¹⁷ National Security Strategy, May 2010.

the scope of these interests, the US launches an overall “national approach to advance national security interests, pursue responsible stewardship of this precious and unique region, and serve as a basis for cooperation with other Arctic states¹⁸ and the international community as a whole to advance common interests” (NASD, 2013). Therefore, in general, the structure of the 2013 Strategy bases on the efforts “to protect US national and homeland security interests, promote responsible stewardship, and foster international cooperation” (NASD, 2013). Furthermore, it is important to note that, on the one hand the US focuses on the opportunities (such as holding respectively 13 % and 30 % of the world’s technically recoverable undiscovered oil and gas deposits, as well as huge amount of other resources like iron ore or nickel); on the other hand, it focuses on the challenges especially the climate and environmental related ones such as risks for indigenous populations or countries that locate lower latitudes like Greenland. Nevertheless, it is significant to note that national interests hold the first rank in the NASD of the US and the documents states that “it is imperative that the United States proactively establish national priorities and objectives for the Arctic Region”.

The National Arctic Strategy Document consists of three main lines of effort and four main guiding principles. The first effort- *Advance United States Security Interests*- defines the highest priority of the US as “the protection of American people, sovereign

¹⁸ Arctic state is defined as one of the eight nations making up the permanent membership of the Arctic Council and includes the following nations: Canada, Denmark (including Greenland and the Faroe Islands), Finland, Iceland, Norway, Russia, Sweden, and the United States.

territory and rights, natural resources, and interests of the United States” (NASD, 2013). Within the scope of this effort, the US is likely to support collaborative work with both Arctic and non-Arctic nations that seek an active role in the region, to address the challenges and opportunities. Nevertheless, the document emphasizes that US will “remain vigilant to protect the security interests of the United States” (NASD, 2013, p. 6).

Within the scope of the first effort, the US also stress the importance of evolving Arctic infrastructure and strategic capabilities, enhancing Arctic domain awareness, preserving Arctic Region freedom of seas and future of energy security. Most significantly, the energy security is addressed as the core component of the national security strategy and the oil and gas resources of the region are assessed as valuable supplies to meet US energy needs and reduce reliance on imported oil as well as strengthening the US’ energy security (NASD, 2013).

The second effort *-Pursue Responsible Arctic Region Stewardship-* involves the following objectives;

- “Protection of Arctic environment and conservation of Arctic natural resources,
- Integrated Arctic Management to balance economic development, environmental protection, and cultural values,
- Increasing understanding of the Arctic through scientific research and traditional knowledge,

- Continuing to make progress in charting and mapping the Arctic Region's ocean and waterways" (NASD, 2013, p. 8).

Finally, the last effort- *Strengthen International Cooperation*- is shaped within the framework of four main objectives which are respectively;

- "Pursue arrangements that promote shared Arctic state prosperity, protect the Arctic environment, and enhance security,
- Work through the Arctic Council to advance US interests in the Arctic Region,
- Accede to the Law of the Sea Convention,
- Cooperate with other interested parties" (NASD, 2013, p. 9).

In order to protect US interests especially the security and economic interests in the region, the document support coordination among Arctic nations through coordination mechanisms. For instance, the NASD (2013) argues that "the Arctic Council has facilitated notable achievements in the promotion of cooperation, coordination, and interaction among Arctic states". Furthermore, "the 2011 Arctic Search-and-Rescue Agreement and the 2013 Arctic Marine Oil Pollution Preparedness and Response Agreement" are accepted as recent successes of the Council. However, it is contradictory that on the one hand the US argues that "accession to the Law of the Sea Convention would protect US rights, freedoms, and uses of the sea and airspace throughout the Arctic Region" on the other hand "it is the only Arctic state that is not currently a party to the Convention" (NASD, 2013, p. 10).

As mentioned, the National Arctic Strategy Document consists of three main lines of effort and four main guiding principles. In order to guide the above-mentioned efforts, the document has also identified the following principles;

- *“Safeguard peace and stability-* that seeks to maintain and preserve the Arctic Region as an area free of conflict [...],
- *Make decisions using the best available information-* that all decisions need to be based on the most current science and traditional knowledge,
- *Pursue innovative arrangements-* that foster partnerships with the state of Alaska, Arctic states, the private sector as well as other international partners for more efficient development [...],
- *Consult and coordinate with Alaska natives-* that engages in a consultation process with Alaska Natives, recognizing tribal governments’ unique legal relationship with the US [...] ” (O'Rourke, 2014, p. 9).

