



Hacettepe University Graduate School of Social Sciences  
International Relations Graduate Program

# **THE IMPACT OF US SHALE GAS REVOLUTION ON THE EU'S ENERGY SECURITY**

Nurettin Cemil GÖKPINAR

Master's Thesis

Ankara, 2014



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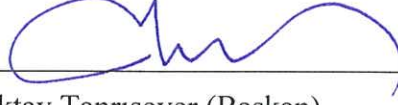
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## KABUL VE ONAY

Nurettin Cemil Gökpinar tarafından hazırlanan “The Impact of US Shale Gas Revolution on the EU’s Energy Security” başlıklı bu çalışma, 25.12.2014 tarihinde yapılan savunma sınavı sonucunda başarılı bulunarak jürimiz tarafından Yüksek Lisans Tezi olarak kabul edilmiştir.



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## BİLDİRİM

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25.12.2014



Nurettin Cemil GÖKPINAR

*This thesis is dedicated to all coal miners and their families,  
particularly to those who lost their lives in Soma.*

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## ÖZET

GÖKPINAR, Nurettin Cemil. *ABD'deki Şeyl Gaz Devriminin AB'nin Enerji Güvenliğine Etkisi*, Yüksek Lisans Tezi, Ankara, 2014.

Son yıllarda konvansiyonel olmayan gaz kaynaklarının çıkarılmasında uygulanan yatay sondaj ve hidrolik çatlatma yöntemleriyle şeyl gaz üretimini önemli ölçüde arttıran ABD özellikle doğalgaz alanında ithalata olan bağımlılığını kısa süre içinde sıfırlayarak net ihracatçı konumuna gelecektir. Söz konusu kaya gazı üretiminin ABD'nin daha önceki süreçte doğalgaz ithal ettiği ülkeler ile doğalgaz tüketiminde ithalata bağımlı olan AB gibi büyük enerji pazarlarında köklü değişiklikler yaratmak suretiyle oyun kurallarını değiştirmesi beklenmektedir. Bu tez çalışmasında, ABD'de gerçekleşen konvansiyonel olmayan doğalgaz üretiminin ve potansiyel ihracat faaliyetlerinin AB'nin enerji arz güvenliğine etkisi araştırılarak uluslararası doğalgaz piyasalarında yaratacağı etki ve Rusya'nın karşı adımları analiz edilmektedir. Bu kapsamda, Rusya'nın doğalgaz tedarikine 2012 yılında % 39 oranında bağımlı olan AB'nin Moskova'nın bölgesel politik nüfuzundan kurtulması ve 2006, 2009 ve 2014 yıllarında yaşanan Rusya-Ukrayna doğalgaz krizlerindeki gibi arz kesintisi riskini asgari düzeye indirebilmesi için doğalgaz tedarikinde kaynak ülke ve sevkiyat güzergahı çeşitlendirmesine gitmesi gerekmektedir. ABD'nin ihracata başlaması Rusya'nın AB doğalgaz pazarlarındaki tekel pozisyonunu sarsıcı etkisiyle Rus doğalgaz ihracat stratejisinin temel dinamiklerini değiştireci katkıları olması beklenmektedir. Bu çerçevede, AB'nin kısa ve orta vadede Rusya'dan önemli miktarlarda doğalgaz ithal etmeye devam edeceği, ABD kaya gazının AB'ye ihracatının ancak uzun vadede gerçekleştirilecek altyapı yatırımları sonrasında Transatlantik Ticaret ve Yatırım Ortaklığı çerçevesinde gerçekleşebileceği, ABD kaya gazı ihracatının uluslararası doğalgaz piyasalarında spot piyasa faaliyetlerini arttırmak suretiyle fiyatlarda düşüşe sebep olacağı ve petrole endeksli fiyatlandırma mekanizmasını değiştirme gücüne sahip olduğu öngörülmektedir.

### Anahtar Sözcükler

Avrupa Birliği, Amerika Birleşik Devletleri, Rusya Federasyonu, Kaya Gazı, Doğalgaz, Enerji Güvenliği, Arz Güvenliği, Konvansiyonel Olmayan Gaz Üretimi, İthalat Bağımlılığı



## ABSTRACT

GÖKPINAR, Nurettin Cemil. *The Impact of US Shale Gas Revolution on the EU's Energy Security*, Yüksek Lisans Tezi, Ankara, 2014.

With the introduction of horizontal drilling and hydraulic fracturing technologies in unconventional gas production, the U.S. has increased drastically its shale gas production and will soon become a net exporter of natural gas by reducing its import dependence particularly in natural gas sector. Shale gas production is expected to become a game changer in the international gas markets. In this thesis study, the impact of unconventional gas production and potential export activities of the U.S. on EU's energy supply security is examined, building on an analysis of the impact on the international natural gas markets and the counter steps that could be taken by Russia. In this scope, in order for the EU, which is 39 % dependent on Russian gas supplies in 2012, to eliminate Moscow's political influence in the region and minimize the risks emanating from gas supply disruptions like 2006, 2009 and 2014 gas dispute crises between Russia and Ukraine, the Union has to diversify its natural gas source countries and transportation routes. Furthermore, with the gas importation from the U.S., the monopolistic position of Russia in the EU gas markets will be shaken and the basic dynamics of Russian natural gas export strategies will be altered. In this framework, the EU will continue to import substantial volumes of gas from Russia in the short and medium term. Potential shale gas exports from the U.S. to the EU will only be available in the scope of Transatlantic Trade and Investment Partnership following the realization of large infrastructure projects in the long term, potential gas exports from the U.S. will lead to a decrease by increasing spot market activities in the international gas markets and have the power to change the oil-indexed pricing mechanism thereof.

### Key Words

European Union, the United States of America, Russian Federation, Shale Gas, Natural Gas, Energy Security, Supply Security, Unconventional Gas Production, Import Dependence

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## ABBREVIATIONS

<b>ACER</b>	: Agency for the Cooperation of Energy Regulators
<b>Bcma</b>	: Billion cubic meters annually
<b>BOTAŞ</b>	: Turkish Petroleum Pipeline Corporation
<b>BP</b>	: British Petroleum Company
<b>Btu</b>	: British thermal unit
<b>CEF</b>	: Connecting Europe Facility
<b>CIS</b>	: Commonwealth of Independent States
<b>CNPC</b>	: China National Petroleum Corporation
<b>CO<sub>2</sub></b>	: Carbon Dioxide
<b>ECSC</b>	: European Coal and Steel Community
<b>EIA</b>	: The United States Energy Information Administration
<b>ENTSO-E</b>	: European Network of Transmission System Operators for Electricity
<b>ERGEG</b>	: European Regulators Group for Electricity and Gas
<b>EU</b>	: European Union
<b>EURATOM</b>	: The European Atomic Energy Community
<b>GDP</b>	: Gross Domestic Product
<b>IEA</b>	: International Energy Agency
<b>IMF</b>	: International Monetary Fund
<b>LNG</b>	: Liquefied Natural Gas
<b>m<sup>3</sup></b>	: Cubic meters
<b>NATO</b>	: North Atlantic Treaty Organization
<b>NBP</b>	: National Balancing Point
<b>OECD</b>	: Organization for Economic Cooperation and Development
<b>OPEC</b>	: Organization of Petroleum Exporting Countries
<b>OSCE</b>	: Organization for Security and Cooperation in Europe
<b>PCI</b>	: Projects of Common Interest
<b>PSA</b>	: Production Sharing Agreement
<b>SGC</b>	: Southern Gas Corridor
<b>SO<sub>2</sub></b>	: Sulfur Dioxide
<b>TANAP</b>	: Trans-Anatolian Natural Gas Pipeline
<b>TAP</b>	: Trans-Adriatic Pipeline
<b>TEN-E</b>	: Trans-European Networks – Energy
<b>TPAO</b>	: Turkish Petroleum Corporation
<b>TTIP</b>	: Transatlantic Trade and Investment Partnership
<b>U.S.</b>	: The United States of America
<b>USSR</b>	: The Union of Soviet Socialist Republics

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## INTRODUCTION

In today's modern, industrialized, technologically developing world, energy not only determines the living standard within the production-consumption cycle, but it also serves as leverage for countries' economic and social standing and development. Fossil fuels, namely oil, natural gas and coal, are used to generate power, heating/cooling and industrial production. However, CO<sub>2</sub> and greenhouse gas emissions mainly emanate from burning hydrocarbon sources for energy production. Hydrocarbon sources are unevenly distributed around the globe and they are mostly found in countries where political instability is present or likely. On the other hand, industrialized countries using energy intensely in their economies have directed their attention to developing indigenous renewable energy resources and utilization of nuclear energy in order to reduce their reliance on fossil fuels both due to environmental concerns and import dependence.

In this context, natural gas is comparably more environment-friendly as it emits far less CO<sub>2</sub> than oil and coal. Natural gas has been used increasingly in energy production since 1970s. The European Union aims at mitigation of harmful effects of global climate change and establishment of a functioning competitive internal energy market. However, the Union imports significant volumes of natural gas from Russian Federation as well as the Middle East and North Africa. This leads to pipeline dependence for the EU because natural gas is mostly transported via pipelines apart from as Liquefied Natural Gas (LNG) on tankers. This leaves the EU vulnerable to supply disruptions. For instance, as the largest economy in the EU, Germany imports 40 % of its natural gas from Russia via pipelines passing through non-EU transit countries like Ukraine or Belarus. Any dispute between transit countries and Russia is likely to affect German economy instantly once the gas flow is disrupted. Therefore, *Nord Stream* has been designed and implemented as a stand-alone gas pipeline to supply Germany directly from Russian territory via infrastructure constructed under the Baltic Sea. Depleting gas sources in Norway will increase the EU's dependence on imported gas in the near future

unless diversification of supply sources and transportation routes is achieved. The production of unconventional gas<sup>1</sup> is another option for domestic energy production. Recently, the shale gas revolution in the United States has decreased the nation's import dependence in gas and oil and promises a brighter future for the EU once exported.

Conventional gas, also known generally as "natural gas" is dominant in world gas markets with 85 % share.<sup>2</sup> Unconventional gas reservoirs such as shale formations are geological rock formations with very low permeability and porosity requiring specific technologies to extract the gas economically.<sup>3</sup> Shale gas, tight gas and coal-bed methane are unconventional gas sources.<sup>4</sup>

Combination of horizontal drilling and hydraulic fracturing technologies in the U.S. has made it possible to access previously unavailable and uneconomical shale gas. Shale gas production in the U.S. has reduced reliance on imported energy recently and increased global gas supply. The U.S. shale gas production will affect global gas markets in terms of security of supply, pricing, competitiveness, contracting and industrial production.

From the perspective of International Relations, the U.S.-Russia relations are based on mutual threat perception and power competition – which can be explained by Realist approach – whereas the U.S.-EU relations are built upon cooperation and mutual interests – which is underlined by Liberal approach. Therefore, relative power of the U.S. and the EU would increase vis-à-vis Russia as a result of shale gas production and this could lead Moscow to take counter steps. Shift of power balances is likely in the light of efforts by the EU toward breaking Russian monopoly in its internal gas market.

In this respect, this thesis utilized a methodology including historical reading, statistical data analysis, examination of news reports and reports and studies by international organizations and the EU. The aim of this thesis is to answer the following questions:

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<sup>1</sup> Unconventional gas: natural gas (namely shale gas, tight gas and coal-bed methane) whose extraction requires complex and special technology and methods.

<sup>2</sup> European Commission. "Unconventional Gas: Potential Energy Market Impacts in the European Union". Brussels: Joint Research Centre, 2012. p. iv.

<sup>3</sup> *Ibid.*

<sup>4</sup> *Ibid.*

Does the EU's dependence on Russian gas exports create political vulnerability for the Union vis-à-vis Russian assertiveness? Is the shale gas production in the U.S. a viable option to reduce the EU's dependence on gas imports from Russia?

The first chapter puts forward concepts related to energy security such as "vulnerability", "risk" and "threat" as well as comparing varying energy security understandings and pricing mechanisms worldwide. In this chapter the link between natural gas and energy security is established through the examination of global gas markets and economic evaluation of advantages of gas vis-à-vis other energy sources.

The second chapter explains the EU's energy policies with specific reference to supply source diversification projects like TANAP/TAP and South Stream and establishment of a competitive, sustainable and secure internal energy market. Building upon this, this chapter analyzes post-Soviet Russian foreign policy and great power self-perception, President Vladimir Putin's hydrocarbon strategy, Russian energy giant Gazprom's export strategy, the extent of the EU's dependence on Russian gas and its political consequences within the scope of 2013-2014 Ukraine-Russia conflict and Russia-China gas deal.

The third chapter examines shale gas production technologies and its environmental effects, the U.S. energy policy, domestic gas production and shale gas revolution in the U.S., export potential of U.S. LNG and the legal framework of unconventional gas production in the EU.

In this context, this thesis argues that the EU's reliance on Russian gas exports creates political vulnerability for Brussels in responding to political crises with Moscow. Russia uses its vast gas sources and exports as a political weapon in its near abroad against the expansion of military and political presence of the West. The U.S. shale gas production could contribute to the EU's energy supply security and political independence vis-à-vis Russia, it has immediate and long-term effects on pricing and competitiveness of global gas markets, however exportation of it may take longer than expected due to technical and legal obstacles. This thesis utilized Joseph Grieco's realist approach based on



“absolute gain vs. relative gain” concepts; books, articles, statistical energy reports, policy papers and legislation by the European Commission, Council and Parliament, and news reports.

## 1. ENERGY SECURITY AND STATE POWER

### 1.1. REALIST APPROACH AND STATE SECURITY

This thesis will utilize the main principles of realism and liberalism, leading mainstream International Relations (IR) theories, with particular reference to Joseph Grieco's contestation of "relative gains" versus "absolute gains" which aims to refute the arguments of neoliberal institutionalism for interstate cooperation. Use of these concepts will help understanding and explaining the nature of relations between the EU and Russia, the U.S. and the EU, and the U.S. and Russia in their struggle for power competition and/or quest for cooperation in the field of energy.

According to Realism, international system is anarchic, which means that there is no superior body to govern inter-state relations. Main actors in international relations are states. Their main aim is to survive. States are rational actors and accordingly "self-help" is the main tool through which they must ensure their own security in an anarchical order. They are in constant struggle for power-that is military power- in order to survive. Conflict is inevitable, so power maximization remains as the only option to provide security. Therefore, for Realists, the main actors in the international arena great powers, which means those with high amount of military power. . States ensure the enforcement of law and the maintenance of the order by a centralized administration; however, since there is no superior body to govern inter-state relations, states look for opportunities to abuse each others' vulnerabilities.<sup>5</sup> As a natural result of the international social life under the anarchy, states have to protect their interests for survival and they have to prolong their existence throughout inter-state power competition.<sup>6</sup> Protection of national interests require acquisition of power that is military capabilities as well as formation of alliances with other states to form balances

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<sup>5</sup> Tim DUNNE – M. KURKI, S. SMITH. *International Relations Theories: Discipline and Diversity*. USA: 2007, Oxford University Press, p. 55.

<sup>6</sup> *Ibid.*

of power.<sup>7</sup> Nevertheless, power does not solely provide an opportunity to exert influence over others. In order for the power acquired to turn into sustainable influence, powerful states have to take the consent of the other states by utilizing ideologies and supportive justifications in order to persuade them that their wishes will benefit both parties.<sup>8</sup> Mere intimidation, oppression, threatening and showing off with power exertion lead to the loss of hegemony that essentially must be established upon a relationship of mutual consent.<sup>9</sup>

Classical Realism is based on the views of Thucydides, Machiavelli, and Hobbes who took power as a central element in their discourses.<sup>10</sup> E. H. Carr criticized the liberal standpoint by putting forward that “haves” and “have-nots” create conflict of interest between countries and between people.<sup>11</sup> This gives way to struggle between states to preserve their privileged position against others. Therefore, international relations is rather about conflict than cooperation. Classical realism was rejuvenated with particular contributions made by Hans Morgenthau. Morgenthau took human nature as basis for his international relations analysis and posited the idea that humans are self-interested, power-seeking agents whose actions therefore could easily result in aggression.<sup>12</sup> Morgenthau put forward that international politics is about struggle for power in an anarchical system.<sup>13</sup> To maintain survival and security, balance of power is viewed as the only effective tool to deter aggressors and defend one’s nation rather than mere negotiations and diplomacy.<sup>14</sup> Only a stable balance of power could lead to long lasting peace between sovereign states for some periods of time. There is no morality in international relations. Realism does not envisage change.<sup>15</sup>

The other mainstream IR theory is Liberalism. Liberals also view states as the key actors in international relations, but they assign importance to the role of international

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<sup>7</sup> *Ibid.*

<sup>8</sup> *Ibid.*, p. 58.

<sup>9</sup> *Ibid.*, p. 59.

<sup>10</sup> Robert JACKSON and Georg SØRENSEN. *Introduction to International Relations Theories and Approaches*. UK: 2013, Oxford University Press. p. 39.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*, p. 40.

<sup>13</sup> *Ibid.*, p. 41.

<sup>14</sup> *Ibid.*, p. 42.

<sup>15</sup> *Ibid.*

organizations, nongovernmental organizations, and transnational corporations.<sup>16</sup> Liberals have faith in human reason to overcome human fear and the lust for power.<sup>17</sup> They believe in progress through modernization and endorse the role of the states to ensure individual liberties as stated by John Locke.<sup>18</sup> Liberals see constitutional states as enforcing bodies of rule of law that respect the rights of citizens to life, liberty, and property.<sup>19</sup> Hence, liberals believe that states would treat each other with norms of mutual toleration and respect. Jeremy Bentham coined the term “international law” in the 18<sup>th</sup> century and believed that “it was in the rational interests of constitutional states to adhere to international law in their foreign policies”.<sup>20</sup>

Following the end of the Second World War in the post-1945 era, especially the liberal democracies of the West started to interact with each other intensively in relations regarding trade and investment, travel and communication, and similar issues during the 1950s, 1960s, and 1970s.<sup>21</sup> This provided a basis for a new approach by liberals to put forward an alternative to Realist standpoint on international relations by avoiding the utopian excess of earlier Liberalism. This new approach was called Neoliberalism. Neoliberals agree with the old liberal ideas about the possibility of progress and change, but they refuse Idealism.<sup>22</sup> The neoliberal theory evolved after the Second World War as follows: Sociological Liberalism; Interdependence Liberalism; Institutional Liberalism; and Republican Liberalism.<sup>23</sup>

After the end of the Second World War, Realist approach also developed and gained other dimensions. With the introduction of the scientific methods and structural analysis of the international system, neorealism departs from the concern over human nature and

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<sup>16</sup> *Ibid.*, p. 109.

<sup>17</sup> *Ibid.*, p. 101.

<sup>18</sup> *Ibid.*

<sup>19</sup> *Ibid.*

<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*, p. 46.

<sup>22</sup> *Ibid.*

<sup>23</sup> Sociological liberals emphasize the importance of transnational nongovernmental ties between societies, such as communication between individuals and between groups of people whereas interdependence liberals highlight the economic ties of mutual exchange and mutual dependence between peoples and governments. Institutional liberals pay particular attention to the importance of organized cooperation between states while republican liberals believe that liberal democratic institutions and forms of government are of vital importance to induce peaceful and cooperative relations between states.

normative analysis of the system and assigns particular importance to the structure of the international system which compels leaders/states to act in certain ways.<sup>24</sup> In Kenneth Waltz's view, the structure of the international system is decisive in determining the actions of the states.<sup>25</sup> For example, unipolar, bipolar, multipolar... For Waltz, varying capabilities of states make them different from each other and when a change occurs in the distribution of their capabilities across the system's units, the whole structure of the system changes.<sup>26</sup> In other words, international change takes place when great powers rise and fall and the balance of power shifts accordingly and the typical means of such change is great-power war.<sup>27</sup> Because the system imposes survival as a fundamental requirement for all states including the great powers, political regimes in these countries have no impact on their treatment of others.<sup>28</sup> Some of the main assumptions of Neorealism are: firstly, states operate in an anarchical system in which there is no government over them like in the domestic system where a higher superior body maintains the order and plays the role of an arbiter in case of a conflict.<sup>29</sup> Secondly, states can never be certain about the intentions of other states. States simply try to have certain knowledge about if other states possess an intention to alter the balance of power (revisionist states) or they are sufficiently content with the status quo and have no interest in changing it (status quo states). Thirdly, the main goal of states is survival.<sup>30</sup> Fourth assumption is that states are rational actors, which means that they are able to implement sound strategies that maximize their prospects for survival. States want to make sure that no other state can maximize its power at the expense of their existence.<sup>31</sup> Other than possessing military assets, latent power is another measurement of states' power. Latent power refers to the socio-economic development that provides building more military power. Thus, war is not the only method that enables states to gain power; in contrast, increasing one's population size and global wealth is also another way of gaining power.<sup>32</sup>

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<sup>24</sup> Sørensen, *op. cit.*, p. 79.

<sup>25</sup> Kenneth WALTZ. *Theory of International Politics*. New York: McGraw-Hill, 1979. p. 77.

<sup>26</sup> Sørensen, *op. cit.*, p. 80.

<sup>27</sup> *Ibid.*

<sup>28</sup> Dunne, Kurki, Smith, *op. cit.*, p. 59.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Ibid.*

<sup>31</sup> *Ibid.*

<sup>32</sup> *Ibid.*, p. 74.

To begin with, Grieco confers that realism has five propositions: 1) States are the main actors in international affairs, 2) States are penalized by the international environment if they fail to protect their vital interests or pursue objectives beyond their means; thus they are “sensitive to costs” and they are acting as unitary rational agents, 3) The principal force behind every action and motive of states is international anarchy, 4) Under anarchic conditions states are preoccupied with power and security and predisposed towards conflict and competition and often fail to cooperate in the face of common interests, 5) Only marginally could international institutions affect the prospects for cooperation.<sup>33</sup>

Upon these five propositions, Grieco suggests that neoliberal institutionalism is wrong in arguing that states are *atomistic* actors which seek to maximize their individual absolute gains without paying attention to the gains achieved by others.<sup>34</sup> Neoliberal institutionalism claims that “cheating is the greatest impediment to cooperation among rationally egoistic states, but international institutions can help states overcome this barrier to joint action”.<sup>35</sup> Grieco agrees that realism also understands that states seek absolute gains and compliance for cooperation; however, he argues that states are *positional* in character rather than *atomistic* and apart from concerns about cheating, states also worry in cooperative arrangements that “their partners might gain more from cooperation than they do”.<sup>36</sup> This is due to their fear for survival as independent actors. For realists, states cannot be sure of their partners’ good intentions and they fear that today’s friends might become tomorrow’s foes. Therefore, while cooperating today, states are not indifferent to the relative gains of their partners. Even though their partners comply to pre-determined terms of the cooperation, Grieco suggests that states may exit a cooperative joint agreement because of relative gains.<sup>37</sup> The relative gains may provide the partner with future capabilities that could inflict harm on the state. Therefore, in spite of the absolute gains states acquire out of cooperation, the extent of relative gains of others does matter for continuing the partnership. Grieco finds that

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<sup>33</sup> Joseph GRIECO. 1988. “Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism”. *International Organization* 42 (3):485-507. p. 488

<sup>34</sup> *Ibid.* p. 487.