On January 30, 2014, «Implementation Plan for the National Strategy for the Arctic Region¹⁹» was released by the Obama Administration. The Implementation Plan follows the structure and objectives of the 2013 NASD’s three lines of efforts and its’ supporting four guiding principles in a more comprehensive way. Furthermore, the Implementation Plan (hereinafter referred to as IP) outlines approximately 36 specific initiatives and for each, “it presents a brief statement of the objective, a list of next steps to be taken, a brief statement about measuring progress in achieving the

¹⁹ Implementation Plan for the National Strategy for the Arctic Region, January 2014.

objective, and the names of the lead and supporting federal agencies to be involved” (O'Rourke, 2014, p. 11).

Within the scope of the first line of effort of the 2013 NASD, which is namely *Advance United States Security Interests*, the IP outlines that while “in some cases, implementation will be achieved through multilateral cooperation; however, in other instances, national security interests will best be achieved through independent actions or bilateral initiatives” (IP, 2014, p. 5).

As the focal point of this study is to analyze the significance and the clashing interest of the US and Russia in the Arctic energy future, the below-listed subjects are only mentioned as important headings of the IP. However, as the concept of energy security constitutes one of the important pillar of this study, the energy-related subjects of the IP is tried to be explained in a detailed way.

Within the framework of the *Advance United States Security Interests*, the IP stress the necessity of the following subjects;

- “Prepare for increased activity in the maritime domain,
- Sustain and support evolving aviation requirements,
- Develop communication infrastructure in the Arctic,
- Sustain federal capability to conduct maritime operations in ice-impacted waters,

- Promote international law and freedom of the seas,
- Pursue the development of renewable energy resources,
- Ensure the safe and responsible development of non-renewable energy resources” (IP, 2014).

As mentioned, the NASD (2013) addressed the energy security as the core component of the national security strategy and it assessed the oil and gas resources of the region as valuable supplies to meet US future energy needs. Accordingly, the Implementation Plan lays significant emphasis on the future United States energy security and defines the objectives and future plans for development of both renewable and non-renewable energy resources of the region. With this plan, in order to support energy development, energy security and affordable energy reliability needs of the State, the US encourages collaborative strategies for development of renewable energy resources such as wave, wind and solar energy as well as focusing on partnerships to promote science, technology and infrastructure in the region (IP, 2014).

In an attempt to ensure safe and responsible development of non-renewable energy resources, the IP details the plans for exploratory deep-water baseline search and requires the scientific and technical assessment of oil and gas potential especially for potential future offshore leasing (IP, 2014, p. 11). Furthermore, next steps include the “assessment of the capacity and integrity of the Trans-Alaska Pipeline System to facilitate the flow of additional onshore and offshore oil resources by the end of 2016”

as well as improvement of hydrocarbon capturing and spill prevention technology with the support of Department of Energy and Department of Commerce (IP, 2014, p. 11).

In line with the second effort of the 2013 NASD- *Pursue Responsible Arctic Region Stewardship*- the 2014 IP also details the environmental and cultural considerations. Conservation of Arctic ecosystems, prevention of hazardous material spills, protection of traditional and cultural values, improvement of Arctic communities' sustainability, well-being, cultural and linguistic heritages are the main subjects that have detailed roadmaps within the Implementation Plan.

Finally, the 2014 IP argues that international engagement and cooperation is critical for the success of the NASD. That's why, third part of the IP "primarily focuses on the efforts of international bodies, such as the Arctic Council and the International Maritime Organization" (IP, 2014, p. 24).

Consistent with the changes, challenges and opportunities in the Arctic, necessary activities and timetable for the progress that is determined in the IP will be reviewed and reported to the US President annually. Moreover, 5 years later, the IP will be revisited to ensure that it still meets the intent and priorities of the US (IP, 2014, p. 32).

It is also important to note that the US Department of Defense (hereinafter referred to as DoD) has also strategy for the Arctic Region that has been published only six months

later than the 2013 National Strategy for the Arctic Region. “The Department of Defense Arctic Strategy recognizes the role that the Arctic Region will play in shaping the global security environment in the 21st century” (DoD, 2013, p. 1). The DoD Arctic Strategy, which has been in force since the November, 2013, bases on the four guiding principles of the 2013 NASD and as an supplementary document, it pursues the following eight objectives;

- “Exercise sovereignty and protect the homeland,
- Engage public and private sector partners to improve domain awareness in the Arctic,
- Preserve freedom of the seas in the Arctic
- Evolve Arctic infrastructure and capabilities consistent with changing conditions,
- Support existing agreements with allies and partners while pursuing new ones to build confidence with key regional partners,
- Provide support to civil authorities, as directed,
- Partner with other departments and agencies and nations to support human and environmental safety, and,
- Support the development of the Arctic Council and other international institutions that promote regional cooperation and the rule of law” (DoD, 2013, p. 7).

Among all of those objectives, it is crucial to indicate that decreasing seasonal ice has been increasing access to the Arctic and as the opportunities increase in the region, the number of actors that are willing to operate in the Arctic increase too. However, from the perspective of the US, this brings along more challenges and hostile intents toward the US homeland. That's why "the DoD will remain prepared to detect, deter, prevent, and defeat threats to the homeland as well as continuing to support the exercise of US sovereignty" (DoD, 2013, p. 8).

Furthermore, strategy of the DoD addresses some of the risks and challenges that may create tension in the region. Apart from the uncertain climate conditions and fiscal constraints, "political rhetoric and press reporting about boundary disputes and competition for resources may inflame regional tensions" (DoD, 2013, p. 13). One of the other significant risks is that aggressive behaviors for the sake of security interests may create mistrust and miscommunication environments. "There is some risk that the perception that the Arctic is being militarized may lead to an «arms race» mentality that could lead to a breakdown of existing cooperative approaches to shared challenges" (DoD, 2013, p. 13).

Therefore, in the near-term, "the DoD will maintain and enhance by continuing to conduct exercises and training in the region" while in the mid- to far-term²⁰, further

²⁰ The DoD strategy identifies three timeframes to be used for implementation planning: the near-term (present day-2020); mid-term (2020-2030); and far-term (beyond 2030). These timeframes are approximate due to uncertainty in climate change projections.

capabilities may be needed in order to secure the air, land and maritime borders of the US in the Arctic in line with the 2013 NASD (DoD, 2013, p. 8).

To sum up, the May 2013 National Strategy for the Arctic Region is the latest strategy document of the US on the Arctic Region that mainly bases on three lines of effort and four guiding principles. The Department of Defense Arctic Strategy that has been in force since the November 2013, applies the four guiding principles of the 2013 National Strategy for the Arctic Region and as a supplementary to the NASD, the DoD Arctic Strategy primarily focuses on eight objectives. Lastly, the Implementation Plan for the National Strategy for the Arctic Region, which released by the Obama Administration on January 30, 2014, is consistent with three lines of effort and four guiding principles of the 2013 NASD and the IP outlines the roadmaps, specific timetables and required progress for each objective in a comprehensive manner.

CHAPTER 5

5. Comparative Analysis of the US and Russian Interests in the Arctic Energy Future from the Perspective of Game Theory: Examining Three Possible Scenarios

The significance of Arctic Region has been showing an increasing trend especially after the recent geological studies that has attributed the Arctic as a new energy region of the future. However, petroleum related activities in the Arctic are not only in the hand of national governments or international oil companies. Oil and natural gas development in the region is regrettably dependent on many factors such as commercial profitability, combination of high demand with high petroleum prices, technological improvements, scope of national strategies, security concerns, emergence of unconventional resources, political relations and financial crisis. Therefore, to make precise estimations for the Arctic energy future, a study should cover the all aspects related to the Region including engineering dimension, economic dimension, technical and political dimensions as well as their theoretical and practical implementations.