<sup>35</sup> *Ibid.*

<sup>36</sup> *Ibid.*

<sup>37</sup> *Ibid.*

there are two major barriers before international cooperation: concerns about cheating/compliance and concerns about relative gains of others.<sup>38</sup>

## 1.2. WHAT IS ENERGY SECURITY?

In order to understand the crucial role of energy in national security, it is necessary to examine what security is. In Realist perspective in IR Theory, security in its simplest form means “avoidance of harm”. When it comes to national security, the referent is the “state” as the body responsible for maintaining security for its nation. In order to maintain this avoidance of harm, the referent, in this case the “state” has to ensure its survival against the internal and external “threats” that possess the capability and intention to inflict harm upon it.<sup>39</sup> In other words, “Threat” is a resultant function of intention and capability of a party to inflict harm.<sup>40</sup> To this end, state has to eliminate any “threat” to its existence and become as powerful as possible in order to overcome its “vulnerabilities” against the risk of such threats.<sup>41</sup> Vulnerabilities are weaknesses that can be exploited by others. States also must ensure stability and avoid risks” that can affect the security of the state and individuals. “Risk” is the probability of harmful consequences resulting from interactions between threats and vulnerable assets.<sup>42</sup> Therefore, a state can survive any “risks” to its security only by eliminating the threats and vulnerabilities through maximizing its power.

Carolyn Pumphrey points out that “the international, national and personal energy needs are affected by international, national and individual actions.”<sup>43</sup> In this respect, in contrast to the traditional security understanding in international relations which reduces national security to military and political security, this adds other dimensions to the scope of national security. It was the case throughout the Cold War period, other sectors of security, namely, economic/societal/environmental security have been added to the

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<sup>38</sup> *Ibid.*

<sup>39</sup> Carolyn W. PUMPHREY. Ed. *The Energy and Security Nexus: A Strategic Dilemma*. Pennsylvania, USA: U.S. Army War College Strategic Studies Institute, 2012, p. 2.

<sup>40</sup> *Ibid.*

<sup>41</sup> *Ibid.*

<sup>42</sup> *Ibid.*

<sup>43</sup> *Ibid.*

first two by Barry Buzan as the leading figure in Copenhagen School in international relations theory.<sup>44</sup> State security, composed of military/political/economic/societal/environmental sectors of security, could only be maintained by increasing state power in military, political, economic, societal and environmental sectors. As a leverage tool and cross-cutting issue for increasing power in all of these sectors, energy security encompasses all sectors of state security.<sup>45</sup> In this scope, energy sources become strategic assets for power and security of states. Therefore, inadequacy/disruption of energy supply or total absence of domestic energy sources create vulnerabilities for state security because of the energy dependence on other states that may have the capability and intention to inflict harm. The “harm” does not necessarily be destructive in military terms though. In 21<sup>st</sup> century world order, exertion of political influence over other states is a symbol of being a great power. In this sense, no state would intentionally consent being kept under other states’ pressure in its foreign or domestic policy-making.

In this scope, it is important to assess the different approaches and perspectives on energy security. Energy importer states and energy exporter states take different positions on the definition of energy security. First of all, since the demand in energy is inelastic and therefore consumer/importer states are more vulnerable to supply shocks than exporters are to price shocks, it can be said that the dominating energy security understanding in the world is that of the consumer countries. Whatever the price is, importers will always demand certain amount of energy on a certain frequency. Therefore, it is of immense importance to understand and explain what energy security means for importer countries.

International Energy Agency (IEA), established in 1974 (following the OPEC crisis) as an intergovernmental organization to establish effective mechanisms for the implementation of policies and strategies to ensure energy security, defines energy security as “uninterrupted availability of energy sources at an affordable price”.<sup>46</sup>

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<sup>44</sup> Barry BUZAN. *People, States and Fear: An Agenda for International Security Studies in the Post-Cold War Era*, Second Edition, London: Harvester Wheatsheaf, 1991.

<sup>45</sup> Şebnem UDUM, 2010 Understanding the Nuclear Energy Debate in Turkey: Internal and External Context. Ankara: Bilkent University (Unpublished PhD Dissertation), p. 79.

<sup>46</sup> International Energy Agency, “Energy Security”, accessed on 8 January at <http://www.iea.org/topics/energysecurity/>



According to IEA, energy security has two main aspects: long-term energy security mainly referring to “timely investments to supply energy in line with economic developments and environmental needs” and short-term energy security linked to “the ability of the energy system to react promptly to sudden changes in the supply-demand balance”.<sup>47</sup> The IEA perspective on energy security defines its duties as improving energy security by promoting “diversity, efficiency and flexibility within the energy sectors of the IEA member countries; remaining prepared collectively to respond to energy emergencies; and expanding international co-operation with all players in the global energy markets”.<sup>48</sup>

The EU, in its comprehensive energy policy paper<sup>49</sup>, highlights the main objectives of Union’s energy policy as the promotion of competitiveness, sustainable development and the security of supply. In this respect, the EU adds a third dimension to energy security understanding which is comprised of affordability (competitiveness) and reliability (security of supply) in IEA definition and it is environmental sustainability.

In a more detailed way, these three pillars of energy security have certain implications for state security. Reliability means “having regular, uninterrupted access to energy in the amount and shape (liquid, gas, solid etc.) needed”.<sup>50</sup> Affordability means having access to energy supplies at a price that can be sustained economically and promotes economic growth.<sup>51</sup> Environmental friendliness means relying upon primary energy resources that provides for environmental sustainability and does not lead to destructive social results including climate change.<sup>52</sup>

On the other hand, the energy producer/exporter countries put the emphasis on demand security rather than supply security in their perspective on energy security. On its website, the mission of the Organization of the Petroleum Exporting Countries (OPEC), in accordance with its Statute, is put forward as “to coordinate and unify the petroleum

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<sup>47</sup> *Ibid.*

<sup>48</sup> *Ibid.*

<sup>49</sup> European Commission, “Green Paper: a European strategy for sustainable, competitive and secure energy”, accessed on 10 December 2012 at [http://europa.eu.int/comm/energy/index\\_en.html](http://europa.eu.int/comm/energy/index_en.html)

<sup>50</sup> Pumphrey, *op. cit.*, pp. 2-3.

<sup>51</sup> *Ibid.*

<sup>52</sup> *Ibid.*

policies of its Member Countries and ensure the stabilization of oil markets in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for those investing in the petroleum industry.”<sup>53</sup> Since energy exports possess a very important part in exporters’ national revenues, energy as a commodity needs to be exported to other countries at a price that makes maximum amount of contribution to the GDP, uninterruptedly, and in a sustainable manner.

OPEC Statute foresees “a steady income to producers” and “a fair return on capital” for investors in the petroleum exploration and extraction sector. In order to sustain the energy exports’ uninterrupted and sustainable transportation to consumer countries, huge infrastructural investments in pipelines and shipping need to be realized by or in cooperation with the exporter states. Other than ensuring safe and secure transportation to the markets, price volatilities must be taken under control through long term contracts with the consumer countries. Economically developed great powers which needed bulk volumes of oil for their industrial production needs, took advantage of their political influence to keep oil prices low; and hence pricing mechanisms used to deliver to petroleum exporters an income that was too low to contribute to the national wealth. However, following the establishment of OPEC in 1960, the exporter countries gained extensive control over pricing in oil exportation. This control over prices and volumes to be exported was so great that it led to a political conflict between the West and the OPEC countries in 1973 resulting with Oil Crisis.

The Oil Crisis of 1973 would constitute a perfect example for the practical examination of the concepts given in the previous paragraphs regarding energy security. OPEC countries put an oil embargo on the United States and other Western European countries due to their aid to Israel during the Yom Kippur War of 1973, and it lasted for a year. This resulted in an increase in global oil prices from three dollars to twelve dollars per barrel. The fourfold price increase in oil, as an indispensable input cost for the countries dependent on foreign oil for industrial production and transportation, heavily damaged the economy and social life in the United States. Furthermore, during the year that the

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<sup>53</sup> Organization of the Petroleum Exporting Countries. “Our Mission”, accessed on 13 January 2014 at [http://www.opec.org/opec\\_web/en/about\\_us/23.htm](http://www.opec.org/opec_web/en/about_us/23.htm)

embargo was active, a global economic recession with higher unemployment and lower consumption rates took place. The power of oil embargo proved to be an economic and political weapon in the hands of the petroleum exporters against the West. In this respect, 1973 Oil Crisis can be viewed as an eye-opener in energy supply security and highlighted the importance of diversification in both national energy portfolios and supply source countries and routes. Vulnerability of the United States was due to its extensive dependence on oil in electricity generation, industrial production, transportation and heating, this weakness was exploited by the opponent OPEC member states' threat of cutting oil supplies. Now that the United States saw the size of threat by experiencing most severely the Oil Crisis of 1973, it could not take the risk of being exploited again. Thus, domestication, diversification, efficiency and sustainability of the energy supply in its energy policy have become one of the main pillars of the U.S. energy policy. The crisis also affected the European countries deeply. However, it was not until after the 2006 and 2009 gas crises that the EU was alarmed to take concrete and immediate steps toward diversification.

### **1.3. NATURAL GAS IN GLOBAL ENERGY CONSUMPTION**

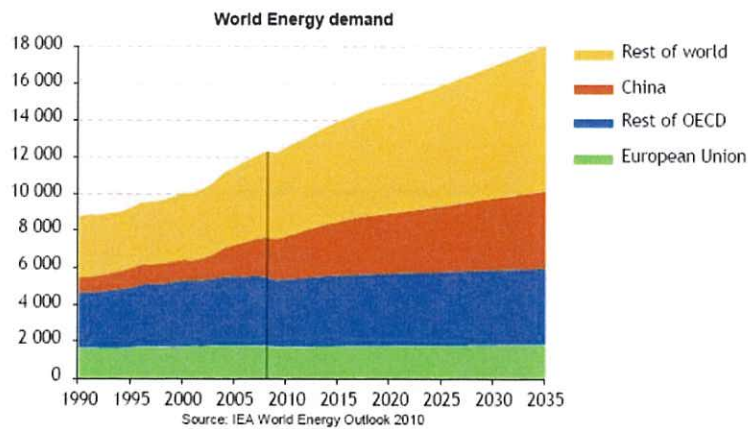
With the invention of the steam engine the Industrial Revolution, the production pattern changed from individual to serial production by manufacturing raw material into mass amounts of goods ready for sale in a very short time. This also resulted in a change in consumption patterns and preferences of the consumers. For example, the goods needed to be transported to the remote markets and it required effective transportation, communication and security systems. In the Marxist view, capitalist mode of production was based on endless production.<sup>54</sup> With the growing capital in producers' hands, banking system was renovated. This transition from agricultural to industrial production, required construction of cities, led to rapid population growth and brought about the services to meet the needs of the citizens. All these required intensive use of energy. Coal was the strategic fuel then in the 19<sup>th</sup> century due to steam power systems in production and military ships. Invention of the light bulb by Edison increased

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<sup>54</sup> Duncan FOLEY and Gérard DUMÉNIL, 2008. "Marx's analysis of capitalist production," *The New Palgrave Dictionary of Economics*, 2nd Edition.

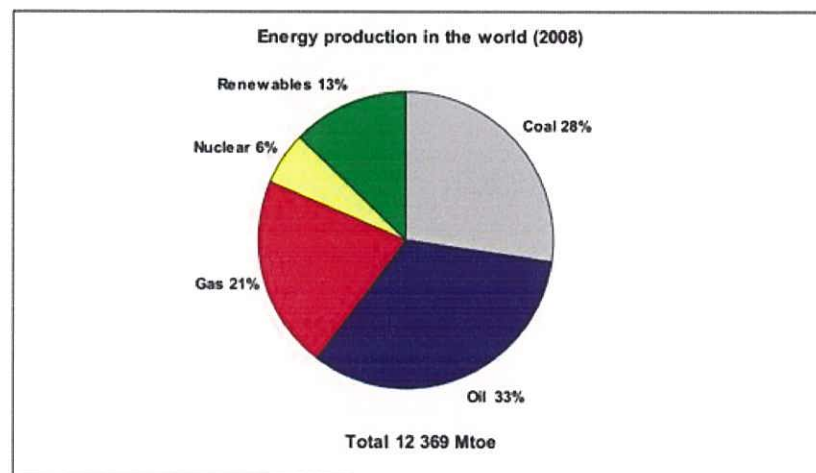
demand on electricity. However, with the introduction of inner combustion engine in the 20<sup>th</sup> century, oil became increasingly used for more powerful functioning vehicle motors. As a result of all of these strategic developments, energy became strategic in industrial production, electricity generation, heating/cooling, transportation, communication, data transmission and technological improvements as all of these relate to the state power and political economy.

In today's modern, industrialized, technologically developing world, energy is the most basic and important commodity of our age because it not only determines the living standards but also plays the role of a leverage for national economic and social welfare of countries. Energy is an indispensable part of industrial production, household lighting/heating/cooling, and transportation and the commodity upon which the developed countries have established their prosperity and civilization. Without electricity or fuels, it is impossible to conduct the daily activities such as travelling, commuting, communication, manufacturing, accommodation in lives of a whole society. All information flow including the ones in fields of military (security), health, education, economy, infrastructure, communication etc. is dependent upon computer systems which work on electrical power. Daily transportation of goods and labor from and to the markets and all commercial activities are built upon systems where energy is fundamental. As an indispensable part of heating/cooling, transport, electricity generation and industrial production, energy has been mainly produced from hydrocarbon resources (fossil fuels). Fossil fuels are composed of petroleum products (oil and gas) and coal; and they are unevenly distributed around the globe. The countries rich in hydrocarbon sources are located in world's politically relatively unstable parts. On the other hand, industrialized countries desire to sustain their position in the competitive global markets by ensuring security of energy supply. Therefore, they have directed their attention to nuclear power and renewable energy sources in order to diversify their energy mix. They also aspire to minimize the negative effects of the global climate change by phasing out from fossil fuels that cause ample CO<sub>2</sub> emissions. For them it is inevitable to pursue an energy policy that combines sustainable, constant and affordable energy supply with elimination of environmental concerns.



**Graphic 1: World Energy Demand Projection.**<sup>55</sup>

While putting efforts underway to decarbonize energy portfolios in the West, fossil fuels still constitute a major part in current and future projections. Rapid population increase and industrialization trends constituted challenges for new actors that appeared in the world energy markets. As can be inferred from Graphic 1, China and India increasingly need more energy due to fast economic growth and industrialization. Fossil fuels play an important role in their portfolios too.



Source: IEA World Energy Outlook 2010

**Figure 1: World Energy Production in 2008.**<sup>56</sup>

<sup>55</sup> Source: International Energy Agency, *World Energy Outlook 2010*.

<sup>56</sup> *Ibid.*

As shown in Figure 1, fossil fuels meet almost 80 % of world energy consumption and it will continue to do so through 2040 according to scenarios prepared by the U.S. Energy Information Administration. In this respect, in a world where demand for energy is on the rise and will continue rising in the coming decades, new solutions for energy consumption with minimum environmental consequences are needed. Natural gas has been offering a viable solution to sustainable development for the last two decades. Natural gas is the fastest-growing fossil fuel and global natural gas consumption is expected to increase by 1.7 percent per year as well as increasing supplies of tight gas, shale gas, and coal bed methane support growth in projected worldwide natural gas use.<sup>57</sup> The reason behind the fast growing pace of natural gas consumption in world energy consumption is some of its advantages vis-a-vis other fossil fuels and alternatives:

- 1) Natural gas is a relatively clean burning fossil fuel. Burning natural gas for energy results in much fewer emissions of nearly all types of air pollutants and carbon dioxide (CO<sub>2</sub>) per unit of heat produced than coal or refined petroleum products.<sup>58</sup>
- 2) Natural gas is easy-to-use in electricity generation. Construction of natural gas power plant is easier than alternatives and natural gas is interchangeable with coal fired power plant.
- 3) Natural gas can be used as a backup to renewable energy. As renewable energy sources are intermittent, another source of energy needs to be used as a backup when for example the wind does not blow or sun is not up. Natural gas is a perfect fit for this role.
- 4) Natural gas is flexible and available. Natural gas is moved by pipelines from the producing fields to consumers. Due to increasing demand for natural gas in the winter, it can be stored along the way in large underground storage systems, such as old oil and gas wells or caverns formed in old salt beds. The gas could remain there until it is injected back into the pipeline when gas consumption

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<sup>57</sup> U.S. EIA.eia “International Energy Outlook 2013: Highlights”, accessed on 13 January 2014 at [http://www.eia.gov/forecasts/ieo/more\\_highlights.cfm](http://www.eia.gov/forecasts/ieo/more_highlights.cfm)

<sup>58</sup> U.S. EIA. “Natural Gas and the Environment”, accessed on 13 January 2014 at [http://www.eia.gov/energyexplained/index.cfm?page=natural\\_gas\\_environment](http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_environment)

increases, such as residential use for heating purposes in the winter.<sup>59</sup> Other than pipelines or storage facilities, when chilled to very cold temperatures, approximately -162°C, natural gas turns into a liquid form and can be stored. Since it occupies only 1/600th of the space that it would in its gaseous state, liquefied natural gas (LNG) can be loaded onto tankers and transported across the ocean to other countries where it is gasified again for injection into pipelines.<sup>60</sup>

- 5) Natural gas is versatile. As well as electricity generation, natural gas is used intensely in residential and/or industrial heating and transportation. Recently, buses and cars running on natural gas have been increasingly being used throughout the world.
- 6) Natural gas is more preferred than nuclear power. Particularly following the Fukushima accident, as a clean and available source of energy production, demand for natural gas has dramatically increased in Japan where it took place and other countries like Germany where public opposition against nuclear energy escalated.

Besides the advantages of natural gas in energy sector, ¾ of all natural gas traded back and forth globally is transported via pipelines. This creates pipeline dependence and leaves states vulnerable to supply shocks for two reasons: 1) A disruption in supply is more detrimental to gas infrastructure and takes longer to reinstate than a similar disruption to oil supplies, and 2) Pipeline ownership by natural gas exporters prevents third party access to the infrastructure and require long term contracts due to pipeline operation and maintenance costs. In this context, due to technical reasons, disruptions take longer to recover even if the gas is made available again and it leaves consumers vulnerable to supply shocks which could be unbearable in the winter time or peak production hours during the day. Third party access to the pipeline is crucial for free trading of natural gas. If it is only the exporter country's natural gas company which uses the infrastructure, then this creates a monopoly in gas exportation. On the other hand, the long-term contracts tie the consumer to higher prices and lowers

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<sup>59</sup> U.S. EIA. "Delivery and Storage of Natural Gas", accessed on 13 January 2014 at [http://www.eia.gov/energyexplained/index.cfm?page=natural\\_gas\\_delivery](http://www.eia.gov/energyexplained/index.cfm?page=natural_gas_delivery)

<sup>60</sup> *Ibid.*

competitiveness in natural gas trade. Therefore, hub pricing where demand and supply meet at an optimum level is clearly more competitive and affordable compared to long term contracted pipeline prices. The pricing issue is going to be examined and explained in more details under the next section.

Another important issue regarding dependence on pipelines is the transit countries. Transit countries are bound by certain transit regimes, but if domestic demand for gas increases at a higher pace (for example under severe weather conditions like during winter), then natural gas becomes suddenly pulled by the domestic consumers and thus the pressure immediately is lost for pumping to the end user country. Or simply, if there arises a dispute between the producer country and the transit country over prices, this could also create the risk of disruption, such as the case in Russia-Ukraine conflict in 2006 and 2009. So, dependence on secure and sustainable supply is not only on source but also on transit countries. The fewer countries are involved in transportation, the less risk supply security is under. In this context, Russia constructed Nord Stream stand-alone direct pipelines to Germany and has been preparing for the construction of South Stream pipeline that will be built underwater in the Black Sea. Both projects intend to by-pass Ukraine and other transit countries in transportation of Russian gas to European markets.

For all the reasons explained above, and as the same applies for any other kind of energy resource, dependence on a single supplier in natural gas creates vulnerability in terms of risks of disruption and price pressure for political reasons. Therefore, a state which does not have domestic natural resources for energy production must be careful in diversifying its energy portfolio, suppliers and routes of transportation. The EU which is around 30 % dependent on Russian natural gas exports has been looking for alternative source countries and transportation routes to break the monopoly of Russia in European natural gas markets. Gas is thus an issue that concerns both the terms and conditions of actual supply arrangements and the terms and conditions of third country transit for some current or prospective suppliers to the EU. The next chapters will focus on EU-Russian energy relations, the shale gas production in the United States and its possible impacts regarding European Union's security of natural gas supplies.



#### 1.4. NATURAL GAS PRODUCTION AND LNG TRADE IN THE WORLD

According to the U.S. Energy Information Administration's *International Energy Outlook 2013* report, natural gas is the world's fastest growing hydrocarbon source and it is expected that the global consumption of gas will rise from 3.2 trillion cubic meters (tcm) in 2010 to 5.2 tcm in 2040.<sup>61</sup> Report states that non-OECD demand for natural gas will grow two times faster than OECD demand and 70 % of the production increase will take place in non-OECD countries. Since it is less carbon-intensive compared to coal and oil, gas will be preferred by governments which intend to reduce greenhouse gas emissions. Furthermore, lower capital costs for new gas-fired power plant installations and preferred heat rates will enable gas to sustain its popularity and by 2040 its use in electricity generation will grow 2 % annually whereas the growth will be 1.5 % in industrial use.<sup>62</sup>

The share of non-OECD consumption of gas will increase from 51 % in 2010 to 59 % by 2040 due to fast geonomic growth in these countries. The U.S. and Russia are expected to add 339 billion cubic meters annually (bcma) to global gas production each and their share alone will constitute one third of global production, particularly with Russian production in the North Pole and shale gas production in the U.S.<sup>63</sup>

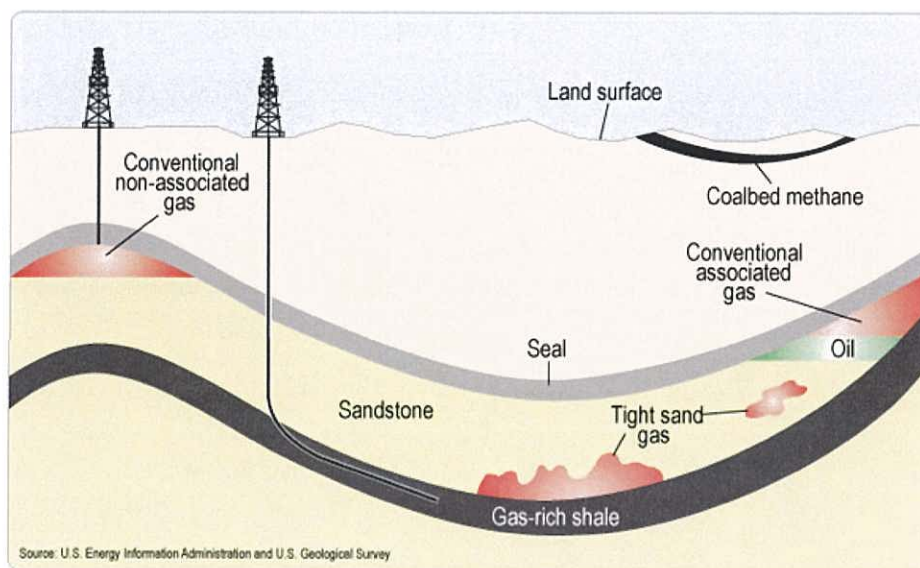
As shown below in Figure 2, production of unconventional gas, namely tight sand, shale and coalbed methane gas, requires more complicated and challenging technologies compared to conventional resources. According to the report, unconventional gas production particularly in the U.S., Canada and China is expected to increase the global supply of natural gas.

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<sup>61</sup> U.S. EIA. "International Energy Outlook 2013", pp. 41-42.