As the focal point of this study is to analyze the significance and the clashing interests of the US and Russia in the Arctic energy future especially from the perspective of energy security, this study mostly covers the social and theoretical dimensions of the Arctic. Therefore, especially within the scope of the realist approach and its relation to

energy security, this study has been constructed upon the three pillars the game theory with an aim to create alternative scenario bases for further researches.

Following a discussion focusing on the US and Russian strategies towards the Arctic Region, together with the analysis of the Arctic Region from the political geography perspective as well as the role of energy among the Russo-American relations, this part of the study respectively focuses on three different scenarios of the game theory for two main actors of the Arctic. Table 2 shows a general systematic summary of these three possible scenarios while the following part of the study brings more comprehensive explanations to this table.

Table 2
Possible Scenarios in the Arctic Energy Future.

Scenarios	Model	Expected Attitude toward Arctic Resources		Winning Party	Losing Party
		US	Russia		
First Scenario (Perspective 1)	Zero-sum game	Modest	Aggressive	1 (US / Russia)	1 (US / Russia)
First Scenario (Perspective 2)	Zero-sum game	Aggressive	Aggressive	1 (US / Russia)	1 (US / Russia)
Second Scenario	Positive-sum game	Cooperative	Cooperative	2 (US & Russia)	Other Arctic Countries
Third Scenario	Negative-sum game	Aggressive (wish to more oil and gas)	Aggressive (wish to more oil and gas)	0	World

The first scenario bases on the *zero-sum game*. In fact, this model is the most probable model in the history of the international relations. In that scenario either the US wins and Russia loses or Russia wins and the US loses.

As is known, the US is the leading country in terms of oil and natural gas consumption (EIA, 2013). Furthermore, historically, the US is one of the world's largest importers of oil and it heavily relies on import from the Middle Eastern countries which results with dreadful wars most of the time. However, the White House has recently announced that the US will be an energy self-sufficient country by 2035 (Bloomberg, 2014). Adam Sieminski, administrator of Energy Information Administration, has also pointed out that there will be no energy import by the US by 2035 in virtue of the unconventional developments such as shale gas revolution, rising production of tight oil, as well as advanced technologies and fuel efficiency in the industry and transportation sectors (EIA, 2012). Furthermore, according to the World Energy Outlook (IEA, 2013), "The United States moves steadily towards meeting all of its energy needs from domestic resources by 2035". In parallel with this purpose, the US also displays a significant increase in terms of both oil and natural gas production.

As explained in the initial part of the study, the US takes the leader position of Russia and it becomes the largest natural gas producer with 4.7 % increase in natural gas production from the year 2011 to 2012 and it also shows 13.9 % increase in oil

production for the same period and becomes the third largest oil producer after Saudi Arabia and Russia respectively (BP, 2013).

According to these numbers and new order of the production and consumption list, it seems that Russia is more likely to display an aggressive attitude over the Arctic Resources. Furthermore, as already explained in a detailed way, Russia has achieved to turn its weakness into power through its huge amount of natural resources. However, in order to preserve its leader position in the field of energy, Russia needs to increase production from the Arctic. Otherwise, over boosting will result with the depletion of oil and natural gas resources. Actually, the flag planting action in 2007 and the following Arctic Projects such as the Shtokman project, the Yamal megaproject, as well as increased capacity of military units and their exercises in the Arctic are the main indicators of Russian approach toward the Arctic energy resources. Therefore, it seems that under such a zero-sum scenario, Russia will undertake an aggressive role in order to guarantee its self-interests as argued by all realist perspectives.

On the other perspective, although the US holds the second largest oil and natural gas reserves of the Arctic Region after Russia, the country does not seem as aggressive as Russia by courtesy of shale gas revolution and abundance of unconventional resources and techniques. Nevertheless, the Arctic Region has a potential to create new problems between Russia and the US. The main outbreak point can be the increasing dependency of the EU on Russia. Because the US heavily stresses the natural gas dependency