<sup>62</sup> *Ibid.*

<sup>63</sup> *Ibid.*



**Figure 2: Natural gas sources.**<sup>64</sup>

Horizontal drilling and hydraulic fracturing technologies have been key to doubling the volumes of technically recoverable gas in the U.S. in the last decade. The Report renders that shale gas will constitute 50 % of U.S. gas production in 2040, while stating that 80 % of the domestic production in Canada and China will be from tight sand, shale and coalbed methane gas by 2040.<sup>65</sup>

A study by Advanced Resources International Inc. in June 2013 shows that with Georgina and Beetaloo basins added and Cooper and Canning basins revised, total recoverable shale gas in Australia is 12.3 trillion cubic meters (tcm) as well as exploration of 7 basins in 18 formations in China.<sup>66</sup>

Apart from the U.S., Canada produces shale gas and it is expected that the production is expected to start in China, Australia, Mexico and some parts of OECD Europe which hold rich technically recoverable shale gas resources.<sup>67</sup> However, when the production will take place and how much gas will be recovered per capita are indefinite which

<sup>64</sup> Source: *Energy in Brief* accessed on 2 May 2014 at [http://www.eia.gov/energy\\_in\\_brief/article/about\\_shale\\_gas.cfm](http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm)

<sup>65</sup> "International Energy Outlook 2013", *op. cit.*, pp. 41-42.

<sup>66</sup> *Ibid.*, p. 43.

<sup>67</sup> *Ibid.*

completely depends on the aboveground conditions.<sup>68</sup> Due to the scarcity of data, estimations on how much recoverable shale gas is present apart from the U.S. may not reflect the reality.

Besides, the report states that global LNG trade will double by 2040 with an increase from 283 bcma in 2010 to 566 bcma in 2040 as well as a considerable part of the increase in the liquefaction capacity will emanate from the new liquefaction facilities which are under construction in Australia and North America and will be operational in the coming decade. At the same time, it is stressed that liquefaction facilities in North Africa and Southeast Asia are either operating on low capacity or shut down due to reduced production in gas fields connected to those facilities and prioritization of domestic consumption in these countries.<sup>69</sup>

### 1.5. NATURAL GAS PRICING MECHANISMS IN THE WORLD

Apart from supply disruptions and security of supply, another important issue for consumers is pricing. One of the pillars of the energy security understanding is affordability. Seasonal and political contexts are determining factors in pricing and in access to affordable energy. Harsh winters and/or regional instabilities could lead to rises in prices and therefore contribute to the GDP of producer countries. If producer countries have the opportunity and ability to increase prices whenever they wish, this creates political vulnerability for consumer countries. Thus, pricing mechanisms that is built upon supply-demand balance enhance the affordability of purchased energy as well as competitiveness and security of supply.

In this context, gas prices and pricing mechanisms differ globally. Today the most widespread pricing mechanisms are oil-indexed pricing, regulated pricing and competitive market pricing.<sup>70</sup> Under oil-indexation, gas prices are linked to either crude

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<sup>68</sup> *Ibid.*

<sup>69</sup> *Ibid.*, p. 41-42.

<sup>70</sup> *Ibid.*

oil prices or prices of oil products through special formulas in long-term contracts.<sup>71</sup> Within the scope of regulated pricing, production costs and other expenditures are reflected on gas prices or prices are subsidized for consumers by the government.<sup>72</sup> Besides, in competitive market pricing, gas is priced at trading platforms or hubs where competition among gas producers and demand of consumers are the determining factors in pricing.<sup>73</sup>

There is no integrated global natural gas market yet and gas pricing differs from a region to another. Nevertheless, it must not be forgotten that markets are subject to transformation and competitiveness may become more widespread in the coming decades.

In the U.S., historically, gas pricing have always been linked to production costs.<sup>74</sup> Pipeline corporations purchased gas from producers at regulated prices, stored it and sold it to consumers through their infrastructure at a single price by adding on it the transportation and storage costs. However, government regulation on prices was abolished in the U.S. gas industry by 1993.<sup>75</sup> In addition, gas firms have been obliged to provide non-discriminatory third party access to transportation and storage services.<sup>76</sup> This rejuvenated gas industry and many trading points were established in the U.S. and Canada. The most renowned and active trading point is Henry Hub in Louisiana. Even though gas prices were not directly linked to oil prices, per million Btu<sup>77</sup> gas was priced at one seventh (7:1) of per barrel of oil price and this rate kept steady until 2005.

However, whilst crude oil was 56 dollars per barrel in 2005, it increased to more than 100 dollars in 2008 bringing the 7:1 rate to 11:1.<sup>78</sup> Thus, increase in oil prices was not reflected upon gas prices in the U.S. After 2008, shale gas production decreased gas

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<sup>71</sup> *Ibid.*

<sup>72</sup> *Ibid.*

<sup>73</sup> *Ibid.*

<sup>74</sup> *Ibid.*

<sup>75</sup> *Ibid.*

<sup>76</sup> *Ibid.*

<sup>77</sup> \*: Btu: British thermal unit. 35 million Btu gas is equal to 1000 cubic meters of gas. For instance, where per barrel of oil is 100 dollars, and the rate is 8:1, 1 million Btu gas will be equal to 8:1 of 100 dollars, which is 12.5 dollars per million Btu gas. Thus, 1000 cubic meters of gas (35 million Btu) would be 437.5 dollars. This rate is 8:1 in the EU and Asia whereas it is 35:1 in the U.S.

<sup>78</sup> "International Energy Outlook 2013", *op. cit.*, pp. 45-46.

prices against rising oil prices. The rate of oil/gas prices has become 35:1 in 2012.<sup>79</sup> This rate is expected to gradually reach 21:1 by 2040 after shale gas production moves to more challenging and costly basins.<sup>80</sup>

In Europe, gas has been historically traded with prices linked to diesel or heavy fuel oil prices through long term contracts. Europe has also abandoned regulated prices like the U.S. in the internal markets. Abolishment of price regulation was in place by 2000 in the United Kingdom whereas it took place as provided by EU Directives at a later period in the continental Europe.<sup>81</sup> Since the abolishment of regulated prices in the internal market, a few trading points were established across Europe. The oldest, most popular and active one is the National Balancing Point (NBP) in the United Kingdom where LNG trade is intense.<sup>82</sup> However, hub pricing did not become mainstream across Europe such as the U.S. and Canada. Gas pricing in Europe is a mix of hub pricing in spot markets, long-term contracts tied to hub prices and long-terms contracts tied to oil-indexed prices. Until 2005, spot and contracted gas prices were lower than the prices in North America. Lately, this was reversed and the oil/gas price rate reached 8:1 in 2012 compared to 12:1 in 2005.<sup>83</sup>

In Asia, gas was traded with prices linked to crude oil prices through long term contracts. Holding fewer gas pipelines with limited regulation by a limited number of states, gas markets were not able to integrate as much as the markets in the U.S. or the EU did.<sup>84</sup> Deregulation is absent in Asian markets. However, some changes have been due in the Asian markets lately: Asian customers have gained more destination flexibility and LNG volumes traded on spot markets and under short-term contracts have increased.<sup>85</sup> Asian customers have also signed short-term contracts to buy LNG from the U.S at prices linked to Henry Hub prices rather than oil-indexed prices.<sup>86</sup> At the same time, s-curves (contract terms), which limited the reflection of high oil prices

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<sup>79</sup> *Ibid.*

<sup>80</sup> *Ibid.*

<sup>81</sup> *Ibid.*

<sup>82</sup> *Ibid.*

<sup>83</sup> *Ibid.*

<sup>84</sup> *Ibid.*

<sup>85</sup> *Ibid.*

<sup>86</sup> *Ibid.*

on contracted gas prices, have been virtually abolished from contracts in Asia since 2008 and thus it has sustained prices well above those in the U.S. and Europe.<sup>87</sup>

Recent increases in gas supplies have provided opportunities toward development of more competitive gas markets. Global shale gas production could also enhance the faster development of competitive pricing regimes around the world.<sup>88</sup> Regulated and oil-indexed gas pricing is giving way to competitive pricing like those in the U.S. and the United Kingdom. There has been a transition in continental Europe where the share of markets operating on hub pricing is gradually growing. While LNG and natural gas trade and consumption is growing in the Asian markets, development of a natural gas hub is inevitable, even though it is unknown where and how.<sup>89</sup> Intentions toward the development of such a hub were expressed by China, Japan and Singapore.<sup>90</sup> In conclusion, as hubs grow for natural gas trade, economically competitive natural gas trade around the world will be possible in as much as prices are based on the balance of supply and demand for natural gas itself, excluding any link to oil prices.

In the light of all of the above, the next chapter examines the EU's dependence on Russia in natural gas imports and its political consequences for the Union.

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<sup>87</sup> *Ibid.*

<sup>88</sup> *Ibid.*

<sup>89</sup> *Ibid.*

<sup>90</sup> *Ibid.*

## **2. EUROPEAN UNION-RUSSIAN FEDERATION ENERGY RELATIONS**

In this chapter, the extent of the EU's reliance on Russian gas exports and the political vulnerability this dependence creates for Brussels in responding to political crises with Moscow will be scrutinized as well as Russia's use of its vast gas sources and exports as a political weapon in its near abroad against the expansion of military and political presence of "the West", which in this thesis politically signifies the U.S., the EU, and NATO members.

### **2.1. ENERGY POLICIES OF THE EUROPEAN UNION**

EU's energy policy which originally depends on the founding treaties (The European Coal and Steel Community-1951 and Euratom-1957) and which has evolved in tandem with the deepening of integration process, as stated in the White Paper presented by European Commission in 1996, aims to guarantee the security of supply, protect the environment and boost competitiveness within the Union. With the introduction of internal market by Jacques Delors in 1992 which was built upon the Single European Act of 1987, water, telecommunications and energy sectors were initially precluded. However, the successful liberalization of other sectors and adoption of several legislations by the Union have also put these sectors in sequence to be covered at the Community level. Without a moment to spare, three decisive stages have been put into practice (1<sup>st</sup> Package 1996-97, 2<sup>nd</sup> Package 2003 and 3<sup>rd</sup> Package 2009) which reinforced economic interdependence between Member States. The reason behind the urgency to treat energy as a policy area at the Union and global level can be associated with the changes in the energy sector and immediate concerns arising thereof including the struggle against climate change, unpredictability of geopolitics, rise of terrorism and the need to enhance the institutions. Particularly in the energy sector, the uncertainties and weaknesses emerged in a more alarming manner such as the sudden increases in

energy prices globally and the inevitable stiffening of EU's energy dependence mainly on Russia in gas and on the Persian Gulf in oil supplies.<sup>91</sup>

Under the Lisbon Treaty (Treaty on European Union and the Treaty on the Functioning of the European Union) the Union's competencies for energy are defined with four priorities, namely the functioning of the internal market, security of supply, renewable energy and energy efficiency, and the interconnection of networks. The Treaty also gave concrete expression of a flagship value of European integration: solidarity between the Member States.<sup>92</sup>

In this respect, The European Council has taken remarkable decisions concerning EU energy policies on 4 February 2011. Five priorities have been highlighted for the next decade: to boost energy efficiency within the EU, to finalize the single EU energy market, to secure the benefits for the consumers and ensure the highest level of safety, to invest in new technologies and strengthen the role of the EU in international energy relations.<sup>93</sup> In this way, the European Council has emphasized that no Member State should remain isolated from European energy networks after 2015, financing of projects which market forces alone would not facilitate, and cooperation on renewable energy and energy efficiency.

As a consequence of the European Council meeting on February 4th, a clear deadline for the completion of the internal energy market has been identified. By 2014, through the establishment of a concrete internal energy market, it is aimed to provide affordable prices for the consumers and the industry and enable the transportation of all energy products as easily across Europe as other goods and services. Beyond expanding self-sufficiency or decreasing import dependency, EU policies which are directed to strengthen the security of the supply aim at mitigating the risks that can arise from import dependence. In relation to this perspective, diversification of energy sources in

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<sup>91</sup> European Commission. "Security of Energy Supply in Europe". *The European Files*. May-June 2011, no. 22, p. 3.

<sup>92</sup> *Ibid.*

<sup>93</sup> European Council, "4 February 2011 Conclusions", accessed on 12 December 2012 at [http://www.consilium.europa.eu/uedocs/cms\\_data/docs/pressdata/en/ec/119175.pdf](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/119175.pdf)



terms of products and source countries, enhancement of strategic stocks for the purpose of being prepared for emergencies and possible crises, establishment of equilibrium among different supply sources are specified as appropriate instruments.

In this respect, since the beginning of the 2000s, the EU has intensified its efforts to develop a new common energy policy. First of all, following the *Energy Efficiency Initiative* launched in 2005, the EU has started a number of activities aimed at increasing energy efficiency within the Union. *Energy Efficiency Initiative* which focuses on the reduction of energy losses in the production transmission and distribution processes of electricity, the financing of energy efficiency, the improvement of energy efficiency in the transport sector, raising public awareness and international cooperation, was intended to serve the main objectives of the EU's energy policy – the promotion of competitiveness, sustainable development and the security of supply.

To this end, following the Russia-Ukraine energy crisis over gas prices in December 2005, European Commission issued a new Green Paper called “A European strategy for sustainable, competitive and secure energy on 8 March 2006. The Green Paper argues for a unified EU energy policy as well as calling for new policies for diversification of routes and sources of energy products. There occurred hot discussions by the European governments. There are six prioritized areas identified in the Green Paper:

- Completion of the internal European electricity and gas markets;
- Encouragement of solidarity among member states;
- Establishment of a more sustainable, efficient and diverse energy mix;
- Endorsement of an integrated approach to tackling climate change;
- Encouragement of a strategic energy technology plan;
- Creation of a coherent external energy policy.<sup>94</sup>

Among these prioritized areas identified in the Green Paper (especially for ensuring the security of energy supply which is specifically supported by the implementation of those prioritized areas) the EU's rising dependence on imported energy is suggested to be tackled with the following:

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<sup>94</sup> “Green Paper: a European strategy for sustainable, competitive and secure energy”, *op. cit.*

- An integrated approach – reducing demand, diversifying the EU’s energy mix with greater use of competitive indigenous and renewable energy, and diversifying sources and routes of supply of imported energy,
- Creating the framework which will stimulate adequate investments to meet growing energy demand,
- Better equipping the EU to cope with emergencies,
- Improving the conditions for European companies seeking access to global resources,
- Making sure that all citizens and business have access to energy.<sup>95</sup>

### 2.1.1. Second Strategic Energy Review

On 13 November 2008, European Commission issued *2nd Strategic Energy Review*, which includes measures to improve the EU’s energy security and energy efficiency and to reduce the dependence to Russian petroleum and gas imports and which determines a more effective and concrete new energy policy for the EU. The Review, taking EU energy policies one step further and including a vision for the next step, namely 2050, includes EU Energy Security and Solidarity Action Plan.

The Action Plan includes the topics of diversifying energy resources, increasing investments, attaching more importance to energy in international relations, improving petroleum and natural gas stocks, enhancing crisis management, increasing energy efficiency and developing indigenous energy resources.

Although there is a diversified supply profile in the Union, some of the EU Member States are 100 % dependent on an individual supplier. In addition, in order to meet the EU's 20-20-20 objectives<sup>96</sup>, major changes in the EU's internal energy infrastructure are expected over the coming years and decades. In this perspective the Commission proposes six infrastructure projects as Union priority:

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<sup>95</sup> *Ibid.*

<sup>96</sup> Please visit section 2.1.3. for further information.

- Development of a Baltic interconnection plan, better linking the region with the rest of the EU, improving the security and diversity of its energy supply, enabling solidarity;
- Development of a Southern Gas Corridor for supply from Caspian and Middle Eastern sources and possibly other countries in the longer term, improving security of supply;
- As liquefied natural gas (LNG) is now contributing to diversity of gas supply, sufficient capacity should be available to all Member States, either directly or through other Member States on the basis of solidarity arrangements; particularly important for the Member States which are currently overwhelmingly dependent on a single gas supplier; an LNG Action Plan to be considered;
- Completion of a Mediterranean energy ring, linking Europe with the Southern Mediterranean through electricity and gas interconnections to improve energy security and to help develop the vast solar and wind energy potential;
- Development of North-South gas and electricity interconnections within Central and South-East Europe, building on the Energy Community inter alia, supporting the national energy regulators and Transmission System Operators;
- Development of a blueprint for a North Sea offshore grid, interconnecting national electricity grids and plugging in planned offshore wind projects.<sup>97</sup>

Southern Gas Corridor constitutes the most important alternative in terms of the diversification of sources due to the vastness of the gas reserves located in the Middle East, Caspian Basin, Central Asia and Eastern Mediterranean regions. The *Nabucco* project, which is designed to transport gas from Turkmenistan, Azerbaijan, Iraq, Iran and Eastern Mediterranean to European markets through Turkey, has been a hot topic as a completely new route and source for the Union throughout 2000s. However, due to the unavailability of gas for the project and Russia's proposition of a rival project, that is South Stream, Nabucco is racked now. Instead, Turkey and Azerbaijan initiated a new project, namely Trans-Anatolian Natural Gas Pipeline (TANAP) project which will

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<sup>97</sup> European Commission, "EU Energy Security and Solidarity Action Plan: 2nd Strategic Energy Review", accessed on 22 December 2012 at [http://europa.eu/rapid/press-release\\_MEMO-08-703\\_en.htm?locale=en](http://europa.eu/rapid/press-release_MEMO-08-703_en.htm?locale=en)

transport Shah Deniz Phase II gas to Europe through Turkey and connect to Trans-Adriatic Pipeline which passes through Greece, Albania and arrives in Italy. The analysis on the projects is detailed under a stand-alone sub-topic later in the thesis.

Given the global developments, the EU needs to take action to secure its energy future and to protect its essential energy interests. The EU needs to intensify its efforts in developing an effective external energy policy; speaking with one voice, identifying infrastructure of major importance to its energy security and then ensuring its construction, and acting coherently to deepen its partnerships with key energy suppliers, transit countries and consumers.

Besides, the Action Plan covers updating and improvement of the existing Community rules regarding internal crisis mechanisms and security standards and the measures about increasing the transparency in oil markets. Also, updating and improvement of the existing Community rules on the energy performance of the buildings, energy labelling, eco-design and cogeneration is vital to increase energy efficiency by %20 by 2020. It is envisaged to establish appropriate financing mechanisms for the massive development of renewable energy at EU level and for investments in energy efficiency, renewable energies, the clean use of fossil fuels and combined heat and power from renewable in Europe's cities.

After the endorsement of proposals presented in the *Second Strategic Energy Review*<sup>98</sup> by the Energy Council in January and February 2009, new rules have been elaborated to improve the security of gas supplies in the framework of the internal gas market in July 2009. In this context, Regulation No: 994/2010<sup>99</sup> strengthens the existing system and ensures that all Member States and their gas market participants act together to prevent and mitigate the consequences of potential disruptions to gas supplies. The Regulation holds market players (gas suppliers and transmission system operators) responsible for dealing with the disruption before any State intervention; but if the market cannot find a

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<sup>98</sup> *Ibid.*

<sup>99</sup> Eur-Lex. Regulation (EC) No 715/2009 of the European Parliament and of the Council, accessed on 17 March 2014 at

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0036:0054:en:PDF>

solution about the disruption it should be ensured that competent authorities of the Member States take appropriate measures in a coordinated way at regional and EU levels. In addition to this, it is adopted that provision of sufficient infrastructure to transport the gas, market transparency to inform the market players about the situation and demand management particularly with industrial customers are necessary.

There to, the Commission proposed greater transparency on the evolution of energy infrastructure in main energy sectors such as oil (including biofuels), electricity and gas, but also in related areas such as the transport and storage of carbon related to energy production. It is expected that transparency on planned and ongoing investment projects will contribute to shaping a favorable climate for investment.

### **2.1.2. Third Energy Package**

Establishment of a competitive and liberalized internal market of gas and electricity constitutes one of the main pillars of the EU energy policy. In this respect, the Third Energy Package was adopted for the establishment of the internal market in a desired manner and Member States were expected to transpose it to their national legislation by March 3, 2011.

Within the framework of the EU's new energy policy, the liberalization of the internal market is of great importance. High level market concentration resulting from different applications in Member States, the dominance of vertically integrated companies, the lack of transparency and cross-border trade negatively affect the consumers and challenge the security of EU's energy supply. Thus, the Third Energy package was adopted in July 2009 to protect the EU customers and the EU economy from the negative effects of the insufficiently liberal European Energy market.

In the package, there are two Directives, one concerning common rules for the internal market in gas (2009/73/EC), one concerning common rules for the internal market in electricity (2009/72/EC) and three Regulations, one on conditions for access to the natural gas transmission networks ((EC) No 715/2009), one on conditions for access to

the network for cross-border exchange of electricity ((EC) No 714/2009) and one on the establishment of the Agency for the Cooperation of Energy Regulators ACER ((EC) No 713/2009). The directives and regulations were adopted in July 2009 and put in force on 3 March 2011.

The most contentious and important component of the Third Energy Package representing the last stage in the liberalization of natural gas and electricity markets is unbundling. The Package indicates that the best option to acquire transmission system unbundling is ownership unbundling. Ownership unbundling requires undertakings owning and operating the transmission system not to perform production and supply activities and/or own any production or supply facility and vice versa. Furthermore, the Commission has also appraised an alternative to ownership unbundling and developed a new model called Independent System Operator (ISO). In the Independent System Operator Model, the vertically integrated<sup>100</sup> energy companies retain the ownership of transmission networks but they hand over the technical and commercial operations of their transmission networks to a separate body called the independent system operator (ISO). The Independent System Operators which are closely involved in investment decisions should be indifferent to the production and supply interests of the vertically integrated energy company.

Basically, unbundling targets the separation of transmission activity from production and supply activities. An undertaking performing production and/or supply activities will not be able to perform transmission activity in the market. The reasoning behind this is that transmission systems are natural monopolies and the capacity allocation and permission for connection to the transmission system for producers and suppliers must be granted by the transmission system operator on a non-discriminatory basis. Therefore, if a gas or electricity transmission system owner and operator owns or operates a production facility or performs supply activities, then it could provide privileged access to its own associated undertakings and non-discriminatory access to

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<sup>100</sup> 'Vertically Integrated Undertaking' means a natural gas undertaking or a group of natural gas undertakings where the same person or the same persons are entitled, directly or indirectly, to exercise control, and where the undertaking or group of undertakings perform at least one of the functions of transmission, distribution, LNG or storage, and at least one of the functions of production or supply of natural gas.

the transmission system for third party producers and suppliers may not be possible to ensure.<sup>101</sup>

The Package also aims to improve the authority and independence of national energy regulators. Over the years of working towards creating a well-functioning EU internal market it has become clear that national energy regulators alone and the existing advisory group – the European Regulator Group for Electricity and Gas (EREG) – are insufficient to cope with the tasks of regulation at the EU level. Thus it was decided to create an independent body with special expertise on technical issues. This new body, that is Agency for the Cooperation of Energy Regulators (ACER), is independent from the Commission, national governments and energy companies.<sup>102</sup>

The other issue in the package is improvement of the cooperation between the transmission system operators. The grids of the Member States were constructed to meet the needs of the national markets rather than those of a single European network. Existing cooperation between the transmission system operators like ETSO, GTE, UCTE, EASEE-GAS on a voluntary basis has been reformulated within the framework of the plans that the Commission intended for the European Transmission System Operators Network. In this context, on Dec 1, 2009, The European Network of Transmission System Operators for Gas (ENTSO-G) was created with a composition of 33 Transmission System Operators (TSOs) from 22 European countries in order to promote the completion and functioning of the internal market and to ensure the optimal management, coordinated operation and sound evolution of the European natural gas transmission network, and ENTSO-E (The European Network of Transmission System Operators for Electricity) was established on 19 December 2008 in Brussels by 42 TSOs from European countries and became operational on 1 July 2009.<sup>103</sup>

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<sup>101</sup> European Commission. Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, accessed on 22 December 2012 at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0055:01:EN:HTML>

<sup>102</sup> European Commission. Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators, accessed on 22 December 2012 at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:01:EN:HTML>

<sup>103</sup> European Network of Transmission System Operators for Electricity, accessed on 22 December 2012 at <https://www.entsoe.eu/index.php?id=688>

Finally the package includes the issues regarding the supply security and the consumer protection. It is stated that an effective competitive environment will contribute to the competitive prices, supply security and environmental goals; and additional measures are taken in the fields of expanded guarantees regarding the protection of consumers, the monitoring of production and supply sufficiency and increasing the number of reports, attachment of greater importance to issues related with the supply security by the regulators and transmission system operators, and energy efficiency and R&D.

### **2.1.3. 20-20-20 Targets for 2020 and 2030 Framework for Climate and Energy Policies**

The EU has been committed to the issues of increasing the use of renewable sources, reduction of CO<sub>2</sub> and greenhouse gas emissions and cuts in total energy consumption as regards its 2020 targets set on 10 November 2010 with a view to constitute a global engagement and to achieve safe, secure, sustainable and affordable energy use by protecting its internal dynamics.

The *EU Climate and Energy Package* adopted ambitious energy and climate change objectives for 2020: such as reducing greenhouse gas emissions by 20 % from 1990 levels (rising to 30 % if other developed countries commit themselves to comparable emission reductions and economically more advanced developing countries to contributing adequately in accordance with their responsibilities and respective capabilities), increasing the share of renewable energy to 20 % in EU energy consumption and making 20 % improvement in energy efficiency. Within the context of more renewable energy usage issue, it is stated that 10 % of the fuels used in transport must be acquired from biofuel, electricity or hydrogen.<sup>104</sup>

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<sup>104</sup> European Commission. "EU Climate and Energy Package: Citizens' Summary", accessed on 22 December 2012 at [http://ec.europa.eu/clima/policies/package/docs/climate\\_package\\_en.pdf](http://ec.europa.eu/clima/policies/package/docs/climate_package_en.pdf)



In 2010, the EU published *Energy 2020: A strategy for competitive, sustainable and secure energy*<sup>105</sup> with regard to the 2020 targets. It highlights that the energy produced and consumed is the main reason for the global warming and as the EU energy needs grow, so does its dependence on fossil fuels (oil, natural gas and coal). These fuels – all with high CO<sub>2</sub> emissions – now account for some 80% of EU energy consumption. The EU has been conducting its activities with a view to constitute a global engagement within the context of the reduction of greenhouse gas emissions.

Although there has been some good progress partly in meeting its climate and energy targets for 2020, an integrated policy framework for the period up to 2030 is considered necessary by the EU to ensure regulatory certainty for investors and a coordinated approach among Member States. *2030 framework for climate and energy policies* is presented by the Commission in January 2014 and it seeks to drive continued progress towards a low-carbon economy. Building a competitive and secure energy system which ensures affordable energy for all consumers, increases the security of the EU's energy supplies, reduces their dependence on energy imports and creates new opportunities for growth and jobs is aimed. In this scope, the framework revises 20-20-20 targets. Accordingly, it sets the targets as to reduce EU domestic greenhouse gas emissions by 40% below the 1990 level by 2030, to increase the share of renewable energy to at least 27% of the EU's energy consumption by 2030 and to ensure 30% energy savings by 2030.<sup>106</sup> It is agreed by the EU leaders in March 2014 that the decision on the framework be taken in October 2014 at the latest.

#### **2.1.4. European Energy Security Strategy**

In response to the political crisis in Ukraine during the year, the Commission has been invited by the European Council in March 2014 to conduct an in-depth study on

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<sup>105</sup> European Commission. "COM(2010) 639 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Energy 2020 A strategy for competitive, sustainable and secure energy", accessed on 22 December 2012 at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:EN:HTML>

<sup>106</sup> European Commission. "2030 framework for climate and energy policies", accessed on 19 October 2014 at [http://ec.europa.eu/clima/policies/2030/index\\_en.htm](http://ec.europa.eu/clima/policies/2030/index_en.htm)

European energy security and to present a comprehensive plan on how to reduce EU energy dependence. Having regard to the overall importance of a stable and abundant supply of energy for the EU's citizens and economy, the *European Energy Security Strategy* has been released by the Commission on May 28, 2014. This strategy is based on an in-depth study of Member States' energy dependence.

In the strategy, the Commission is proposed to launch energy security stress tests in the short term to simulate a disruption in the gas supply for the coming winter. The aim of these stress tests is to check how EU's energy system can cope with the security of supply risks, and to develop emergency plans and back-up mechanisms which may include increasing gas stocks, developing emergency infrastructure such as reverse flows, reducing short-term energy demand and switching to alternative fuels.<sup>107</sup>

The strategy suggests that these stress tests should serve as the basis for reinforcement of the existing European emergency and solidarity mechanisms as well as for the engagement with international partners to develop new solidarity mechanisms for natural gas and the use of gas storage facilities.

However, within the scope of the strategy, medium to long term objectives for the EU proposes actions in five key areas:

- Increasing energy efficiency and reaching the proposed 2030 energy and climate goals.
- Increasing energy production in the EU and diversifying supplier countries and routes. (This includes further deployment of renewables, sustainable production of fossil fuels, and safe nuclear energy where the option is chosen. It also entails negotiating effectively with current major energy partners such as Russia, Norway, or Saudi Arabia, as well as new partners such as countries in the Caspian Basin region)
- Completing the internal energy market and building missing infrastructure links to quickly respond to supply disruptions and re-direct energy across the EU to where it is needed.

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<sup>107</sup> European Commission. "European Energy Security Strategy", accessed on 19 October 2014 at [http://ec.europa.eu/energy/security\\_of\\_supply\\_en.htm](http://ec.europa.eu/energy/security_of_supply_en.htm)

- Speaking with one voice in external energy policy, including having Member States inform the Commission early-on with regards to planned agreements with third countries which may affect the EU's security of supply.
- Strengthening emergency and solidarity mechanisms and protecting critical infrastructure. (This includes more coordination between Member States to use existing storage facilities, develop reverse flows, conduct risk assessments and put in place security of supply plans at regional and EU level)<sup>108</sup>

### **2.1.5. A Summary of the EU's Energy Policies**

This section sums up and highlights some of the important parts of the detailed and broad information given above about the EU's energy policy as well as analyzing it with the perspective of European integration.

Liberalization in electricity and gas markets along with the completion of the internal market will basically ensure security of supply and affordable energy supply for all EU citizens. Extension of electricity and gas networks and interconnecting Member States' infrastructure will eliminate isolated areas within the Union and will establish a unified internal market for all members. Unified internal market is considered to enable private sector investments, sectoral growth and energy trade and price formation by energy exchanges on a supply and demand basis rather than at the hands of the state-owned vertically integrated undertakings which are generally monopolies at the national or regional levels and open to abuse by populist political objectives of the governments. Energy trade under competitive market conditions provides the ground for a well-functioning market with minimum state intervention and market distortion. Free movement of energy like other goods is viewed as a guarantor of security of supply. However, not all the Member States are compliant with what has been envisaged to be applied by the Third Energy Package. Therefore, infringements by the Member States are decided to be brought into the court by the Commission.

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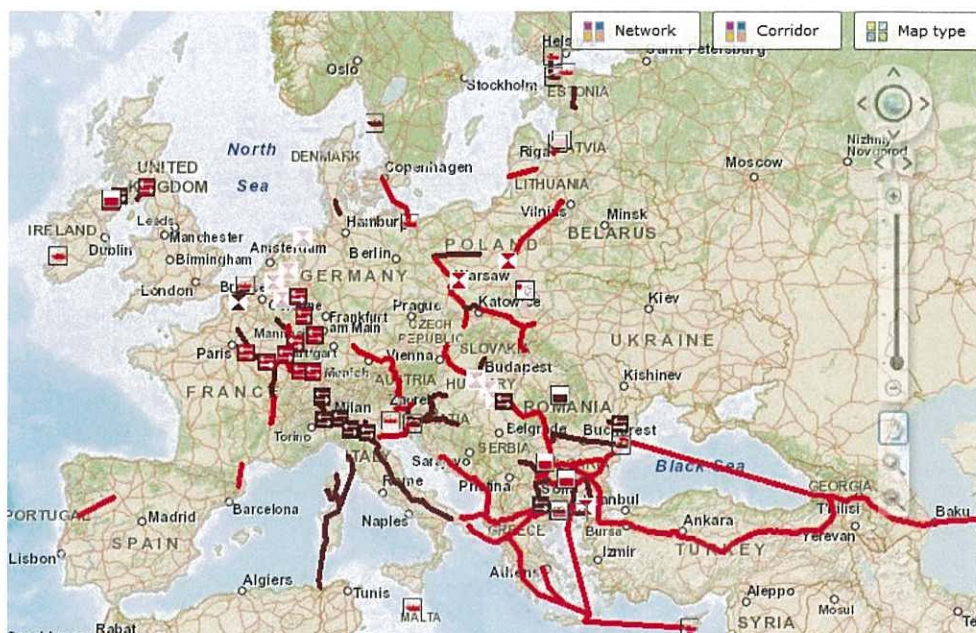
<sup>108</sup> *Ibid.*

On the other hand, EU energy policies focus on the sustainability and environmental protection dimensions in the energy sector. Increasing energy efficiency and share of renewable energy in energy consumption translates into energy savings and the use of indigenous resources for energy production which can be directly linked to energy supply security and sustainability. Increasing energy efficiency provides reduction in energy intensity as well as an increase in GDP produced by each unit of energy. For instance, energy intensity in Serbia is three times larger than Germany, then Germany produces each dollar GDP by consuming three times less energy than Serbia.<sup>109</sup> Furthermore, increasing energy efficiency provides energy savings and it decreases the levels of energy imports as well as reducing the CO<sub>2</sub> and greenhouse gas emissions and mitigating the harmful effects of the global climate change. To this end, the *Energy Efficiency Directive* of 2012 brings about a set of binding rules and measures for Member States for the realization of energy efficiency targets.

Likewise, increasing the share of renewable energy in energy consumption translates into more utilization of indigenous resources, mitigation of the effects of the climate change, diversification of the energy mix, less imported energy and enhanced security of supply. For renewable energy sources are environmentally clean and they are indigenous resources. Wind, solar, wave, biomass and geothermal energy sources are abundant in nature and provide low-carbon energy production. Within the scope of the *Renewable Energy Directive*, the EU has entailed Member States to develop national renewable energy schemes, reach 20-20-20 targets and establish incentive mechanisms for renewable energy production. Nonetheless, renewable energy solely cannot meet the baseload requirements due to intermittency and therefore needs to be backed up by other means of energy production. Natural gas power plants provide quick operation and a low-carbon solution in cases of halted operation of renewable energy plants due to natural conditions.

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<sup>109</sup> U.S. EIA, "International Energy Statistics", accessed on 19 March 2014 at <http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=92&pid=46&aid=2&cid=r3,&syid=2007&eyid=2011&unit=BTUPUSDM>



**Map 1: PCI Gas Projects.**<sup>110</sup>

There to, increasing the electricity and gas interconnections between the Member States is one of the complementary elements in ensuring security of supply and sound operation of internal energy market. In this direction, as shown in Map 1, EU has identified Projects of Common Interest (PCI). The list adopted on 14 October 2013 by the Commission contains 248 energy infrastructure projects with key importance. Projects identified by the twelve regional groups founded in accordance with Trans-European Networks-Energy (TEN-E) guidelines will have the opportunity to benefit from faster and more effective permission procedures as well as improved regulatory framework. Besides, within the scope of Connecting Europe Facility (CEF), the listed projects will be able to receive totally 5.85 billion Euros financial support for 2014-2020 period. Projects need to possess concrete benefits for at least two Member States, contribute to market integration and further competitiveness, increase security of supply and reduce CO<sub>2</sub> emission. The list is going to be revised every two years and updated accordingly.<sup>111</sup>

<sup>110</sup> Source: [http://ec.europa.eu/energy/infrastructure/transparency\\_platform/map-viewer/](http://ec.europa.eu/energy/infrastructure/transparency_platform/map-viewer/)

<sup>111</sup> European Commission. "Energy Infrastructure: Projects of Common Interest (PCI)", accessed on 19 March 2014 at [http://ec.europa.eu/energy/infrastructure/pci/pci\\_en.htm](http://ec.europa.eu/energy/infrastructure/pci/pci_en.htm)

In the light of all of the above, the EU has built its energy policy on more commercial and technical aspects of energy security rather than treating it as a political issue. However, although the EU insistingly treats energy as a commercial and technical issue, the circumstances around the EU and the view of the energy producer countries may vary. Russia utilizes its vast gas and oil resources as a leverage to sustain its “great power” self-perception, whereas the EU stands up for the separation of its energy policy from international and regional political aspirations. However, against the Russian attitude, the EU tries to intensify efforts toward ensuring energy supply security through the formation of a unified external energy policy and the establishment of a strong internal energy market.

Russia sets up its energy relations with EU Member States on a bilateral commercial basis and provides privileges to influential Member States like Germany and Italy while contracting gas purchases. This way, Moscow succeeds in creating disunity among Member States in speaking with one voice in Union’s external energy relations. Therefore, as the ultimate supranational body and the policy entrepreneur of the Union, the Commission puts so much effort into the protection of the Union-wide interests by diversification of gas transportation routes and source countries supplying gas to the EU. Apart from the racked *Nabucco* project, there remain limited alternatives of gas sources for the EU. One of them is other projects like TANAP and TAP within the scope of the Southern Gas Corridor. The other is utilization of indigenous unconventional resources and imported LNG from the U.S. where shale gas production has peaked in the recent years.

In the light of the current political developments in the EU’s immediate neighborhood, the next section examines Russia’s hydrocarbon and export strategies, use of energy as a political instrument in foreign policy, the extent of EU’s dependence on Russian gas supplies as well as the disputes and conflicting interests between the EU and Russia in the field of energy.

## 2.2. RUSSIA'S "GREAT POWER" PERCEPTION AND GEOPOLITICS OF ENERGY

With the rising oil and gas prices throughout the first decade of the 21<sup>st</sup> century, Russia gained the ability to turn its vast natural resources into profound geopolitical influence under President Vladimir Putin's administration and became an "energy superpower".<sup>112</sup> Russia, followed by Iran and Qatar, has the largest proven natural gas reserves in the world and it is the largest gas producer and exporter.<sup>113</sup> Russia is also the second largest oil producer and one of the largest oil exporters with seventh largest proven oil reserves in the world. The country supplies Europe's one third of gas consumption.<sup>114</sup> Putin implemented his energy policy views proposed in his PhD dissertation to the state and gained control in Russia over the vast energy resources. The boost in economic growth owes much to the revenues of state-controlled and owned monopoly, Gazprom, state-owned leading oil firm Rosneft and the largest private oil company Lukoil.<sup>115</sup>

Firstly, it is essential to probe the causes behind Russia's self-perception as a "great power" in its region and as an international actor in the world. In order to assess how Russia's "superpower" identity which was acquired during the Cold War, turned into a perception of "great power", the traumatic transition from USSR to Russian Federation must be addressed within the scope of Russian identity and self-perception debates, mainly explained by Dmitri Trenin who is an important figure in Russian foreign policy studies. Only then, the process in which Russian energy policies were formed will be examined with a view to the relationship between Russian foreign policy behaviours and the country's vast energy resources.

In this respect, Trenin posits the idea that the globalization process goes through fragmentation and it brings up the questioning of artificiality of borders having

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<sup>112</sup> Michael T. KLARE. "An Energy Juggernaut". *Rising Powers, Shrinking Planet: The New Geopolitics of Energy*. New York: 2008, Metropolitan Books. p. 88.

<sup>113</sup> International Energy Agency. "World Energy Outlook 2012", pp. 63 and 125.

<sup>114</sup> *Ibid.*, p. 88.

<sup>115</sup> *Ibid.*, p. 89.

appeared where they never existed before.<sup>116</sup> He argues that one cannot think of identity regardless of territories. In other words, geographical scope does have a substantial impact on the creation of identity and when it changes through territory losses and gains, the identity becomes also subject to transformation.<sup>117</sup> Similarly, Trenin associates Russian identity with its huge territorial possessions throughout the history and he differentiates Russia's relations with the post-Soviet states from the British or the French's with their ex-colonies. Accordingly, neither Britain nor France had organic geographical and thus cultural, social, political ties with their colonies since they were marine empires. Unlike France and Britain, Russia had been living with the communities it annexed to itself through wars and Soviet revolution later for long periods of time and this joint life facilitated dialogue, interaction and statehood among the peoples of Soviets.<sup>118</sup> In this respect, Trenin argues that Russia's relations with post-Soviet states in the Soviet Era can be compared more to Ottoman Empire's and Austro-Hungarian Empire's relations with their lands.<sup>119</sup>

The collapse of the USSR began when it actually retreated from Afghanistan. This retreat led to a geographical loss and then a change of identity. Finally, when Ukraine declared that it was also parting away from USSR as a result of "Do it your way"<sup>120</sup> policy, the Union came to an end.<sup>121</sup> However, according to Trenin, since this disintegration of USSR was not as a result of a war or a conflict, Russia did not experience the traumatic transition to a nation state form. Russian people continued to feel like they were the citizens of one of the two superpowers of the century.<sup>122</sup> For this reason, Russia has started again to seek a "great power" identity due to loss of faith in integration with the West, following the failure of economic recovery and political integration efforts. Trenin proposes that none of the solutions exercised by other previously-empire nation states would fit in Russia's conditions to continue it super-

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<sup>116</sup> Dmitri TRENIN. *The End of Eurasia: Russia on the Border Between Geopolitics and Globalization*. Washington DC: 2001, Carnegie Moscow Center.

<sup>117</sup> *Ibid.*

<sup>118</sup> *Ibid.*, p. 91.

<sup>119</sup> *Ibid.*, p. 19.

<sup>120</sup> Sinatra Doctrine was the name that the Soviet government of Mikhail Gorbachev used jokingly to describe its policy of allowing neighboring Warsaw Pact nations to determine their own internal affairs. The name alluded to the Frank Sinatra song "My Way"—the Soviet Union was allowing these nations to go their own way.

<sup>121</sup> Trenin, *op. cit.*, p. 93.

<sup>122</sup> *Ibid.*, p. 95.



power position. Austrian or Turkish model for Russian Federation in the post-USSR process would not work. Instead of creating a homogenous small nation-state that would fit to Europe and struggle for the membership in European Institutions, Russians perceive themselves as a successor state to both USSR and the Russian Empire.<sup>123</sup>

In this context, it is fair to say that security concerns and geographical size of Russia have directed the country toward developing harsher foreign policy aspirations. For this reason, Russia felt that it had to expand its territories in order to protect the mainland at the center of the country. Expansion does not necessarily mean annexation of lands; it is rather associated with the expansion of influence area in surrounding countries.

Moscow historically used outer lands as buffer-zones against external threats. Trenin argues that Russia used Poland as a buffer zone against threats that could come from Europe, North Caucasus against Ottoman Empire, and Siberia against Far East. Germany, Austria-Hungarian Empire, Ottoman Empire and Japan were perceived as threats to security by Russians.<sup>124</sup> Trenin posits the idea that no war could become patriotic for Russians unless it reaches the mainland. In this sense, in Trenin's views, outward expansion was achieved at the price of internal development for making reforms and constituting a nation state. Similarly, according to Andrei Tsygankov, Russians "have developed a psychological complex of insecurity and a readiness to sacrifice everything for independence and sovereignty" until today after many wars with and invasions by Turkish, Mongolian, Polish, Lithuanian and German armies.<sup>125</sup> Russia evolved from a tribe to principdom, to tsardom and ultimately to an empire by expansion of territories and however, Trenin believes that Russia did not evolve into a "nation state".<sup>126</sup> According to political scientist Igor Chubais "the core of the traditional Russian set of values was formed by Orthodoxy and the consolidation of lands, which evolved into imperialism and peasant collectivism".<sup>127</sup>

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<sup>123</sup> *Ibid.*, p. 92.

<sup>124</sup> *Ibid.*, p. 57.

<sup>125</sup> Andrei TSYGANKOV. *Russia's Foreign Policy: Change and Continuity in National Identity*. United Kingdom: 2010, Rowman & Littlefield Publishing Group, Inc. p. 27.

<sup>126</sup> Trenin, *op. cit.*, p. 74.

<sup>127</sup> Trenin, *op. cit.*, p. 74.

However, borders and identity problem were not the sole reasons for Russia's inability in becoming a nation-state. The patrimonial state did not allow for the development of "a vibrant civil society, a broad social structure that could in fact represent the nation or articulate its views; in post-Communist Russia, democratization is instrumental in nation-building, and setbacks to this process are further delaying the formation of a Russian nation".<sup>128</sup> Likewise, Tsygankov puts the emphasis on Russia's inability to adapt itself to the dynamic and changing nature of European identity throughout the history from monarchic sovereignty to popular sovereignty, from progressiveness to anti-revolutionary camps and so on. For Tsygankov, due to its inability to choose between democratization/liberalization/nationalism and preservation of autocracies/repressions by monarchies, shifts occurred in Russia's struggle for adapting itself to European crises and this led to backwardness and inability to form a powerful nation-state in Russia.<sup>129</sup> Instead, what the country faced was stagnation in industrial and social development.

Secondly, following the collapse of the USSR and unsuccessful endeavors for integration with the West throughout 1990s, Russia has had new realities now, mainly related with problems in security and economic development and the country could only survive and integrate to the world by perceiving itself as a regional "great power" and an international actor.<sup>130</sup> Consequently, while re-building the "great power" perception, an administration that could pursue more stable policies and take radical decisions was needed in Russia to establish social integration and security at home, fight corruption in bureaucracy, implement sound economic development policies, and form new buffer-zones around Russia to ensure Moscow's security.

Following the collapse of the USSR in 1991, Russian Federation was established with a foreign policy pursuing complete integration with the Western world under Boris Yeltsin's administration and IMF plans for economic recovery. However, the economic targets failed due to the strengthened oligarchical structures in economy and high levels

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<sup>128</sup> *Ibid.*, p. 75.

<sup>129</sup> Tsygankov, *op. cit.*, p. 27.

<sup>130</sup> *Ibid.*, p. 336.

of corruption in the bureaucracy. With Yeltsin's resignation in 1999, Putin replaced him as acting President. In 2000, he was re-elected to the presidency with a vast majority of votes and he was the first Russian president to have the majority of seats in the parliament. This actually happened with the support of the media oligarchs who then were oppressed and some of whom were arrested and jailed by Putin administration for committing corruption. Apart from the elimination of opponent oligarchs, two of the other problems Putin faced under his administration were the Chechnya separatism and the disproportionate power distribution among the federative constituents. These two problems were hindering economic, political and social integration and unity in Russian Federation and this hindrance was also a source of fear for the destruction of territorial integrity of the Federation. Fortunately, Putin had the majority in the parliament against other parties and it provided him with an easiness in manoeuvring and acting accordingly.

The rise in the oil prices not only provided a condition for Russia to re-emerge as a "great power" but it also gave Putin ground in internal politics since it contributed much to his efforts to improve the economic situation in the country by booming Federal revenues from energy exports. Putin has succeeded in providing economic growth and turning Russia into a great power with an assertive quality in foreign policy through consolidating state power and control over energy assets and resources in the country. In this context, Russian foreign policy under Putin administration could be addressed with a view to the theoretical framework provided by Tsygankov.