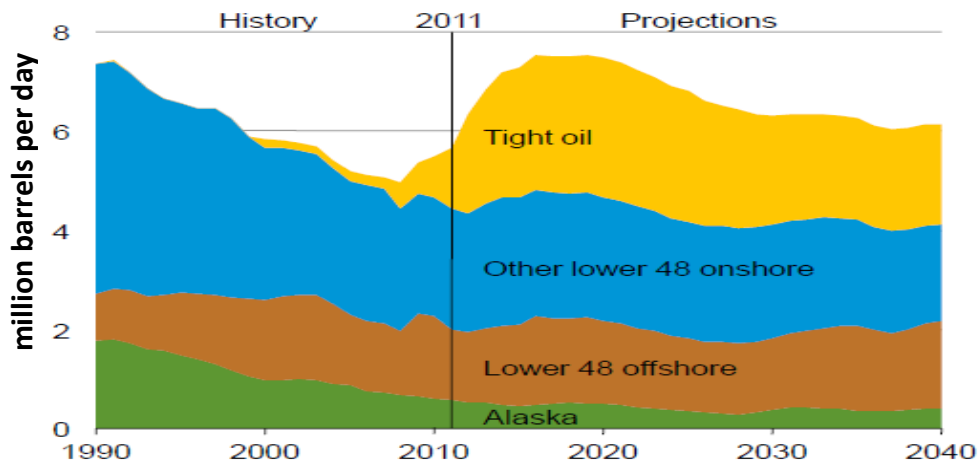
problem of the EU to Russia and encourage the EU in order to diversify its suppliers. In fact, the main fear of the US is not the increasing energy dependence of the EU to Russia but the possibility of the closeness of them through energy related dialogs. Therefore, the US may also increase production from the Arctic Region in order to compete with its historical enemy. Besides, the Arctic Region not only presents significant amount of oil and gas resources but also it paves the way for new routes which are almost as important as resources. This can be another significant problem between the US and Russia. Under these circumstances, the world is also likely to witness an aggressive attitude by the US.

Under such a zero-sum scenario, whatever the visible reason of the game is (environmental protection, boundary dispute, route problem, protection of indigenous communities etc.) the real reason will be the resource war and while one side wins, the other will lose.

The second scenario may be constructed upon the *positive-sum game*. In that scenario, it is possible that both the US and Russia may gain by different amounts or degrees. Even, the cooperation may be achieved between these two historical rivals. At this point of course the question is that under which conditions this cooperation can be built.

As explained in the first scenario, the US is going toward an energy-secured position. By virtue of advanced technologies, its projected domestic supply continues to increase significantly. According to Annual Energy Outlook (2013), as shown in the following figure, “domestic production of crude oil increases sharply, with annual growth averaging 234 thousand barrels per day (bpd) through 2019, when production reaches 7.5 million bpd” (EIA, 2013). The main reason of this rapid growth is the increasing onshore crude oil production, especially shale and other tight formations.

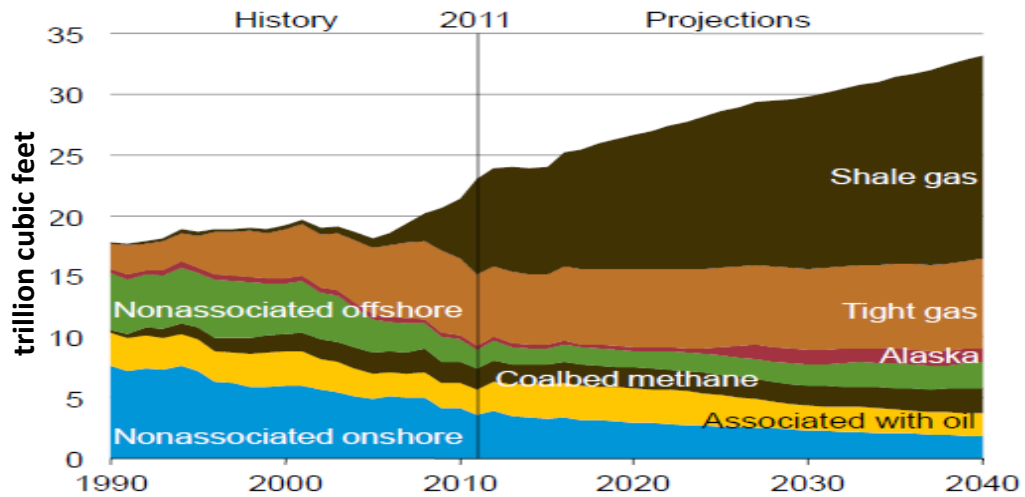
Figure 11
US Domestic Crude Oil Production by Source (1990-2040)



Source: (Directly taken from) US Energy Information Administration -Annual Energy Outlook 2013.