Tsygankov takes "national interest" as a determining factor in Russia's foreign policy formation and behavior; and explains Russian foreign policy by trying to understand the changes and shifts in Moscow's national interests. Tsygankov's methodology is constructed upon three major schools of thinking about national interest: Westernism, Statism and Civilizationism.<sup>131</sup> Westernizers in the post-Soviet era, insisted on relations with the West based on such values as democracy, human rights and a free market and they believed that only this way Russia can overcome external threats and socio-economic backwardness. Andrei Kozyrev and Boris Yeltsin's visions of "integration"

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<sup>131</sup> *Ibid.*

and “strategic partnership” with the West proposed the establishment and enhancement of liberal democratic institutions and a market economy in Russia.<sup>132</sup>

On the other hand, Putin era falls into the scope of the Statism which assumes the role of state’s ability to rule and protect the social and political order to be crucial. This approach chooses power, stability and sovereignty over freedom and democracy. Statists, for Tsygankov, are not anti-Western, but they are selective in being supporting for Western development, particularly regarding economic and military capabilities. Statists can be traced back to Alexander Gorchakov, Alexander II’s foreign minister, who put forward the idea of “concentration” “by developing a system of flexible alliances and limiting Russia’s involvement in European affairs”.<sup>133</sup>

Liberal statist, namely Primakov and Putin, argue for a liberal system for Russia not to weaken but to strengthen state. Both refer to Gorchakov’s principle and Russia’s great power identity and envisaged a firm control over social and political life by controlling big business and legislature, party building, regions and media, however, while “Primakov was trying to rebuild the former Soviet Union and contain USA through a strategic alliance with China and India, Putin emphasized bilateral relations in Russia’s periphery and was ambitious to develop partnership with USA to deter terrorism”.<sup>134</sup>

Unlike the first two, Civilizationists view Russia as an “expanding land-based empire” against “global imperial expansion” of the West, and particularly the U.S. For them, external expansion is the best way to ensure Russian security. However, Tsygankov thinks that Putin is a liberal statist actor in determining Russian foreign policy with no interest in pursuing Eurasianist desires to re-establish a Russian empire in the post USSR region. On the contrary, Putin reconstructed bilateral diplomatic and economic relations within the Commonwealth of Independent States (CIS), put an end to Soviet-era subsidies in oil and gas prices to the Newly Independent States (NIS), and initiated new institutions of economic integration such as the Eurasian Economic Community and the Single Economic Space.

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<sup>132</sup> *Ibid.*, p. 4.

<sup>133</sup> *Ibid.*, p. 6.

<sup>134</sup> *Ibid.*, p. 7.

Tsygankov identifies Putin's foreign policy with "Great Power Pragmatism" which stresses Russia's interests in global politics through more pragmatic means differently from Primakov's multipolar world imagination and post-Soviet integration ideas.<sup>135</sup> Tsygankov defines Putin's first term foreign policy as "Defensive Pragmatism", whereas associating the second term with "Assertive Pragmatism".

Contrary to Primakov's integrationist policy throughout the second half of the 1990s, during "Defensive Pragmatism", Russia views itself as a "great power" in the West-centered world cooperating with Europe and the U.S. in the fight against terrorism, having limited integration in the world economy and applying market-based principles in the former USSR region.<sup>136</sup> In this period, Russia has improved its economic and social standing without any external assistance needed and engaged Western and Statist dimensions of Russian values whereas remaining problems with terrorism persisted.<sup>137</sup>

Putin acted in cooperation with the West regarding mutual problems in terrorism issues. He was pragmatic in Russia's relations with the West and he did not react to NATO's second enlargement in Eastern Europe. Under Putin administration, Russian Federation supported the U.S. intervention in Afghanistan by abstaining in the United Nations Security Council and permitting USA for the establishment of military bases in Uzbekistan and Kyrgyzstan. In Berryman's view, Putin avoided the fights, which Russia could only lose and let NATO's second enlargement take place in its very close geography, in Poland, Estonia, Latvia, Lithuania, Romania, Bulgaria, and the Slovak Republic as well as ending its military presence in Bosnia and Kosovo.<sup>138</sup>

On the other hand, during the "Assertive Pragmatism" period, gradually increased political influence stemming from energy power of Russia on its neighbours and Eastern European countries has been felt more intensively. In this period, Russia views itself as a "great power" in the West-centered world, stressing multilateralism among

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<sup>135</sup> *Ibid.*, p. 161.

<sup>136</sup> *Ibid.*, p. 134.

<sup>137</sup> *Ibid.*, p. 163.

<sup>138</sup> John BERRYMAN. "Russia, NATO Enlargement and "Regions of Privileged Interests". KANET, Roger E. ed. *Russian Foreign Policy in the 21st Century*. Basingstoke, UK: Palgrave Macmillan, 2010. p. 229.

great powers along with its energy power and creating an indigenous democracy understanding.<sup>139</sup> This means Russia was becoming “increasingly imperialist toward its neighbors, unnecessarily confrontational with the West and obsessed with restoring great power at the expense of domestic modernization needs”.<sup>140</sup> Instead of reviving the policy of Primakov’s balancing the U.S.’s power in the world, Russia preferred to “capitalize on its new economic recovery as well as its energy competitiveness and break into Western economic markets, while maintaining political stability and an essentially defensive security posture”.<sup>141</sup>

According to Tsygankov, historically, Russians “have developed a psychological complex of insecurity and a readiness to sacrifice everything for independence and sovereignty” until today after many wars with and invasions by Turkish, Mongolian, Polish, Lithuanian and German armies.<sup>142</sup> Russian interests showed that it did not want to revive the USSR or Tzardom Russia, but it only wanted to have a sphere of influence on its “near abroad” consisting of Ukraine, Belarus, Georgia and North Caucasus. This desire is for ensuring its security. As Berryman puts it, even though the Cold War ended following the collapse of the Soviet Union, “the regions of privileged interests” continued to be considerably important for both the U.S. and the Russian Federation, if not formally but in practice.<sup>143</sup> Five days after the war followed by the Russian occupation of Georgia ended in the summer of 2008 and Russia unilaterally recognized the independence of South Ossetia and Abkhazia, Russian President Dmitry Medvedev Russia had five foreign policy principles in the new world order and the fifth was “the regions of privileged interests”.<sup>144</sup> In the light of this understanding, Berryman explains that Russia views its ‘near abroad’ as regions of its privileged interests and it means that Russia’s security begins in Ukraine, Belarus and Georgia in the Western and Southern frontiers. However, this understanding held by Putin administration has not been a very popular one among the Western states and especially for the United States. The U.S. condemned this understanding in foreign policy by stating that this kind of notions

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<sup>139</sup> Tsygankov, *op. cit.*, p. 178.

<sup>140</sup> *Ibid.*, p. 180.

<sup>141</sup> *Ibid.*, p. 171.

<sup>142</sup> *Ibid.*, p. 27.

<sup>143</sup> Berryman, *op. cit.*, p. 228

<sup>144</sup> *Ibid.*

belonged to the ages where imperialists were controlling some parts of the world and thus this is not valid anymore since every state is independent in forming its own foreign policy goals, and behavior, and that Russia cannot intervene in Ukrainian or Georgian choices.<sup>145</sup>

On the contrary, due to the rise in oil and gas prices, Putin used the advantage of being a regional power and tried to block a third enlargement in Ukraine and Georgia after especially the U.S.-backed color revolutions (Orange Revolution in Ukraine and Rose Revolution in Georgia) in these countries between 2003-2005. In this scope, the Russia-Georgian War that took place in 2008 blocked NATO's third enlargement in these two countries and left them with little choices nothing more than a "Finlandization" (being an EU Member only) for future prospects.<sup>146</sup>

As a liberal statist and a pragmatic in foreign affairs, Putin envisages a stronger state in Russia and believes that it could only be achieved through maintaining state control over and ownership of energy resources, production and exportation. In this sense, regaining state control over the energy assets required downscaling the role of foreign oil and gas companies in Russian hydrocarbon production sector as well as elimination of the oligarchs who acquired strategic positions in Russian oil and gas sectors through privatizations made by Yeltsin administration during the chaotic and corruption-intensive period following the collapse of the USSR.<sup>147</sup>

Vladimir Putin's PhD dissertation is titled *Strategic Planning for Rehabilitation of the Mineral Resources Base of the Region During the Formation of Market Relations*, in which he argued for the crucial role of the state in the management of natural resources and for the first time rendered his thoughts about how energy production would contribute to the re-emergence of Russia as a "great power".<sup>148</sup> Throughout 1990s, the general thinking shared by Russian economists was that Russia could only economically

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<sup>145</sup> *Ibid.*

<sup>146</sup> *Ibid.*, p. 231.

<sup>147</sup> Klare, *op. cit.*, p. 94.

<sup>148</sup> Vladimir Vladimirovich PUTIN. *Strategic Planning for Rehabilitation of the Mineral Resources Base of the Region During the Formation of Market Relations* (St. Petersburg and Leningrad Oblast), (Ed. and Trans. by Kaj Hobér), The Uppsala Yearbook of East European Law, Uppsala University, Wildy, Simmonds and Hill Publishing, 2006.

recover and develop through privatizations and diminished state control was a prerequisite in the economy like Western states. Nevertheless, in Putin's opinion, state ownership and control over energy assets is a must for rejuvenating the economy and preventing careless use of Russian natural resources by the foreign investors or profit-oriented private sector.<sup>149</sup> Regardless of who the natural, and in particular mineral resources belong to, Putin believes that the state has the right to regulate the process of their development and use, because it acts in the interests of society as a whole and individual owners whose interests conflict with each other, and who need the assistance of state authorities to reach a compromise.<sup>150</sup>

In this regard, Putin identifies the strategic goal of state policy in the area of the replenishment (renewing), usage and conservation of natural resources as the achievement of an optimal level of replacement, sustainable, rational and balanced consumption and conservation of the entire range of natural wealth in the upcoming decades with a high level of responsibility for making various internal and external political decisions for the realization of "geopolitical interests and in compliance with Russia's national security".<sup>151</sup>

### **2.3. THE RISE OF GAZPROM AND RUSSIA'S NATURAL GAS STRATEGY**

First step taken by Putin to implement his views on the necessity of state control over natural resources of Russia was to break the power of oligarchs and regain control of the energy assets. For this purpose, Putin targeted one of the wealthiest men in Russia, Mikhail Khodorkovsky, the CEO of Yukos which was Russia's leading oil producer firm.<sup>152</sup> In the autumn of 2003, Khodorkovsky signaled that he would step in politics by financing MP nominees who opposed Putin's state-centered energy policy. There were rumors that some U.S. firms like Exxon and Chevron would partake in Yukos, then he

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<sup>149</sup> Klare, *op. cit.*, p. 92.

<sup>150</sup> *Ibid.*

<sup>151</sup> *Ibid.*

<sup>152</sup> Martha Brill OLCOTT. (2004) "Vladimir Putin and the Geopolitics of Oil". *The Energy Dimension in Russian Global Strategy*, The James A. Baker III Institute for Public Policy of Rice University, p. 13.



was arrested by Russian security agents and was brought to Moscow with allegations of multiple tax evasion and committing graft on 25 October 2003 during a visit he was paying to Yukos facilities in Siberia.<sup>153</sup> He was then found guilty and sentenced to nine years of imprisonment on 31 May 2005. In August 2004, while Khodokovsky and high level directors of Yukos were awaiting for a court decision in the prison, Moscow Arbitration Court seized the control of Yuganskneftgas. It is the most productive oil subsidiary of Yukos, and the Court charged it for failure to pay 3.4 billion dollars in back taxes; as well as auctioning off the shares of the company on 19 December 2014 to a previously unknown Baikal Finance Group (BFG) for 9.35 billion dollars, nearly half of what company was worth then.<sup>154</sup> On 31 December 2004, Rosneft announced its ownership of BFG and it meant that the operation of the company was at the hands of Putin and his associates.<sup>155</sup> However a decade later, The International Arbitration Court in the Netherlands has ordered Russia to pay about \$50 billion in damages for the case brought by shareholders in the defunct Yukos oil company.<sup>156</sup>

Second step by Putin was to think of how they could strengthen Gazprom which produced 20 % of the gas and owned 16 % of gas reserves in the world and use it as leverage against Western giant energy companies in the international arena.<sup>157</sup> As a company which owned and operated the largest pipeline infrastructure in the world stretching from the natural gas production fields in Siberia and Central Asia to the Western and South-Eastern European markets, Gazprom is the largest provider of hot money flow ensuring one fourth of the Russia's federal revenues.<sup>158</sup> Apart from the economic stimulation it created, subsidized prices for internal consumers empowered Putin administration in domestic politics.<sup>159</sup> Besides, former Soviet countries and some European countries are totally dependent upon Russian gas exports made by the giant monopoly Gazprom. Gazprom emerged as a company at the time of Gorbachev who

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<sup>153</sup> *Ibid*, p. 11.

<sup>154</sup> Klare, *op. cit.*, p.94

<sup>155</sup> *Ibid.*, p. 96.

<sup>156</sup> Russia Today. "Mega-arbitration': Court orders Russia to pay \$50bn in Yukos case", accessed on 20 October 2014 at <http://rt.com/business/176064-yukos-russia-50bn-damages/>

<sup>157</sup> Arkady OSTROVSKY. "Gazprom acts as a lever in Putin's power play", accessed on 4 April 2014 at <http://www.ft.com/cms/s/1/8c1e9dca-b2cc-11da-ab3e-0000779e2340.html#axzz2xvAAZFQC>

<sup>158</sup> Klare, *op. cit.*, p. 96.

<sup>159</sup> Michael RATNER ed., P. BELKIN, J. NICHOL and S. WOEHREL, *Europe's Energy Security: Options and Challenges to Natural Gas Diversification*. ABD: Congressional Research Service, 2013. p. 10.

joined together all gas producing facilities together. In 1993 Gazprom was partially privatized and Russian government's share was kept 34.9 % and the state was given the right to appoint the majority of the members of the executive board.<sup>160</sup> Gazprom's directors were claimed to have been involved in corruption and graft activities during Yeltsin period and the company was not able to perform the expected economic rejuvenation.<sup>161</sup>

Putin appointed Alexei Miller as the CEO of Gazprom while appointing Dmitry Medvedev as the chair of the executive board. In June 2005, Gazprom decided to sell an additional 10.1 % of its shares to Russian state and the Russian Federation acquired the control share.<sup>162</sup> In July 2005, Gazprom' CEO and Putin's deputy Alexei Miller told the Financial Times "that the company wanted to become one of the largest integrated energy companies in the world, spanning oil, gas and electricity" whereas Dmitry Medvedev, Chairman of Gazprom's Board of Directors and head of the Kremlin administration, similarly stated after the acquisition of Sibneft that Gazprom "will not only become the world's largest natural gas producer, but also one of the world's biggest energy companies".<sup>163</sup> On one hand, Gazprom became the fifth largest oil producer in Russia by purchasing Sibneft, the private oil production company owned by the billionaire oligarch Roman Abramovich for 13 billion dollars. Thereby, the Russia acquired one third of the oil production by owning Rosneft and Sibneft.<sup>164</sup>

Third step was to invalidate the long-term production agreements concluded by the Russian government under Yeltsin administration with multinational giant companies like BP, Royal Dutch Shell and Exxon Mobil.<sup>165</sup> By this, Putin aimed at acquiring control over oil and gas assets given to foreign firms in 1990s and to renegotiate the agreements in a way that would give Gazprom a dominant position in the energy

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<sup>160</sup> Klare, *op. cit.*, p. 96.

<sup>161</sup> *Ibid.*

<sup>162</sup> *Ibid.*, p. 97.

<sup>163</sup> Harley BALZER. "Vladimir Putin on Russian Energy Policy", *The National Interest*, November 2005.

<sup>164</sup> Klare, *op. cit.*, p. 97.

<sup>165</sup> For detailed information please see: Olga KHRUSHCHEVA. "The Controversy of Putin's Energy Policy: The Problem of Foreign Investment and Long Term Development of Russia's Energy Sector", *Central European Journal of International and Security Studies*, Vol 6, Issue 1, pp. 155-179.

production fields and turn the foreign firms into minor partners.<sup>166</sup> In 2006, Putin went all lengths to force foreign owners in the Sakhalin-II Consortium to sell their majority shares. Located on Russia's Eastern shores, in the north of Japanese island of Hokkaido, Sakhalin is an island with 12 billion barrels of oil and rich (energy equivalent of 16 billion barrels of oil) gas reserves at its seabed.<sup>167</sup> Many Western oil companies signed multibillion dollars production-sharing agreements with Yeltsin administration to make production at hydrocarbon sources.<sup>168</sup> Sakhalin I field was dedicated to the consortium chaired by Exxon, whilst Sakhalin II field with larger production capacity was given to the consortium led by Royal Dutch Shell and supported by Japanese Mitsui and Mitsubishi. Three members of the Sakhalin II consortium spent 20 billion dollars for the development of the field which is the biggest single foreign investment in Russia.<sup>169</sup>

Upon completion of the development activities, Sakhalin II field, as shown in Map 2, is expected to become world's largest combined oil and gas undertaking including 500 miles of oil and gas pipelines as well as an oil terminal and multibillion dollars LNG terminal. Sakhalin II is also expected to produce 180,000 barrels of oil per day and 9.6 million tons of LNG per annum for the customers from Japan and South Korea.<sup>170</sup>

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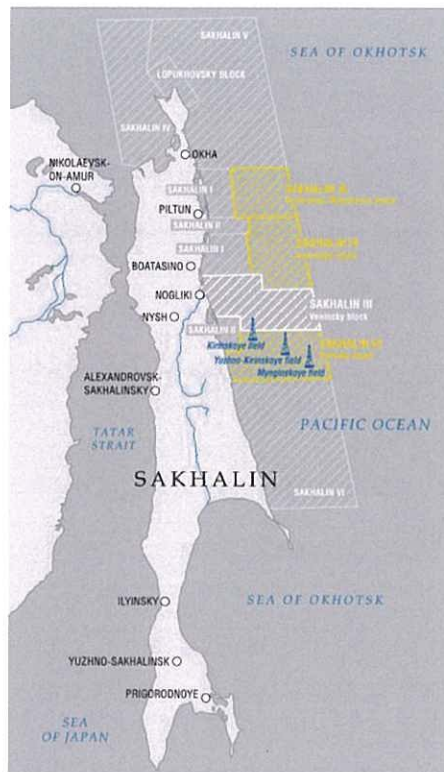
<sup>166</sup> Klare, *op. cit.*, p. 98.

<sup>167</sup> U.S. EIA. "Russia Country Overview", accessed on 6 April 2014 at <http://www.eia.gov/countries/analysisbriefs/Russia/russia.pdf>

<sup>168</sup> Production-Sharing Agreements: Complex arrangements whereby a government retains ultimate ownership of an energy reservoir but grants a leasehold over it to a private entity or entities for a specified period of time in return for a share of the future resources extracted.

<sup>169</sup> Klare, *op. cit.*, p. 98.

<sup>170</sup> "Russia Country Overview", *op. cit.*



**Map 2: Gas production fields in Sakhalin Island.**<sup>171</sup>

While environmentalists protested the construction of the facilities for they may pose threat to the lives of many species including Western Pacific grey whale, on 6 September 2006 Russian Federal Service for the Supervision of Natural Resources, also known as Rosprirodnadzor, went to court for the withdrawal of all environmental permits for all the operations at Sakhalin II field. Consequently, the Ministry of Natural Resources canceled the operation permit of the project and halted all activities until full compliance with a set of costly environmental modifications requested by the regulator.<sup>172</sup> Resistance of the Consortium did not work, after maintaining compliance by the Consortium for each and every component of the project, something else was claimed to be non-compliant by the Russian authorities. As Klare puts it, “At the time, Russian officials insisted that protection of the environment was their sole concern, but most observers saw in this Putin’s desire to compel Shell and the other Sakhalin-II investors to make room for Gazprom.”<sup>173</sup> Shell and the other investors at the field realized that they had to spend billions of dollars without earning a cent to satisfy the

<sup>171</sup> Source: Gazprom, <http://www.gazprom.com/f/posts/15/715260/gazprom-map-sakhalin-en.jpg>

<sup>172</sup> Klare, *op. cit.*, p. 99.

<sup>173</sup> *Ibid.*

Russian regulatory authorities, gave consent to sell 51 % of shares to Gazprom for 7.45 billion dollars which is notably below the market value of the energy assets involved. This way, once the holder of the majority share, Shell's stake decreased from 55 % to 27.5 whilst Mitsui and Mitsubishi's shares dropped from 25 % and 20 % to 12.5 % and 10 %.<sup>174</sup>

Recently, Sakhalin III field developed by Gazprom is estimated to have a potential production reserve of approximately 1.1 trillion cubic meters of gas.<sup>175</sup> Gazprom announced on 9 September 2006 that without seeking any partnership with Western firms, the company will extract 3.9 trillion cubic meters gas and 56 million metric tons of gas condensate located in the reserves sitting on the shores of the Shtokman Island which hosts world's largest untouched energy reserves.<sup>176</sup>



**Map 3: Shtokman gas production field.**<sup>177</sup>

<sup>174</sup> Gazprom, “Sakhalin II”, accessed on 6 April 2014 at <http://www.gazprom.com/about/production/projects/deposits/sakhalin2/>

<sup>175</sup> Gazprom, “Sakhalin III”, accessed on 12 April 2014 at <http://www.gazprom.com/about/production/projects/deposits/sakhalin3/>

<sup>176</sup> Gazprom, “Shtokman”, accessed on 12 April 2014 at <http://www.gazprom.com/about/production/projects/deposits/shp/>

<sup>177</sup> Source: Gazprom, [http://www.gazprom.com/f/posts/39/062364/map\\_eng\\_shtockmann1.jpg](http://www.gazprom.com/f/posts/39/062364/map_eng_shtockmann1.jpg)

However, Gazprom established a company, named Shtokman Development AG, by forming a partnership with Total and StatoilHydro on 21 February 2008, and 51 % of the company is owned by Gazprom while Total holds 25 % and Statoil 24 % shares.<sup>178</sup> Shtokman field could be considered as a production facility that could supply Europe with gas through connecting to Nord Stream by-passing any transit country as well as being located near the North Pole which means liquefaction of gas would be done at lower costs due to cold weather conditions.<sup>179</sup>

Furthermore, in June 2007, British petroleum giant BP was forced by Kremlin to leave its assets in the 20 billion dollars Kovykta gas field, located near Lake Baikal with deposits of 2 trillion cubic meters of gas and 83 million tons of gas condensate readily convertible into liquid fuel, to Gazprom for an estimated 600-800 million dollars.<sup>180</sup> BP and a group of Russian private investors (owning 62.7 % of the stakes and incorporated as TNK) had planned to construct a pipeline to export the gas they would extract from the field to China; but impossible-to-meet production demands and never-ending charges of breaching the agreement by Russian government left TNK-BP with no options but sell the shares to Gazprom in order to avoid a risk of losing their assets in Siberia.<sup>181</sup>

In this way, Putin not only retained the control of the most promising new oil and gas fields on behalf of the Russian state, but also re-defined the relationship of Russian government with foreign energy firms by turning them into minor partners in every project.<sup>182</sup>

Fourth step was re-setting the terms of the relations with the former USSR countries by way of energy. The centralized administration in Soviet Russia would deliver oil and gas to all USSR members. Subsidized prices for Soviet states continued even after the collapse of the USSR. However, once in office, Putin administration immediately ended these subsidies and highlighted that gas prices would be defined under market

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<sup>178</sup> "Shtokman", *op. cit.*

<sup>179</sup> *Ibid.*

<sup>180</sup> Klare, *op. cit.*, p. 101.

<sup>181</sup> *Ibid.*

<sup>182</sup> *Ibid.*, p. 100.

conditions.<sup>183</sup> In other words, countries that left Russia's orbit faced with higher prices in gas supplies from Russia.<sup>184</sup> Those who stayed in Russia's orbit also paid higher prices, but those prices were considerably lower.<sup>185</sup> Price pressure is thus a means for Russia to keep former USSR states under its influence.

Application of market prices for former USSR states has become a matter of conflict between them. The first conflict took place on 1 January 2006. In the first day of the year, when the weather was cold, Gazprom cut the gas flow to Ukraine for not agreeing to pay higher prices.<sup>186</sup> In fact, Russia was charging Ukraine 50 dollars for 1,000 cubic meters of gas while charging European customers 220 dollars.<sup>187</sup> This situation did not change even after the Orange Revolution that replaced pro-Russia Yanukovich with pro-West Yushchenko in 2004. However, once Yushchenko stressed that higher prices are out of question while never-ending price negotiations were still going on with Gazprom, the company shut down the valves.

Russia supplies one third of European gas half of which passes through Ukraine to European markets.<sup>188</sup> Ukraine is the most strategic country on the export routes of Russia. Nonetheless, cutting gas to the country did not result in a supply crisis for Ukrainian consumers because Kiev was consuming the gas that was supposed to be transported through the country to Europe. This event has resulted in a public diplomacy disaster for Russia. Not only were Russians accused of using energy as a political tool against former USSR countries that challenged their authority, but it also cast a shadow upon the reliability of Russia as a supplier because the dispute pushed European customers into such a crisis in the middle of the winter.<sup>189</sup> Consequently,

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<sup>183</sup> Stefan HEDLUND. "Economic Reform Under Putin 2.0: Will Petrodollars Suffice to Keep the Ship Afloat?" Ed. Stephen J. BLANK. *Politics and Economics in Putin's Russia*. Pennsylvania: 2013, Strategic Studies Institute and U.S. Army War College Press, p. 98.

<sup>184</sup> *Ibid.*

<sup>185</sup> *Ibid.*

<sup>186</sup> Klare, *op. cit.*, p. 109.

<sup>187</sup> *Ibid.*

<sup>188</sup> Reuters, "Russia warns Europe of gas supply cuts over Ukraine debt", accessed on 12 April 2014 at <http://www.reuters.com/article/2014/04/10/us-ukraine-crisis-russia-gas-idUSBREA3913C20140410>

<sup>189</sup> Klare, *op. cit.*, p. 110.

Russians and Ukrainians sat and reached an agreement and gas continued to flow again on January 3<sup>rd</sup>.<sup>190</sup>

Other victims of Gazprom's harsh price policy were Georgia and Belarus. These countries were going to face a similar disruption under cold weather conditions on 1 January 2007 if they did not accept paying higher prices. Under pro-U.S. Mikhail Saakashvili's administration, Georgia inevitably encountered pressure by Russia. On the other hand, although it was surprising for some to see Russia treated Belarusian President Alexander Lukashenko, a close ally of Moscow, the same way, some circles also claimed that he was not functional for Russia anymore.<sup>191</sup> Both countries resisted against the price pressure and begged for help from the West. Nevertheless, they were left alone except for quiet expressions of disapproval by a few European officials.<sup>192</sup> Eventually, both countries yielded to Gazprom's prices in the last days of 2006.

Moreover, Gazprom views purchasing or acquiring control of the downstream infrastructure in these countries as a strategic priority. As part of the New Year's Eve agreement with Russia, Belarus allowed Gazprom to acquire 50 % of Beltransgaz (a downstream gas company operating one of the main transit gas pipelines from Russia to Europe) in return for purchasing per 1,000 cubic meters gas at 100 dollars.<sup>193</sup> Likewise, Armenia handed over the control of 24 miles long part of the Iran-Armenia gas pipeline to Gazprom in April 2006 which strategically gained Moscow an advantage in exporting Iranian gas to European markets through Russia in the longer term.<sup>194</sup>

It could be expected from Russia to use energy as a political weapon against opponents, but the weakness of the European reaction to such occasions may look surprising. However, when the magnitude of European dependence on Russian gas is taken into account, it is evident that each Member State respectively pays regard to its own interests. Even though many European leaders criticized Putin's such behaviours, there were no concrete sanctions by neither European countries nor the EU against his

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<sup>190</sup> *Ibid.*

<sup>191</sup> *Ibid.*

<sup>192</sup> *Ibid.*

<sup>193</sup> *Ibid.*, p. 112.

<sup>194</sup> *Ibid.*



policies. On the contrary, just couple of months after the 2006 dispute, in June 2006, state-owned Danish company DONG Energy signed a 20-year gas purchase agreement with Gazprom to transport Russian gas to the market in Denmark.<sup>195</sup> During the same period, the Dutch energy firm, NV Nederlandse Gasunie, agreed to partake in Gazprom's Nord Stream which carried gas from Russia to Germany under the Baltic Sea.<sup>196</sup> In November 2006, Italian energy giant Eni formed a strategic alliance with Gazprom in order for Gazprom to take larger part in Italian markets.<sup>197</sup> All of this indicates the fact that gas sources of Northern Europe are depleting, European states have become heavily dependent upon Russian gas and demand for gas in Europe is going to increase in the coming decades due to the ambitious targets the EU has been trying to reach in reducing oil and coal's share in energy consumption pursuant to Kyoto Protocol and any successor agreements.<sup>198</sup>

#### 2.4. THE EU'S DEPENDENCE ON RUSSIA AND GAZPROM'S EXPORT STRATEGY

The EU published "European Security Strategy: A Secure Europe in a Better World" on 12 December 2003. In this document, energy dependence in Europe is stressed as an important issue and it is highlighted that the Union is the largest importer of gas and oil. It emphasizes the fact that 50 % of its energy consumption is supplied with energy imports and that it will reach 70 % by 2030. It is noted that the biggest share in imports belongs to Gulf countries, Russia and North Africa.<sup>199</sup> In the document titled *Report on the Implementation of the European Security Strategy: Providing Security in a Changing World*, it is put forward that worries for energy dependence in the Union has increased in the last five years and energy production has decreased within the Union which creates a necessity for Europe to import 75 % of oil and gas by 2030 from unstable countries. Therefore, according to the document the European energy security will face challenges and it stresses the importance of the awareness among Member States on the significance of responsibility and solidarity.

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<sup>195</sup> *Ibid.*, p. 111.

<sup>196</sup> *Ibid.*

<sup>197</sup> *Ibid.*

<sup>198</sup> *Ibid.*

<sup>199</sup> European Council. "European Security Strategy: A Secure Europe in a Better World", accessed on 17 March 2014 at <http://www.consilium.europa.eu/uedocs/cmsUpload/78367.pdf>

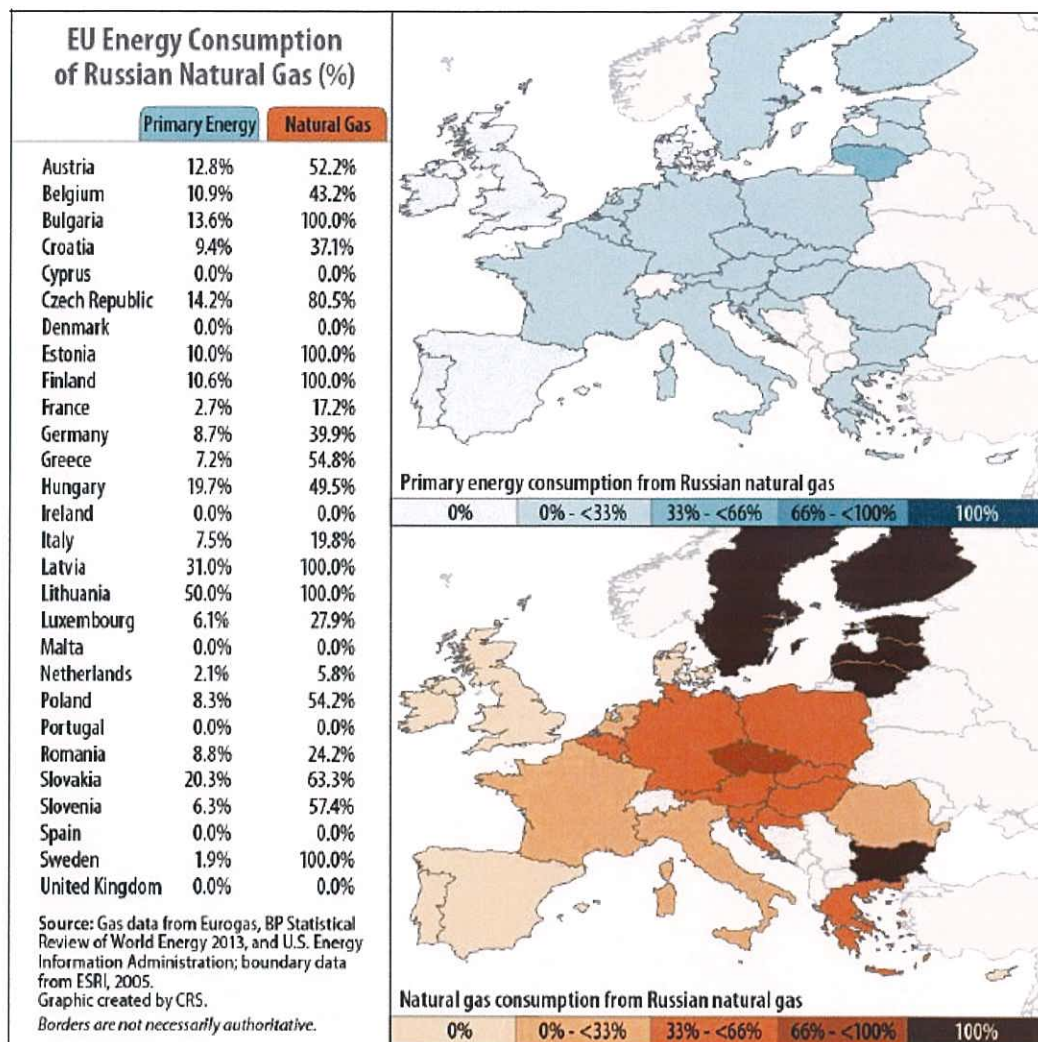
In the document, it is highlighted that the main elements of EU's energy policy with its internal and external dimensions were identified in 2006, that the EU needs a more integrated and interconnected energy market, attention must be paid to the most isolated countries and crisis mechanisms must be readied to be able to respond to temporary supply disruptions. It is emphasized in the document that further diversification of fuels, supply sources and transit routes is as important as good governance, respect for rule of law and realization of investments in source countries. The document states that energy is a main element in EU-Russian relations, EU policy must contain transit routes including Turkey and Ukraine and cooperation with partner countries including China, India, Japan and the U.S. in renewable energy. Accordingly, low carbon technologies, energy efficiency and transparent and well-regulated global markets need to be enhanced.<sup>200</sup>

In this context, according to Eurostat 2011 May data, EU energy mix is heavily dependent upon hydrocarbons with 83.5% oil and 64.2% gas imports in 2009. EU produces 23% of its electricity from natural gas, 28% from nuclear, 26% from coal, 18% from renewables and 3% from oil. The share of gas in electricity generation was only 9% in 1990. It will also drastically increase in the coming decades. On the other hand, total energy production in the EU has a gas share reaching %19 in 2009. According to Eurostat May 2011, excluding Intra-EU trade, EU imported 34% of its gas from Russian Federation, 31% from Norway, 14% from Algeria, 5% from Qatar, 3% from Libya. EU is import dependent in natural gas, especially heavily upon Russia whose current position in political and technical necessities for a predictable, safe and secure natural gas supply is doubtful. Therefore, the EU has had to alter its natural gas supply routes and sources by focusing on other natural gas rich regions which are the Caspian Sea and the Middle East. According to Eurostat 2011 data, 34% of the EU's natural gas imports come from Russia, followed by Norway and Algeria.<sup>201</sup>

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<sup>200</sup> European Council. "Report on the Implementation of the European Security Strategy: Providing Security in a Changing World", accessed on 17 March 2014 at [http://www.consilium.europa.eu/ueDocs/cms\\_Data/docs/pressdata/EN/reports/104630.pdf](http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressdata/EN/reports/104630.pdf)

<sup>201</sup> European Commission. "Market Observatory for Energy: Key Figures", accessed on 22 December 2012 at [http://ec.europa.eu/energy/observatory/countries/doc/key\\_figures.pdf](http://ec.europa.eu/energy/observatory/countries/doc/key_figures.pdf)



Source: CRS Graphics compiled this graphic.

Notes: For primary energy, which is the base source of energy used to produce electricity and perform other work, Russian natural gas does not comprise greater than 50% for any EU country.

## Graphic 2: Russian gas in EU's energy consumption.<sup>202</sup>

Dependence on imported gas is high European-wide and due to depleting domestic sources this dependence is expected to reach 73-79 % by 2020, and 81-89 % by 2030.<sup>203</sup>

As can be inferred from Graphic 2, Bulgaria, Estonia, Finland, Latvia, Lithuania and Sweden are entirely dependent on Russian exports in gas supply. Czech Republic imports 80.5 % of its gas from Russia, whilst Germany, Belgium and Hungary import

<sup>202</sup> Ratner, *op. cit.*, p. 7.

<sup>203</sup> European Commission. "COM(2010) Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network". Brussels: 2010. p. 21.

nearly half of their gas, whereas Slovakia, Slovenia, Greece, Poland and Austria import more than half of the gas they need. Italy and France import less than 20 % of their gas from Russia.

On the other hand, Greek Cyprus, Denmark, Ireland, Malta, Portugal, Spain and the United Kingdom do not import any gas from Russia. France produces 75 % of electricity from nuclear power.<sup>204</sup> Spain imports LNG from suppliers other than Russia and 49.1 % of Spanish installed electricity production capacity is composed of renewable energy sources.<sup>205</sup>

Member States from all over the European continent are dependent on Russian gas intensively in electricity generation and heating as well as petro-chemical and fertilizer industries. Especially Eastern Bloc countries that joined the Union with the 2004 and 2007 enlargements of the EU host pipelines from USSR period that operate in east-west direction. Long-term agreements signed by these countries under the monopoly of Gazprom, deficiencies in their regulatory structure, and smallness of these isolated markets hinder the interest of investors and gas producers in this region.<sup>206</sup> Lack of a regulatory coordination and failure to develop a joint approach in order to complete missing interconnections is hampering new investments and access of new entrants to the markets. Thus, most of the population in these countries under Russian dominance spend a considerable part of their income for energy expenditures and live in energy poverty.<sup>207</sup>

Although the total sum of gas consumed in Estonia, Latvia, Lithuania and Finland is 10 bcm, all of it comes from Russia. Furthermore, Russia has decisive stakes in four countries' transmission system operator companies. Poland's high dependence on Russian gas also curtails interest in new infrastructure investments.<sup>208</sup>

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<sup>204</sup> OECD Nuclear Energy Agency, "France Country Profile", accessed on 12 April 2014 at <https://www.oecd-neo.org/general/profiles/france.html>

<sup>205</sup> The Guardian. "Wind power was Spain's top source of electricity in 2013", accessed on 12 April 2014 at <http://www.theguardian.com/environment/2014/jan/06/wind-power-spain-electricity-2013>

<sup>206</sup> "COM(2010) Energy infrastructure priorities for 2020 and beyond - A Blueprint for an integrated European energy network", *op. cit.*, p. 34.

<sup>207</sup> *Ibid.*

<sup>208</sup> *Ibid.*

Besides, Gazprom's export strategy leaves Member States in a difficult situation. Only last year, Gazprom exported 162 billion cubic meters of gas to the EU and Turkey. Gazprom builds bilateral relations with Member States and hampers their ability to pursue a unified Union-wide energy policy. In a sense, Gazprom follows a *divide et impera*<sup>209</sup> strategy by establishing exclusive relations with Member States that are influential in the Union such as Germany, Italy and France and applying different (most of the time discounted) prices for them through bilateral contracts. Russia concludes long term agreements with the Member States. There is an opportunity to renegotiate the prices every several years, but long term agreements usually tie the consumer country to a single supplier for certain volumes of imports for decades due to take-or-pay obligations. This prevents the development of spot markets where prices are formed on a supply-demand basis.

Even though it is geographically closer to Russia than others, Lithuania pays 25 % higher prices for Russian gas because the country took up an investigation on Gazprom's monopolistic behavior in the region.<sup>210</sup> Baltic countries and Poland, Member States that are considerably dependent on Russian gas and frequently engage in conflicts with Russia in matters other than energy, have warned the rest of the Member States multiple times not to conclude long-term purchase agreements with Russia that could enable Moscow to have influence on decision-making in the EU. Many Member States believe that their dependence on Russian gas will continue in spite of the present supply alternatives and that this dependence will increase more with Gazprom's ownership of distribution networks and storage facilities in Europe.<sup>211</sup>

The EU wanted to utilize multilateral intergovernmental institutions as a tool to deal with energy security issues and Energy Charter Treaty Organization is the embodiment of this aspiration. Energy Charter Treaty aims to secure international energy

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<sup>209</sup> *Divide et impera* means gaining and maintaining power by breaking up larger concentrations of power into pieces that individually have less power than the one implementing the strategy. The concept refers to a strategy that breaks up existing power structures and prevents smaller power groups from linking up.

<sup>210</sup> Miami Herald. "Europe fears its dependency on Russian natural gas as U.S., EU sanctions near", accessed on 12 May 2014 at <http://www.miamiherald.com/2014/03/16/3998968/europe-fears-its-dependency-on.html>

<sup>211</sup> Ratner, *op. cit.*, p. 7.

investments and enable international petroleum companies to perform upstream activities in the source countries.<sup>212</sup> In order to elaborate on Article VII of the Treaty regarding transit activities, discussions on the Transit Protocol which sets forth third party access in the infrastructure still continue.<sup>213</sup> However, Russia announced that it will not ratify and implement the Treaty in 2009 since the country does not want European companies to access its pipelines and energy sources. It can be concluded that the Energy Charter Treaty is the most comprehensive legal framework ever established to govern energy relations between the states; however, it is necessary for the Energy Charter Treaty Organization to include more of the energy producing countries as constituencies.<sup>214</sup> Russia's reluctance to implement Energy Charter Treaty stems from the organization's inability to convince oil and gas producer countries to yield to the trade and transit rules that envisages third party access to the transportation infrastructure and upstream activities in the producer countries. Russia recovered control over upstream activities and export of oil and gas after Putin. It can be regarded normal for Moscow to defect from cooperation in these issues where there is little incentive to do so.<sup>215</sup> The EU's dependence on Moscow guarantees importation of Russian gas and oil for the long term. Hence, while still being able to export large volumes of oil and gas to Europe, Russia does not view Energy Charter Treaty as an indispensable cooperation tool for governing energy relations with European countries.

A close energy partnership, namely EU-Russia Energy Dialogue, has been developed and launched in 2000 in order to improve investment opportunities in the energy sector as well as securing and expanding transportation infrastructure and uninterrupted energy flow.<sup>216</sup> Particularly after 2009 gas dispute and supply crisis, Brussels views reinforcement of mutual confidence and a strong and stable framework for EU-Russia relations as essential. Within the scope of this cooperation, an Early Warning Mechanism has been established between the EU and Russia aiming the prevention of

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<sup>212</sup> Catherine LOCATELLI. "Russian and Caspian Hydrocarbons: Energy Supply Stakes for the European Union", 2010, *Europe-Asia Studies*, 62:6, pp. 959-971.

<sup>213</sup> *Ibid.*

<sup>214</sup> Sanam S. HAGHIGHI. *Energy Security: The External Legal Relations of the European Union with Major Oil and Gas Supplying Countries*. Oxford: Hart Publishing (2007).

<sup>215</sup> *Ibid.*

<sup>216</sup> European Commission. "EU-Russia Energy Relations", accessed on 15 January 2015 at [http://ec.europa.eu/energy/international/bilateral\\_cooperation/russia/russia\\_en.htm](http://ec.europa.eu/energy/international/bilateral_cooperation/russia/russia_en.htm)

oil, gas and electricity supply disruptions through rapid communication.<sup>217</sup> Building upon the 1994 Partnership and Cooperation Agreement signed with Russia, there have been negotiations between the EU and Russia in 2007 on a new more comprehensive and effective EU-Russia Agreement where energy provisions are an important part of the discussions.<sup>218</sup> However, no agreement has been reached between the parties yet to build an effective and balanced energy trade and supply security mechanism that is purely commercial.

When it comes to its own energy sources and infrastructure, Russia is restrictive and over-controlling. In upstream gas sector, Russia applies an “asset exchange” method for foreign investors that wish to take part in gas production from Russian sources.<sup>219</sup> On 23 December 2013, Gazprom and German energy firm BASF signed an asset exchange agreement which gave permission to Wintershall, a subsidiary of BASF, to work jointly with Gazprom in Urengoi gas field located in Western Siberia and to own 26 % of the IV<sup>th</sup> and V<sup>th</sup> blocks.<sup>220</sup> According to the announcement made by BASF, in these blocks there lies a total sum of 274 billion cubic meters of gas and 74 million metric tons of gas condensate making up to energy equivalent of 2.4 billion barrels of oil together. As of 2016, 8 billion cubic meters of gas is expected to be produced from the two blocks per year. In return for this, Wintershall completely handed over its gas trading and storage activities to Gazprom. This includes the transfer of: 1) 50 % share of Wintershall in its subsidiaries WINGAS (Kassel), WIEH (Berlin) and WIEE (Switzerland), and 2) Stakes of gas storage facilities in various parts of Germany and Austria, to Gazprom. Also, 50 % of the activities of the firm Wintershall Noordzee in Netherlands, Denmark and the United Kingdom have been ceded to Gazprom.<sup>221</sup> By this way, Gazprom retains the ownership of distribution assets and storage facilities in Europe in return for permitting upstream production on its territories.

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<sup>217</sup> *Ibid.*

<sup>218</sup> For further reading on EU-Russia Energy Dialogue please see: Pami AALTO. *The EU-Russian Energy Dialogue: Europe's Future Energy Security*. Hampshire: 2007, Ashgate.

<sup>219</sup> Locatelli, *op. cit.*

<sup>220</sup> BASF, “BASF and Gazprom sign asset swap agreement”, accessed on 12 April 2014 at <http://www.basf.com/group/pressrelease/P-13-560>

<sup>221</sup> *Ibid.*

On the other hand, Russia ties European countries to its exports by way of signing contracts with 20-25 year duration as well as applying “take-or-pay” obligations, restrictions on re-exports and oil-indexed pricing. Since 1970s, EU countries have been purchasing gas from producers via “take-or-pay” contracts which distributes the risks emanating from prices and volumes of delivery between the consumer and the producer.<sup>222</sup> These agreements oblige consumer to pay for the gas volumes contracted even if the consumption does not reach contracted amounts, whilst ensuring the gas volumes that must be supplied by the producer. However, this endangers the development of liberalized and diversified gas markets throughout the EU because a swift change of supplier does not seem possible for consumers that contracted take-or-pay obligations.

Russia indexes gas prices to oil prices and this reflects the negative fluctuations in oil prices on gas prices. Another problem the consumers face is Russia’s insistence on placing a destination clause in contracts that restricts the wholesale companies in the consumer countries to re-export the gas imported from Russia to cross-border consumers. Therefore, imposing oil-indexed gas pricing, take-or-pay obligations and restrictions on re-export to cross-border customers in long term gas purchase and sales contracts enables Russia to:

- 1) Increase national wealth by taking advantage of global rises in oil prices, and therefore in gas prices,
- 2) Curtail liberalization and the establishment of a properly functioning single market in gas<sup>223</sup>, restrain the arrival of new entrants in the market and obstruct the creation of a competitive gas market in Member States where Gazprom is the single supplier<sup>224</sup>,
- 3) Apply different prices to Member States and therefore gain the ability to create disunity among them and hamper solidarity in EU decision-making on matters related with Russia and Gazprom’s activities,

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<sup>222</sup> Locatelli, *op. cit.*, pp. 959-971.

<sup>223</sup> *Ibid.*

<sup>224</sup> *Ibid.*



- 4) Exert geopolitical influence over former Eastern Bloc countries in military and political matters.<sup>225</sup>

## 2.5. UKRAINE-RUSSIA GAS DISPUTE AND SUPPLY DISRUPTION OF 2009

In the light of these developments, this section examines the commercial and political dimensions of the 13 days of supply disruption to the EU that took place as a result of a dispute between the transit country Ukraine and the producer Russia. The supply disruption in 2006 lasted only for one day. However, this lasted for 13 days in January 2009 and constitutes a perfect example for explaining how and to what extent such a crisis could affect the Member States.