Furthermore, as shown in the figure below, natural gas production of the US also increases more than the former projected calculations that leaves behind the domestic consumption by 2020 and supports the net export of natural gas through higher volumes of shale gas production (EIA, 2013)

Figure 12
US Dry Natural Gas Production by Source (1990-2040)



Source: (Directly taken from) US Energy Information Administration - Annual Energy Outlook 2013.

As the domestic oil and natural gas production increases, especially unconventional ones, energy import of the US decline in a considerable amount. By means of application of horizontal drilling and hydraulic fracturing techniques, shale gas production increase significantly and becomes economically recoverable with the advanced technology. In fact, the US has already been in a shale gas revolution. Moreover, the other important point is that, “as with shale gas, the application of horizontal drilling and hydraulic fracturing significantly increases the development of tight oil resources” (EIA, 2013). According to the Annual Energy Outlook (2013) estimations, “US production of crude oil increases from 5.7 million bpd in 2011 to 7.5 million bpd in 2019 and despite a decline after 2019, US crude oil production remains above 6.0 million bpd through 2040”. These higher production volumes come predominantly from tight formations. Therefore, it is possible to argue that shale gas

revolution of the US creates a spillover effect in oil sector as well. In a very recent future, the US will not only be an energy self-sufficient country, but also it will be net energy exporter.

On the other hand, Russia has inherently a well position that locates over the most valuable energy reserves of the world. However, as Russia's economic growth is largely driven by energy exports, maintaining its energy leadership is vital for Russia; therefore, as differ from the US case, Russia needs to increase production from the Arctic. Otherwise, over boosting is likely to result with the depletion of oil and natural gas resources.

In the light of this information, it may be argued that energy production in the Arctic is among the privileged subjects for Russia. In the middle term, Russia may need to increase in Arctic production to meet increasing energy demand of China and Asia. Furthermore, new energy markets are also at the agenda of Russia especially after the crisis with Ukraine and the West (Euronews, 2014). On the other hand, the agenda of the US is mostly dominated by unconventional developments. Nevertheless, both have their own national interests in the region which expressed in a detailed way at the strategies part of this study. Therefore, the Arctic is neither renounced by the US nor Russia.

Moreover, the petroleum activities in the Arctic require more complicated technology than the usual one; therefore, Russia needs to attract the interest of foreign companies. On the other hand, some of the huge petroleum companies of the US such as ExxonMobil, Chevron have these new technologies (Ryerson, 2008). Under these circumstances, the cooperation may be achieved between two Arctic Powers through the partnership of oil companies; therefore, both sides may acquire some degree of gain as argued by non-zero-sum model.

According to game theory, “in some games, both parties can lose, and by different amounts or to a different degree, and generally so-called n-person games include more than two actors or sides” (Viotti and Kauppi, 1999). The last scenario of the study may be built-upon this **negative-sum** model of the game theory. According to this model or scenario, neither Russia nor the US acquires benefits from the Arctic Region.

Although it is not easy to make precise estimations about the environmental issues such as effects of climate change or global warming, this scenario may also probable to realize. As already explained, human related activities has changed way of ecosystem. Increased number human related activities such as burning of fossil fuels or over-industrialization resulted with global warming and, these changing environmental conditions and global warming pave the way for oil and gas activities in the Arctic. In other words, usage of fossil resources has induced to emergence of new oil and gas resources in the Arctic Region. These changing climate conditions have increased the

number of exploration, production, drilling, and transportation activities in the Arctic. More significantly, in the recent future, it seems that the petroleum-related activities are likely to be easier due to the global warming.

However, increasing environmental concerns are one of the important obstacles for the Arctic projects and environmental awareness continues to rise significantly with the negative effects of serious events. For instance, "Save the Arctic" campaign of Greenpeace and the protests of local non-governmental organizations are creating delays in the oil and gas projects most of the time. Furthermore, despite the huge potential of the region, unsuitable soil structure of the region creates significant barriers for drilling and transportation activities. Although both Russia and the US as well as other littoral states have pointed out specific precautions for environment on their strategies, a single action may engender inexpiable or unrecoverable results for the history of the humanity. Therefore, in such a case, the losing party would not only the US or Russia but it would be the whole world.