According to 2008 data, 25 % of total energy consumed in the EU was natural gas, 58 % of it was imported gas, 42 % of the imported gas came from Russia and 80 % of imported Russian gas passed through territories of Ukraine.<sup>226</sup> Average rate of dependence on Russian gas supplies of the eight new members from Central and Eastern Europe is 77 %. In practice, 300-350 million cubic meters of gas flows from Russia through Ukraine to European markets and it makes up to one fifth of the EU demand for gas. Ukraine's daily consumption of gas in its domestic market equals to the volumes it transits to Europe and it is 300 million cubic meters in the winter.<sup>227</sup>

In this framework, the 2009 crisis took place due to a dispute between Ukraine's Naftogaz and Russia's Gazprom. Gazprom announced on 18 December 2009 that if Ukraine did not pay its exorbitant sum of debts and they failed to reach an agreement in signing a new contract, the company would cut gas supplies to the country as of 1 January 2009. Russia demanded the activation of EU-Russia Early Warning Mechanism

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<sup>225</sup> Øistein HARSEM. (2012). 'The Political Consequences of Resource Dependence - How Natural Gas Exports Can Affect Policy Outcomes: A Quantitative Analysis', *Journal of Contemporary European Research*. Volume 8, Issue 1, p. 140.

<sup>226</sup> European Commission, "Staff Working Document: The January 2009 Gas Supply Disruption to the EU: An Assessment", accessed on 12 April 2014 at [http://ec.europa.eu/energy/strategies/2009/doc/sec\\_2009\\_0977.pdf](http://ec.europa.eu/energy/strategies/2009/doc/sec_2009_0977.pdf), p.2.

<sup>227</sup> *Ibid.*

and letters explaining the situation were sent by Viktor Zubkov, Chair of Gazprom's Executive Board, to the Commission and EU-27.<sup>228</sup> However, Gazprom did not provide information about the exact dates on which the disruption could take place and cut off gas flow to Ukraine on 1 January 2009. Gazprom did continue to supply Ukraine with the transit gas that should have been transported to Europe. First day, transit to the EU ran its normal course.<sup>229</sup>

On January 2<sup>nd</sup>, supply to especially Poland, Slovakia, Hungary and exclusively to Bulgaria and Romania and many other Member States was affected. The Prime Minister of Czech Republic and President of the European Council Mirek Topolanek talked to Russian and Ukrainian officials about the issue. Alexandr Vondra, Czech Deputy Prime Minister in charge of European Affairs, had a conversation with Gazprom's Vice President Alexander Medvedev. President of the European Commission, Jose Manuel Barroso, had a meeting with Gazprom's CEO Alexei Miller on 8 January 2009.<sup>230</sup>

Until the midnight of January 6<sup>th</sup>, minor decreases in gas volumes took place in the EU with 33 % on Western Balkan route and 11 % on Western Ukraine entry points. On January 6<sup>th</sup>, as of 1.00 a.m. gas supply on Western Balkan route to Romania, Bulgaria, Greece, FYROM, and Turkey was reported to have stopped. At 10.00 a.m. in the morning it was reported that only 10 % of gas was flowing to Slovakia which is the main entry point of Russian gas to supply Austria, west Hungary, Czech Republic, Germany, Italy, France, Slovenia and Croatia. Considerably low gas supply was recorded on Poland and east Romania entry points. East Hungary could only receive 20 % of the gas committed and this affected gas supply to Serbia and Bosnia-Herzegovina. On the night of 6<sup>th</sup> to 7<sup>th</sup> of January, all gas flow from Ukraine to the EU was cut off. The supply disruption to the EU lasted from 7<sup>th</sup> to 20<sup>th</sup> of January.<sup>231</sup>

At the high level summit commenced in Russia on January 17<sup>th</sup>, the EU, Russia and Ukraine reached an agreement. Following the talks between Russia's President Putin

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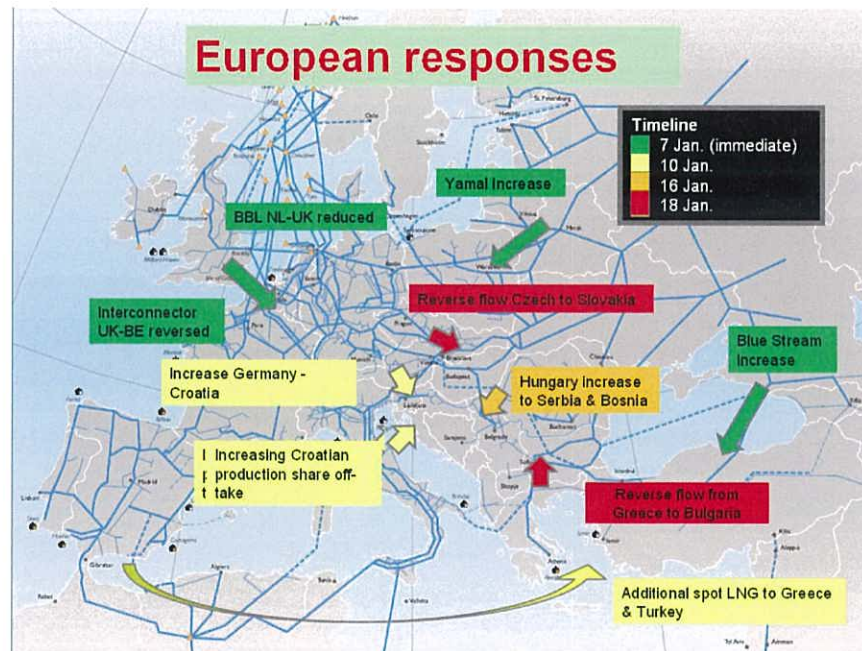
<sup>228</sup> *Ibid.*, p. 5.

<sup>229</sup> *Ibid.*, p. 3.

<sup>230</sup> *Ibid.*, p. 4.

<sup>231</sup> *Ibid.*

and Ukraine's Prime Minister Timoshenko on 18 January 2009, within the framework of the political agreement reached on January 19<sup>th</sup>, Gazprom and Naftogaz signed a 10 year sales and purchase agreement that continued Ukraine's gas purchases from Russia and transit Russian gas to the EU markets. Thus, normal gas transit to the EU was resumed on 20 January 2009.<sup>232</sup>



**Map 4: European responses to the supply disruption.**<sup>233</sup>

As can be concluded from Map 4, diversification of routes and particularly sources was the most useful measure taken in case of an emergency. Russian gas imported from Belarus and Turkey and alternative gas imported from Norway and Libya was used to substitute the volumes that were supposed to come from Ukraine. In some countries (for example Bulgaria, Romania, Hungary and Poland) large industrial enterprises were cut off to continue to supply household consumers for heating purposes. Austria, Slovakia, Greece, Poland, Bulgaria, and Romania switched fuels by using to fuel oil for heating and coal for power generation. LNG also proved to be an important alternative source in this process.<sup>234</sup>

<sup>232</sup> *Ibid.*

<sup>233</sup> Source: *Analysis of gas crisis presented to Gas Coordination Group by IEA*

<sup>234</sup> "Staff Working Document: The January 2009 Gas Supply Disruption to the EU: An Assessment", *op. cit.*, p. 8.

The crisis above all influenced the final consumers. Supplying household consumers was considered as the top priority among Member States generally, whereas households with lower income were most likely to switch to inefficient alternatives such as use of electricity and wood-burning in Bulgaria for heating purposes. Industrial customers had to reduce their demand for gas due to major shortages occurred in supplying household customers such as in Bulgaria, Romania and Poland's largest fertilizer plant and refinery. Calls were issued by some Member States, such as Hungary and Slovakia, to cut back on gas consumption for industry.<sup>235</sup> However, the economy in these countries is driven by petro-chemical, fertilizer and refinery industries which intensively use gas in their operations. Therefore, consequences of the crisis could inevitably lead to irreversible damages on the economic and social life in these countries, if the crisis lasted longer.

It is reported by the Commission that cases of strong solidarity were also present. For instance, Russian gas was supplied to Czech Republic through Yamal pipeline, whilst Slovakia was supplied with the gas from underground gas storage facilities of the Czech Republic, and Austria supplied Slovenia with gas from Austrian storage facilities.<sup>236</sup>

Not only the EU, but also the third countries in Europe were affected negatively by the crisis. International community immediately provided fuel aids to Moldova. Both Russia's and Ukraine's reputations as reliable energy partners of the EU were damaged. Gazprom claimed to have lost 2 billion dollars due to its inability to perform exports to Europe in the first three week of January 2009.<sup>237</sup>

January 2009 gas disruptions led to the most serious gas supply crisis the EU has ever experienced, debarring Member States from 20 % of their gas supplies which makes 30 % of imports.<sup>238</sup> Occurring on days with cold weather conditions in many parts of Europe, Commission reports that "the crisis showed the vulnerability of the EU and

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<sup>235</sup> *Ibid.*

<sup>236</sup> *Ibid.*, p. 9.

<sup>237</sup> *Ibid.*, p. 4.

<sup>238</sup> *Ibid.*, p. 7.

some of its Member States to gas disruptions and resulted in repercussions in a number of EU Member States.<sup>239</sup>

Following the crisis, the Commission published a communication which put forward that price reactions to the crisis did not exist in eastern Member States. This implies a lack of market functioning in these regions. Nevertheless, in other parts of the market, a 10 % price increase was observed on National Balancing Point (NBP) in the United Kingdom as well as a 25 % increase at Zeebrugge in Belgium.<sup>240</sup> The Communication suggests that “direct or indirect subsidies and price distortions, either at the public level or through commercial policies, reduce the capacity for markets to deal with supply emergencies by removing incentives for investment in new infrastructure and for greater efficiency in energy use”.<sup>241</sup> Normally, in case of a gas shortage, prices of gas should have been higher due to decreased supply and fixed demand. However, this was not the case in some parts of the EU. This implies that prices set on the spot markets on the basis of supply and demand basis (such as NBP or Zeebrugge) would contribute to the creation of a functioning and competitive internal market by facilitating the treatment of emergency situations, attracting new investments and increasing efficient use of energy.

The Communication identified the lessons learned from the crisis, suggested that it was a notification for policy-makers to enhance their energy strategies and reached the following conclusions:

- Growing dependence on gas for electricity and domestic heating, with limited options for fuel-switching, further increases the risk that a gas supply crisis will have a deeply damaging economic impact;
- Likewise, the dependence of parts of the EU on a single supplier or a single source is a major concern to consumers across the EU and calls for new efforts to increase supply diversification in supplier, supply route and supply source.<sup>242</sup>

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<sup>239</sup> *Ibid.*

<sup>240</sup> *Ibid.*, p. 8.

<sup>241</sup> *Ibid.*

<sup>242</sup> *Ibid.*, p. 17.

## **2.6. DIVERSIFICATION OF SOURCES AND ROUTES FOR THE EU**

### **2.6.1. Nabucco**

European Commission has endeavored to realize infrastructure projects defined as Union priority. Particularly a project company between Member States and Turkey was established within the scope of Southern Gas Corridor, Nabucco, which intended to transport Caspian and Central Asian gas to European markets as an alternative source to Russia and a completely new route for the EU.

However, there were several reasons that hampered the implementation of the project: Russia blocked Turkmen gas by locking it under long-term contracts for its own use, provoked Turkmen-Azeri dispute over borders on the Caspian Sea and hindered the construction of Trans-Caspian Natural Gas Pipeline. It further proposed a rival pipeline project by-passing Ukraine. South Stream would transport Russian gas to Bulgaria, South-Eastern European states and Italy via a sub-sea infrastructure under the Black Sea, signed bilateral agreements with Member States for South Stream and initiated the construction. On the other hand, Turkmenistan insisted on selling its gas on its borders and contracted part of its gas to ever-growing China. The EU put sanctions on Iran due to its nuclear program and thus lost access to world's second largest gas reserves. There are ongoing political instabilities in Egypt and Iraq including the threat of Islamic State in the Middle East. All of the above have made the project too costly to be realized and obstructed any opportunity to find gas source for Nabucco pipeline project.

### **2.6.2. Trans-Anatolian and Trans-Adriatic Natural Gas Pipelines**

Holding a strategic role between continental Europe and the world's leading producers in the Middle East and the Caspian region, Turkey has been strengthening its international cooperation in the area of energy. Given this fact, Ankara has been promoting the east-west and north-south energy corridors across the country for more than a decade, aiming the transportation of energy sources of Caspian Basin, Middle East and Central Asia to Europe and further to world markets. This multi-dimensional

energy policy aims at securing both its own and partners' energy supplies. Turkey has achieved considerable progress toward becoming a reliable transit country over the last decade. Turkey has been evolving toward being an energy hub and intends to contribute to any initiative which is mutually beneficial and based on win-win principle.

Within the concept of such energy policy, the Trans Anatolian Natural Gas Pipeline (TANAP) Project has been introduced by Turkey and Azerbaijan to deliver the gas from Shah Deniz Stage II production. Shah Deniz Stage II co-venturers to produce gas are BP (25.5 %) as the operator, Statoil (25.5 %), SOCAR (10 %), Lukoil (10 %), NICO (10 %) ve TPAO (19 %).<sup>243</sup> Intergovernmental Agreement and Host Government Agreement of TANAP Project were signed on 26 June 2012. As these agreements entered into force on 8 April 2013, the legal framework for the transit via a dedicated pipeline in the territory of Turkey has been properly established. TANAP is designed as the backbone of the Southern Gas Corridor, having a capacity scalable up to 32 billion cubic meters annually. In 2013, TANAP Project Company moved to Turkey and its shareholders are Azeri energy company SOCAR (58%), Turkish gas transmission system operator BOTAŞ (30%) and British giant petroleum company BP (12%). The construction of TANAP Project is scheduled to start in 2015. The first gas flow to Turkey is expected to take place in late 2018 and to Europe in early 2019.<sup>244</sup>



**Map 5: Routes of TANAP and TAP.**<sup>245</sup>

<sup>243</sup> BP. "Shah Deniz Major Sales Agreements with European Gas Purchasers Concluded", accessed on 3 April 2014 at <http://www.bp.com/en/global/corporate/press/press-releases/shah-deniz-major-sales-agreements-with-european-gas-purchasers-c.html>

<sup>244</sup> TANAP. "TANAP Nedir?", accessed on 3 April 2014 at <http://www.tanap.com/tanap-nedir>

<sup>245</sup> Source: <http://www.hurriyetdailynews.com/italy-greece-welcome-selection-of-tap-gas-%20route.aspx?pageID=238&nID=49620&NewsCatID=348>

As shown on Map 5, on 28 June 2013, the Shah Deniz Consortium selected Trans Adriatic Pipeline (TAP) Project (instead of popular Nabucco West) as an export route that would connect to TANAP and transport Azeri gas in Europe, targeting the gas market in Southeast-Europe for Shah Deniz Stage II production. Representing the Bulgaria-Austria part of Nabucco project, Nabucco West was supported by the Commission for nomination by Shah Deniz Consortium and Turkey's BOTAŞ was a stakeholder at the company. Instead, TAP was selected as a project aiming to transport gas from Turkey-Greek border to Albania, and Italy. Some experts believe that selection of TAP could be associated with SOCAR's acquirement of 66 % of Greek gas transmission operator DESFA, TAP's being a lower-cost project compared to Nabucco West and Russia's political pressure on Shah Deniz Consortium not to select Nabucco West that targets Gazprom's markets in Central and Eastern Europe, rather to nominate TAP which would address Southern Europe where Gazprom has little interest for now.<sup>246</sup> In a manner confirming all the claims, following the project decision, dissolution procedure of Nabucco International Company was initiated in the late 2013. On 19 September 2013, the Shah Deniz Consortium announced that 25-year sales agreements with European gas purchasers were signed for just over 10 cubic meters annually (bcma) to be produced from the Shah Deniz Stage II. Nine European firms in Italy, Greece and Bulgaria, namely AXPO, Bulgargaz, DEPA, Enel, E.ON, Gas Natural Aproveisionamientos, GDF SUEZ, Hera and Shell signed sales agreements to purchase the gas. Firms in Bulgaria and Greece will receive 1 bcma each while 9 bcma gas will be transported to Italy and to firms that will supply neighboring gas hubs.<sup>247</sup> On 17 December 2013, the Shah Deniz Consortium announced the final investment decision for the Stage II development of the Shah Deniz gas field in the Caspian Sea, offshore Azerbaijan.

BOTAŞ's Gas Sale and Purchase Agreement with Shah Deniz Consortium for Stage II production, which was signed on 25 October 2011, triggered this giant project covering deployment of advanced sub-sea production technologies and construction of pipelines linking six countries from Azerbaijan to Italy. When TANAP Project agreements

<sup>246</sup> Azernews. "SOCAR obtains 66% share of Greek gas Company DESFA", accessed on 3 April 2014 at [http://www.azernews.az/oil\\_and\\_gas/62821.html](http://www.azernews.az/oil_and_gas/62821.html)

<sup>247</sup> "Shah Deniz Major Sales Agreements with European Gas Purchasers Concluded", *op. cit.*



together with TAP Project agreements and recently signed European gas sales agreements are considered, the final investment decision of Shah Deniz Consortium is vital for the realization of the Southern Gas Corridor. Since Azeri gas from Shah Deniz Stage I is in the Turkish gas market as of 2007, this final investment decision for the Stage II development is highly significant for especially Europe. As of 2019, 10 bcma of gas will be delivered to Europe via dedicated pipeline, whereas 6 bcma gas will be supplied to Turkey. So, at this initial phase, a total sum of 16 bcma of gas is expected to flow through TANAP to Turkey and Europe. TANAP will enable EU to strengthen its security of supply in gas by diversifying source countries and routes. In other words, TANAP Project will facilitate the realisation of the other projects within the Southern Gas Corridor. Although Azerbaijan seems to be the only available gas source for the project in the short term, in the long term additional gas from Turkmenistan via Trans Caspian Natural Gas Pipeline could also be delivered by TANAP to Europe.

### **2.6.3. Nord Stream and South Stream**

Efforts of the European countries to reduce dependence on Russian gas are counter-attacked by Moscow's aggressive infrastructure expansion strategy which aims at higher volumes of supply for European customers.<sup>248</sup> Nord Stream and South Stream are the main projects developed by Gazprom thereof. Nord Stream is a 1224 km long natural gas pipeline with 55 bcma capacity which carries gas from Russia's Vyborg to the German town of Greifswald. The aim of this project is to transport Russian gas to markets in Germany, the United Kingdom, the Netherlands, France and Denmark through a sub-sea infrastructure on the Baltic Sea, thus by-passing any transit country. Shareholders of the project are Russian Gazprom (51 %), German Wintershall (15.5 %), German E.ON (15.5 %), Dutch and German Gasunie (9 %), and French GDF Suez (9 %). First stage pipeline with 27.5 bcma capacity started operation on 8 November 2011

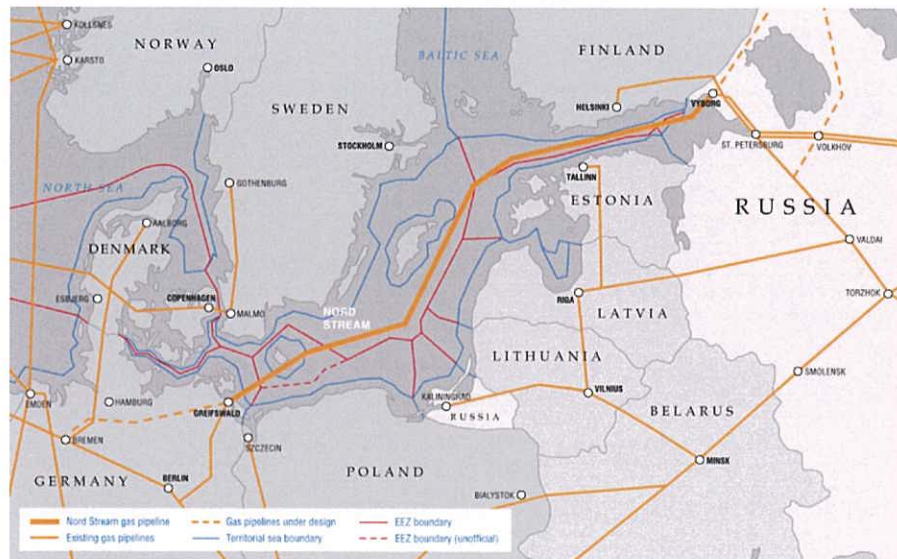
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<sup>248</sup> Kwon Hyung LEE , Sung Hoon JEH and Boogyun KANG. (2013) "The Rise of Shale Gas and Russia's Countermeasures". Korea Institute for International Economic Policy: Research Paper *World Economy Update* 13-23.. p. 4.

whereas second line with an additional 27.5 bcma capacity was operational as of October 2012.<sup>249</sup> Construction of additional two pipes is under discussion.

Nord Stream connects to 470 km long onshore Opal natural gas pipeline with 35 bcma capacity which carries gas to the German network of tubes and also transports it to the border with the Czech Republic, and from there Russian gas could be transferred further to Czech Republic, Poland and Slovakia. Opal shareholders are Wingas (51 %), E.ON Ruhrgas (10 %), Gasunie (20 %) and Fluxys (19 %).<sup>250</sup>

On the other hand, 440 km long NEL gas pipeline will run from Greifswald to Hamburg and Bremen and the underground gas storage facility in Rehden (Lower Saxony). NEL will have 20 bcma capacity. Through the NEL gas pipeline the Russian gas will be supplied to Germany as well as to Denmark, Holland, Belgium and the UK. The pipeline is owned by Wingas.<sup>251</sup>



**Map 6: Nord Stream and OPAL.**<sup>252</sup>

<sup>249</sup> Gazprom. “Nord Stream”, accessed on 10 May 2014 at

<http://www.gazprom.com/about/production/projects/pipelines/nord-stream/>

<sup>250</sup> Alexander NOVAK. *Russian-German Strategic Partnership*. 8 April 2013. Ministry of Energy of Russian Federation, accessed on 22 October 2014 at [http://russland.ahk.de/uploads/media/1\\_NOVAK.pdf](http://russland.ahk.de/uploads/media/1_NOVAK.pdf)

<sup>251</sup> Gazprom Export. “Construction of NEL last line approved by German authorities”, accessed on 22 October 2014 at <http://www.gazpromexport.com/en/presscenter/news/828/>

<sup>252</sup> Source: Gazprom. <http://www.gazprom.com/about/production/projects/pipelines/nord-stream/>

In 2009, German regulatory authority BNetzA granted Gazprom an exclusive right to the use only 50 % of Opal transmission capacity for 22 years, and the decision was approved by the European Commission. However, Gazprom was not satisfied with the decision claiming there has been no demand for the rest of the capacity and they should be granted full capacity of the pipeline.<sup>253</sup> However, the Commission said it had delayed indefinitely a decision on whether to allow Russia greater access to the Opal gas pipeline in northeastern Germany.<sup>254</sup>

There is an ongoing process of political conflict between Russia, the EU and Ukraine over Ukraine's decision to sign a partnership agreement with the European Union and over Moscow's annexation of Crimea. The dispute has been aggravated by a row between Ukraine and Russia over how much Ukraine pays for its gas, which has led Russia to cut off gas supplies.<sup>255</sup>

Russia is also locked in a conflict with the Commission on a bigger gas pipeline project, South Stream, in legal and regulatory issues as well as the fact that following Russia's annexation of Ukraine's Crimea region, the Commission suspended talks aimed at bringing South Stream into line with EU legislation.<sup>256</sup>

South Stream is a stand-alone natural gas pipeline project with total length of 930 km which aims to transport Russian gas to markets in Bulgaria, Serbia, Bosnia-Herzegovina, Croatia, Hungary, Slovenia and Italy by way of constructing a sub-sea infrastructure in the Black Sea between Russia and Bulgaria, thus by-passing Ukraine. Planned capacity is larger than Nord Stream with 63 bcm capacity. The leading partner of Gazprom in the project is Italian energy giant Eni with whom Gazprom entered into the Strategic Partnership Agreement entitling Gazprom to supply Russian gas directly to

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<sup>253</sup> Snam. "There is no point opening Nord Stream to third parties", accessed on 10 May 2014 at <http://www.snam.it/en/Media/energy-morning/news-upload152.html>

<sup>254</sup> Reuters. "EU delays decision on Russian access to Opal gas pipeline", accessed on 21 October 2014 at <http://uk.reuters.com/article/2014/07/16/eu-ukraine-opal-idUKL6N0PR33A20140716>

<sup>255</sup> *Ibid.*

<sup>256</sup> *Ibid.*

the Italian market starting from 2007 and extending the existing contracts for Russian gas supplies to Italy to 2035.<sup>257</sup>

TANAP/TAP will be able to supply only 7 % of European gas demand even when operational with full capacity. Therefore, South Stream has become very popular among the Southeast European countries whose isolated gas markets are too small to attract infrastructure investments and the attention of gas producers. As shown in Map 7, between 2008 and 2011, Russia signed intergovernmental agreements on the project implementation with Austria, Bulgaria, Croatia, Greece, Hungary, Serbia and Slovenia. The Council adopted a Decision which obliges Member States to notify the Commission about the content of intergovernmental agreements signed with third countries that have an impact on the operation or functioning of the internal energy market or on the security of energy supply.<sup>258</sup> Pursuant to this Decision, the Commission examined intergovernmental agreements signed with Russia and reached the conclusion that the agreements breached EU law and had to be re-negotiated from scratch.<sup>259</sup>



**Map 7: Route of South Stream and participating national companies.**<sup>260</sup>

<sup>257</sup> Gazprom. “South Stream”, accessed on 21 October 2014 at.