CHAPTER 6

6. Conclusion

Following 2000s attention to the Arctic oil and natural gas resources has demonstrated a steady increase. The underlying reason was the changing environment conditions and global warming which paved the way for oil and gas activities in the Arctic. However, the flag-planting show of Russia in 2007 and estimation of the US geological survey in 2008 as well as combination of the increasing demand for fossil sources and higher prices created main motivations for the petroleum activities in the Arctic. Therefore, many scientific and academic studies have been conducted about the future potential of the oil and natural gas production in the Arctic as well as main motivations and obstacles behind this production.

As the world is not on the cusp of a new era of oil abundance, the significant amount of undiscovered oil and natural gas reserves of the Arctic Region presents a new back-door competition area for Great Powers namely the US and Russia. Therefore, this study analyzes the Arctic Region's significance for these two historical rivals from a perspective that involves energy security, as well as main assumptions of realist theory and three-models of the game theory.

Although the Arctic has been attributed as a new energy region, it is significant to note that the development in the Arctic is inherently dependent on many factors such as commercial profitability, combination of high demand with high petroleum prices, technological improvements, scope of national strategies, security concerns, emergence of unconventional resources, political relations and financial crisis. Therefore, it will always be difficult to make precise estimations for the Arctic Region. That's why this study has been constructed upon the three models of the game theory: zero-sum game, positive-sum game and negative-sum game.

The first scenario argues that under all circumstances there will be only one winning party which is either US or Russia as also advocated by classical realism. Under such a zero-sum scenario, whatever the visible reason of the game is (environmental protection, boundary dispute, route problem, protection of indigenous communities etc.) the real reason will be the resource war. This scenario provides two different points of view. According to first perspective, Russia undertakes an aggressive attitude toward the Arctic resources due to its historical evolution which has achieved to turn its weakness into power thanks to its huge amount of natural resources, while the US shows more modest approach by virtue of unconventional developments. However, according to the second perspective of the first scenario, even if the energy resources have not been required yet, not only the Russia but also the US show aggressive attitude toward the Arctic resources to compete with its historical rival and not to give up the leadership seat of the Arctic to Russia.

That's why the second scenario argues that the Arctic is neither renounced by the US nor Russia because both have their own national interests in the region. As the petroleum activities in the Arctic require more complicated technology than the usual one, Russia needs to attract the interest of foreign companies. On the other hand, some of the huge petroleum companies of the US such as ExxonMobil, Chevron have these new technologies. Under these circumstances, the cooperation may be achieved between two Arctic Powers through the partnership of oil companies; therefore, both sides may acquire some degree of gain as argued by non-zero-sum model.

According to last scenario that bases on the negative-sum model neither Russia nor the US acquires benefits from the Arctic Region. As the increased number of human related activities such as burning of fossil fuels or over-industrialization resulted with global warming and, these changing environmental conditions and global warming pave the way for oil and gas activities in the Arctic, it is also possible that a single wrong action for the sake of more oil and natural gas production may engender inexpiable or unrecoverable results for the history of the humanity.

Although the zero-sum game is traditionally the most probable model in the world politics, the structure of the international system has changed in the course of time. Therefore, this study argues that there is also possibility of establishing cooperation at least for a specific period of time under above mentioned conditions, allowing a beneficial nature for both parties, even between the historical rivals through a positive-

sum game model. Moreover, realization of the third scenario could have a greater impact on the globe due to environmental factors.

Though, this all depends on the will of the countries, rather than their sole interests. A cooperative approach could lead to a win-win situation in the Arctic Region among the two powers as discussed. However, this requires interactive bargaining, rather than distributive bargaining, possibly resulting as win-lose situation or even lose-lose as in the third scenario. This study also realizes that regardless of the clear achievement of cooperation as an approach of negotiation and policy making, it gets short in today's world. The Arctic Region is no exception. However, here, cooperation might be used as "secret weapon", not to re-experience all the issues back in the Cold War Era.

This "secret weapon" is eagerly on hand to both countries. If they wish to use it, it only requires will to actively choose to cooperate rather than compete. Otherwise, Arctic Region could emerge as another region of sole conflict not only among US and Russia, but for the world.

APPENDIX

Glossary

General terms are defined here as they relate to the content of this study. The following sources have been used for the definitions in this glossary: U.S. Energy Information Administration Glossary; International Energy Agency Glossary.

Crude oil: A mixture of hydrocarbons that exists in liquid phase in natural underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities.

Dry natural gas: Natural gas which remains after: 1) the liquefiable hydrocarbon portion has been removed from the gas stream (i.e., gas after lease, field, and/or plant separation); and 2) any volumes of non-hydrocarbon gases have been removed where they occur in sufficient quantity to render the gas unmarketable. Dry natural gas is also known as consumer-grade natural gas.

Energy consumption: The use of energy as a source of heat or power or as a raw material input to a manufacturing process.

Energy demand: The requirement for energy as an input to provide products and/or services.

Energy efficiency: A ratio of service provided to energy input. Services provided can include buildings-sector end uses such as lighting, refrigeration, and heating; industrial

processes; or vehicle transportation. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service. May also refer to the use of technology to reduce the energy needed for a given purpose or service.

Energy intensity: A ratio of energy consumption to another metric, typically national gross domestic product in the case of a country's energy intensity. Sector-specific intensities may refer to energy consumption per household, per unit of commercial floor-space, per dollar value industrial shipment, or another metric indicative of a sector. Improvements in energy intensity include energy efficiency and conservation as well as structural factors not related to technology or behavior.

Fossil fuel: An energy source formed in the Earth's crust from decayed organic material. The common fossil fuels are petroleum, coal, and natural gas.

Hydrocarbon: An organic chemical compound of hydrogen and carbon in the gaseous, liquid, or solid phase. The molecular structure of hydrocarbon compounds varies from the simplest (methane, a constituent of natural gas) to the very heavy and very complex.

Hydraulic fracturing: One of the most common techniques for the extraction of unconventional oil and gas formations. Large volumes of water (mixed with some sand and chemicals) are injected underground to create cracks in the rock. This frees the trapped gas which can then flow into the well bore created by the drill and be collected.

Horizontal drilling: Another key technology that applied for extraction of unconventional resources which enables the exposure of significantly more surface to the well.

Liquefied natural gas (LNG): Natural gas that has been liquefied by reducing its temperature to -162°C at atmospheric pressure. In this way, the space requirements for storage and transport are reduced.

Proved energy reserves: Estimated quantities of energy sources that analysis of geologic and engineering data demonstrates with reasonable certainty are recoverable under existing economic and operating conditions. The location, quantity, and grade of the energy source are usually considered to be well established in such reserves.

Renewable energy: Energy that is derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed. Solar, wind, geothermal, hydro, and biomass are common sources of renewable energy.

Shale Gas: Natural gas produced from wells that are open to shale formations. Shale is a fine-grained, sedimentary rock composed of mud from flakes of clay minerals and tiny fragments (silt-sized particles) of other materials. The shale acts as both the source and the reservoir for the natural gas.

Unconventional gas: Sources of gas trapped deep underground by impermeable rocks, such as coal, sandstone and shale. The three main types of 'unconventional' gas are: shale gas (found in shale deposits); coal bed methane, or CBM (extracted from coal beds) and tight gas (which is trapped underground in impermeable rock

formations). While different techniques are applied, depending on the type of gas being extracted, one common method is known as hydraulic fracturing.

Unconventional oil: Includes oil shale, oil sands-based extra heavy oil and bitumen, derivatives such as synthetic crude products, and liquids derived from natural gas – gas-to-liquid (GTL) or coal-to-liquid (CTL).

Unconventional oil and natural gas production: An umbrella term for oil and natural gas that is produced by means that do not meet the criteria for conventional production.

Undiscovered recoverable reserves (crude oil and natural gas): Those economic resources of crude oil and natural gas, yet undiscovered, that are estimated to exist in favorable geologic settings.

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