<http://www.gazprom.com/about/production/projects/pipelines/south-stream/>

<sup>258</sup> Eur-Lex. Decision No 994/2012/EU of the European Parliament and of the Council of 25 October 2012 establishing an information exchange mechanism with regard to intergovernmental agreements between Member States and third countries in the field of energy, accessed on 19 March 2014 at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:299:0013:0017:EN:PDF>

<sup>259</sup> Euractiv. “South Stream bilateral deals breach EU law, Commission says”, accessed on 18 March 2014 at <http://www.euractiv.com/energy/commission-south-stream-agreemen-news-532120>

<sup>260</sup> Source: <http://www.naturalgaseurope.com/south-stream-pipeline-exemption-eu-rules>

The Director of the Internal Energy Market Department of DG Energy of the Commission, Klaus Dieter Borchardt, stated that “We have told these states that they are under the obligation, either coming from the EU treaties, or from the Energy Community treaty, that they have to ask for re-negotiation with Russia, to bring the intergovernmental agreements in line with EU law”.<sup>261</sup> Furthermore, Borchardt stressed that if the member states or states concerned were not renegotiating, then the Commission had the ways and means to oblige them to do so; and South Stream could not operate under these agreements.<sup>262</sup>

The intergovernmental agreements in question are considered to breach the EU rules mainly in three aspects:

- Ownership 'unbundling' rules need to be observed. This means that Gazprom, which is both a producer and a supplier of gas, cannot simultaneously own production capacity and the transmission network;
- Non-discriminatory access of third parties to the pipeline needs to be ensured. There cannot be an exclusive right for Gazprom to be the only shipper; and
- The tariff structure needs to be identified by national regulators, not by Gazprom through intergovernmental agreements.<sup>263</sup>

## **2.7. POLITICAL CONSEQUENCES OF EU'S DEPENDENCE ON RUSSIAN GAS & THE UKRAINE CRISIS**

In case of a political crisis, the EU's dependence on Russian gas restricts the Union to apply further political and economic sanctions on Russia and creates vulnerability for Member States. This vulnerability leaves the EU open to Russia's political and military assertiveness.<sup>264</sup> Current political conflict between the EU, Ukraine and Russia since November 2013, has put Brussels on a knife edge both in terms of the necessity to actively respond to the destabilization efforts of Russia in Ukraine and of the need to

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<sup>261</sup> “South Stream bilateral deals breach EU law, Commission says”, *op. cit.*

<sup>262</sup> *Ibid.*

<sup>263</sup> *Ibid.*

<sup>264</sup> Øistein HARSEM. (2012). ‘The Political Consequences of Resource Dependence - How Natural Gas Exports Can Affect Policy Outcomes: A Quantitative Analysis’, *Journal of Contemporary European Research*. Volume 8, Issue 1, p. 140.

ensure uninterrupted and affordable flow of gas to European markets. In this respect, this thesis argues that efforts by the EU have remained inadequate in deterring Russia from annexing Crimea and actively arming and supporting separatist insurgents in eastern Ukraine. Following this line of argument, this thesis also maintains that this inadequacy is mainly emanating from the reluctance of the leading EU Member States to enforce concrete economic sanctions that would strangle Russian economy due to their profitable energy relations with Moscow and substantial dependence on Russian gas supplies for their industries.

Apart from the bilateral energy trade, major EU powers, namely Germany, Italy and France, have engaged in cooperation with Gazprom in profitable international energy infrastructure projects. Russian Gazprom signed cooperation agreements with Hungarian Development Bank MFB and MVM, Bulgaria's Bulgarian Energy Holding, Greek gas transmission system operator DESFA and Austrian OMV for the incorporation of joint project companies in each country.<sup>265</sup> The leading partner of Gazprom in South Stream pipeline project is Italian energy giant Eni with whom Gazprom entered into the Strategic Partnership Agreement entitling Gazprom to supply Russian gas directly to the Italian market starting from 2007 and extending the existing contracts for Russian gas supplies to Italy to 2035.<sup>266</sup> Moreover, the shareholders of South Stream's offshore section are Gazprom (50 %), Italian Eni (20 %), German Wintershall Holding and French EDF (15 % each).

On the other hand, Germany has special relations with Russia in the fields of energy and trade. German Wintershall and E.ON, German-Dutch Gasunie and French GDF Suez are shareholders of the Gazprom's Nord Stream and their total stakes make up to 49 % of the offshore section of the double-string pipelines. German Wintershall, a subsidiary of BASF, partakes in upstream activities in Russia's Urengoi gas field located in Western Siberia.<sup>267</sup> Germany, usually referred as the economic engine of the EU, imports 40 % of its gas from Russia and phasing out nuclear power will definitely

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<sup>265</sup> "South Stream", *op. cit.*

<sup>266</sup> *Ibid.*

<sup>267</sup> BASF, *op. cit.*

increase the country's reliance on gas for electricity production.<sup>268</sup> In return, Russia is a growing market for German goods and there is a balanced trade and commodity turnover between the two. Russian gas exports to Germany gained Moscow 29.6 billion dollars, whereas German goods exported to Russia gained Berlin 31.6 billion dollars averagely between 2008 and 2012.<sup>269</sup>

Following Ukraine's former President Yanukovich's statement on abandonment of a trade agreement with the EU and seeking closer ties with Moscow on 21 November 2013, 300,000 protesters gathered at Kiev's Independence Square and seized the City Hall.<sup>270</sup> Anti-protest laws are passed and bloody interventions by security forces led to violent clashes. On December 17<sup>th</sup>, Putin announced plans to purchase 15 billion dollars in Ukraine's government bonds and make a discount for Russian gas to Ukraine. However, Prime Minister of Ukraine, Mykola Azarov, resigned on 28 January 2014.<sup>271</sup> On February 16<sup>th</sup>, in exchange for the release of 234 jailed protesters, opposition activists retreated from government buildings.<sup>272</sup> Because the parliament stalled in passing constitutional reform to limit presidential powers, protests and clashes with the police started again on February 20<sup>th</sup> and 88 people were killed by the snipers.<sup>273</sup> Yanukovich fled Kiev after protesters took control in the capital.<sup>274</sup>

On February 22<sup>nd</sup>, former Prime Minister Timoshenko was released from prison and spoke to the opposition groups in Kiev, whereas May 25<sup>th</sup> was set for presidential elections.<sup>275</sup> Oleksandr Turchinov, an ally of Timoshenko, was assigned presidential powers by the parliament while a warrant for Yanukovich's arrest was drawn by Ukraine's interim government.

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<sup>268</sup> *Ibid.*

<sup>269</sup> Novak, *op. cit.*

<sup>270</sup> Al Jazeera. "Timeline: Ukraine's political crisis", accessed on 11 May 2014 at <http://www.aljazeera.com/news/europe/2014/03/timeline-ukraine-political-crisis-201431143722854652.html>

<sup>271</sup> *Ibid.*

<sup>272</sup> *Ibid.*

<sup>273</sup> *Ibid.*

<sup>274</sup> *Ibid.*

<sup>275</sup> *Ibid.*

On the other hand, pro-Russian Aleksey Chaly was appointed Sevastopol's *de facto* mayor as pro-Kremlin armed men seized government buildings in Crimea.<sup>276</sup> Crimean parliament set a date for referendum on region's status and Yanukovich was granted refuge in Russia. Simferopol international airport and a military airfield in Sevastopol were seized by armed men in unmarked combat fatigues.<sup>277</sup> Moscow defended its military activities in Crimea to be compliant with previous international agreements which gave rights to Russia to protect its fleet position in the Black Sea, and upper house of the Russian parliament approved a request by Putin to use military power in Ukraine.<sup>278</sup> On March 3<sup>rd</sup>, Russia's Black Sea Fleet told Ukrainian navy in Sevastopol in Crimea to surrender or face a military assault while a convoy of hundreds of Russian troops was heading towards the regional capital of Crimea.<sup>279</sup>

Putin declared that Russia would take every opportunity to protect its citizens in eastern Ukraine.<sup>280</sup> Two days later, Crimean parliament unanimously voted in favor of joining Russia. A package of trade liberalization measures to support Ukraine's economy was proposed by the EU, and the U.S. President Barack Obama met Ukraine's Prime Minister Yatsenyuk at the White House in support of the new government in Ukraine stressing that the U.S. will completely reject the Crimea referendum.<sup>281</sup> On March 15<sup>th</sup>, United Nations Security Council members voted overwhelmingly in support of the preparation of a draft resolution condemning an upcoming referendum on the future of Crimea as illegal, Russia vetoed and China abstained.<sup>282</sup>

A referendum was held in Crimea on 16 March 2014 and resulted in 97 % votes in favor of seceding from Ukraine to join Russia. On March 17<sup>th</sup>, the U.S. and the EU decided to freeze assets of some Russian citizens and companies and put visa bans on individuals involved in Crimean breakaway. The U.S. imposed financial sanctions on 11 Russian and Ukrainian government officials and politicians including two top advisers to Putin, Russian Deputy Prime Minister Dmitry Rogozin and Ukraine's former President Viktor

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<sup>276</sup> *Ibid.*

<sup>277</sup> *Ibid.*

<sup>278</sup> *Ibid.*

<sup>279</sup> *Ibid.*

<sup>280</sup> *Ibid.*

<sup>281</sup> *Ibid.*

<sup>282</sup> *Ibid.*



Yanukovich for undermining democratic processes and institutions in Ukraine.<sup>283</sup> For the referendum, held under armed Russian occupation, violated Ukraine's constitution and international law, the EU's 28 foreign ministers agreed on 17 March 2014 in Brussels to impose the first travel bans and asset freezes against 21 Russian and Ukrainian officials.<sup>284</sup>

Despite the sanctions, Putin signed the treaty on the annexation of Crimea to Russia on March 18, expanding Russian territories for the first time since the Second World War. Another reason Putin wanted to exert Russian influence on eastern parts of Ukraine is that Russian army's airplane motors, gear boxes and rocket equipment are, according to Western knowledge, in large part built in this region.<sup>285</sup>

Poland's Prime Minister Donald Tusk argued that European countries will not be able efficiently fend off further aggressive steps that could be taken by Russia due to their reliance on Russian gas supplies.<sup>286</sup> Bulgaria's Prime Minister stated at the Parliament that Bulgaria has enough gas for March and April, however warned of supply disruptions and emphasized the importance of managing current gas volumes in the country carefully.<sup>287</sup> In the beginning of March, ambassadors of Slovakia, Poland, Hungary and Czech Republic to the U.S. sent a letter to the Congress demanding stronger support for permissions regarding LNG exports to Europe.<sup>288</sup> Each of these countries is 70-100 % dependent on Russian gas. In the letter, ambassadors highlighted that energy security is not only a day-to-day issue closely monitored by millions of citizens in their region, but it is one of the most important security challenges faced by the U.S. and its allies in Central and Eastern Europe.<sup>289</sup>

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<sup>283</sup> Al Jazeera. "EU and US put sanctions on Russia over Crimea", accessed on 11 May 2014 at <http://www.aljazeera.com/news/europe/2014/03/eu-imposes-sanctions-russia-over-crimea-2014317131547816540.html>

<sup>284</sup> Reuters. "U.S., EU set sanctions as Putin recognizes Crimea 'sovereignty'", accessed on 11 May 2014 at <http://www.reuters.com/article/2014/03/17/us-ukraine-crisis-idUSBREA1Q1E820140317>

<sup>285</sup> Spiegel. "Russian Dilemma: Why EU Sanctions Are A Bluff", accessed on 12 May 2014 at <http://www.spiegel.de/international/world/strong-eu-economic-sanctions-against-russia-unlikely-a-968913.html>

<sup>286</sup> Miami Herald, *op. cit.*

<sup>287</sup> *Ibid.*

<sup>288</sup> *Ibid.*

<sup>289</sup> *Ibid.*

A meeting with the participation of Russia, the U.S., the EU, and Ukraine has been held at Geneva on 17 April 2014. At the meeting, disarmament and dissolution of armed groups in Ukraine and evacuation of occupied government buildings were discussed.<sup>290</sup> Additionally, parties talked of an amnesty for all anti-government protesters under the agreement, and talk of "inclusivity" - possibly a suggestion that Russian-speaking areas of Ukraine might be granted more autonomy. It was also decided that all concrete steps would be monitored by OSCE. Russian Foreign Minister Lavrov stressed that through constitutional reforms in Ukraine the crisis could be overcome and indicated to an agreement by all parties on Ukraine's regulation of the crisis is crucial.<sup>291</sup> However, Russia did not take any steps further toward the matters agreed at the meeting and clashes resulting in death of many and internal conflict between Ukrainian army and the pro-Russian militants continued.<sup>292</sup> As a result, the G8 summit was not held in Sochi, and instead, a G7 meeting was held in Brussels on 4-5 June. Suspension of negotiations over Russia's joining the OECD and the International Energy Agency was supported by the EU countries.<sup>293</sup>

There emerged a necessity for the EU to actively respond to the referendum and Putin's destabilization efforts in Ukraine. However, major powers in the EU have important energy, trade and financial relations with Russia. With reference to the economic sanctions which would create a burden to be shared mutually by all the Member States, Germany has lucrative energy relations with Russia, France has a major warship and helicopter agreements at stake whereas Britain serves as an offshore financial center for wealthy Russians.<sup>294</sup> During hot discussions on the extent of the sanctions, each passed the buck to the other to take the first step. London was reluctant about limiting financial flows to Russia while calling for reducing reliance on Russian gas and halting arms exports whereas "Paris has made the case for hitting Russia's elite in its pocket-book".<sup>295</sup>

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<sup>290</sup> BBC News. "Ukraine crisis: Deal to 'de-escalate' agreed in Geneva", accessed on 11 May 2014 at <http://www.bbc.com/news/world-europe-27072351>

<sup>291</sup> *Ibid.*

<sup>292</sup> *Ibid.*

<sup>293</sup> European Union. "EU sanctions against Russia over Ukraine crisis", accessed on 22 October 2014 at [http://europa.eu/newsroom/highlights/special-coverage/eu\\_sanctions/index\\_en.htm](http://europa.eu/newsroom/highlights/special-coverage/eu_sanctions/index_en.htm)

<sup>294</sup> "U.S., EU set sanctions as Putin recognizes Crimea 'sovereignty'", *op. cit.*

<sup>295</sup> *Ibid.*

On one side, there were Member States including Eastern European countries and the UK which took a hardline stance on the issue and defended immediate sharp sanctions. On the other side, there were more cautious countries like Benelux states which believed diplomacy could be given a chance. All Southern European countries strongly claimed that a trade boycott could bring profound economic costs on their economies.<sup>296</sup>

However, Germany, Italy, Bulgaria, Hungary and Austria were coy in imposing economic or energy sanctions on Russia because they have considerable interests in Russia's South Stream pipeline project.<sup>297</sup> Therefore, they took a middle way position by trying to avoid sanctions unless Putin continued to destabilize Ukraine. Especially Germany bet on financial sanctions that would put pressure on Moscow through freezing Russian projects at European Investment Bank and European Bank for Reconstruction and Development.<sup>298</sup> Lithuania, entirely dependent on Russian gas supplies, wanted sanctions to focus on banking and arms sales.

Countries like the United Kingdom or Greek Cyprus were strictly against this notion, because it would also have an impact on their own financial sectors, and instead they stood for an energy boycott because neither imports gas from Russia. However, this was strongly resisted by Eastern European countries, like Bulgaria or Slovakia, which entirely or partly rely on Russian imports in gas.<sup>299</sup> Since Russia took no steps toward de-escalation in the region, the European Council's Committee of Permanent Representatives (COREPER) reached an agreement on a set of enhanced measures related to access to capital markets, defence, dual-use goods, and sensitive technologies on September 5<sup>th</sup>.<sup>300</sup>

With the second round of restrictive measures that entered into force on September 12<sup>th</sup>, asset freezes and visa bans now apply to 119 persons while 23 entities are subject to a

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<sup>296</sup> Spiegel, *op. cit.*

<sup>297</sup> Financial Times. "Ukraine crisis hardens Brussels stance on Gazprom pipeline", accessed on 12 May 2014 at <http://www.ft.com/intl/cms/s/0/7b232d3e-d45f-11e3-a122-00144feabdc0.html#axzz31RiYG1DU>

<sup>298</sup> *Ibid.*

<sup>299</sup> *Ibid.*

<sup>300</sup> Council of the European Union. "Further economic sanctions on Russia", accessed on 22 October 2014 at <http://www.consilium.europa.eu/homepage/highlights/further-economic-sanctions-on-russia?lang=en>

freeze of their assets in the EU. Other measures include restrictions on access to EU capital for five major Russian state-owned banks, as well as three major Russian defence companies and three major energy companies, reinforcement of an export ban for dual-use goods and technology for military end users to also include a list of nine mixed defence companies, and curtailment of Russian access to certain services necessary for deep water oil exploration and production, arctic oil exploration or production and shale oil projects.<sup>301</sup>

The EU's sanctions are evenly distributed across the sectors of energy, trade (including arms) and finance, but they are far from being effective to convince Putin to abandon his support for the separatists in Ukraine. For instance, the oil and gas imports from Russia are not restricted; instead Russia's long-term ability to develop new oil resources is targeted.<sup>302</sup> Strangling Russian economy could have been actually achieved by restricting energy imports which is the most important source of federal income for Kremlin. But it would also inflict serious harm on European economies. On the other hand, Russia is the second-largest arms exporter in the world and imports limited volumes of military equipment from the EU. Furthermore, the arms embargo will not apply to contracts signed before the start of these sanctions, which means a 1.6 billion dollars helicopter deal with France is unaffected.<sup>303</sup> Besides, it is reported that the financial sanctions are designed to hit Russian banks on their debt and equity issuance which they do largely through London. Sanctions could force Russia to move away from *the City* and look elsewhere, for instance Hong Kong or Shanghai for alternative funding. This would be costly for the UK.<sup>304</sup>

In retaliation, Russia imposed a "full embargo" on food imports from the EU, the U.S. and some other Western countries. According to the statement by Prime Minister Medvedev, the embargo included fruit, vegetables, meat, fish, milk and dairy imports.<sup>305</sup> It is reported that the EU's food exports to Russia were worth 15.8 billion dollars last

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<sup>301</sup> *Ibid.*

<sup>302</sup> BBC. "Russia sanctions: Who will be hurt the most?", accessed on 22 October 2014 at <http://www.bbc.com/news/business-28539928>

<sup>303</sup> *Ibid.*

<sup>304</sup> *Ibid.*

<sup>305</sup> *Ibid.*

year and that Russian market constituted 10 % of EU's food exports which makes it the second-biggest market for food exports.<sup>306</sup> Russia already banned all fruit and vegetable imports from one of its most vocal critics, Poland, in July putting forth commercial excuses. However, Lithuania is considered to be the most vulnerable vis-à-vis Russian sanctions because country's exports of the banned products to Russia are equivalent to 2.5 % of its GDP. Also, Germany was one of the major food exporters to Russia last year with 1.8 billion dollars.<sup>307</sup>

Evidently, the annexation of Crimea has increased Putin's popularity at home. Rebound in Russian shares and the rouble shows that investors considered Western sanctions as symbolic and avoiding infliction of significant economic damage on Russia through trade or financial measures.<sup>308</sup> Because Russia's foreign debt is not massive and the country holds large currency reserves, inflicting actual damage on Russian economy could only be achieved after a transitional period of at least two years which gives Russia enough time to find new buyers and distribution routes for its gas in other parts of the world. To this end, Russia contracted a 400 billion dollars' worth natural gas agreement with China to supply the country with 1.1 trillion cubic meters of gas for the next three decades.<sup>309</sup> However, an immediate response by Kremlin to decisive sanctions could be painful for Europe in such a case, because Member States will be sitting in the cold by the time Russians run out of money.<sup>310</sup>

The EU's heavy reliance on Russian gas supplies and Gazprom's discriminatory gas export strategy have led to disunity among Member States in speaking with one voice in external energy relations. Thus, Russia has a strategic advantage in political confrontations with the EU. Now that the gas deal with China provides an alternative market for the Russian gas for the coming decades, the EU has to intensify efforts to find alternative suppliers. Despite the advantages at hand, Russia is also aware of the limits to European patience. Putin very well knows that direct military involvement of

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<sup>306</sup> *Ibid.*

<sup>307</sup> *Ibid.*

<sup>308</sup> "U.S., EU set sanctions as Putin recognizes Crimea 'sovereignty'", *op. cit.*

<sup>309</sup> Euractiv. "China and Russia sign historic gas deal", accessed on 28 May 2014 at <http://www.euractiv.com/sections/energy/china-and-russia-sign-historic-gas-deal-302295>

<sup>310</sup> Spiegel, *op. cit.*

Russia in Ukraine is the red line and it would trigger harsher EU sanctions on Moscow due to then increased public pressure and international reactions. That is why, instead of direct military intervention, Moscow prefers arming opposition groups to occupy government buildings in eastern Ukraine where Russian-speaking population are in majority.<sup>311</sup>

Another dimension of the crisis is the gas dispute between Russia and the transitional government of Ukraine. This time, the dispute stems from Russian efforts to design politics in Ukraine and increase pressure on Kiev by demanding higher payments from Ukrainian government for gas deliveries.<sup>312</sup> Putin wrote a letter to 18 EU Member States informing them about the fact that Ukraine owed Gazprom 2.5 billion euros for gas it used, that Gazprom had to switch over to advance payment for gas deliveries and, in the event of further violation of the conditions of payment, Gazprom would completely or partially stop delivering gas to Ukraine which could increase “the risk of (Ukraine) siphoning off natural gas passing through Ukraine's territory and heading to European consumers”.<sup>313</sup> In the letter, Putin calls for cooperation to stabilize and restore the economy in Ukraine by stating that Russia was ready to participate in multilateral efforts on equal basis with European partners.<sup>314</sup>

On 2 May 2014, Ukrainian Energy Minister Yuri Prodan, his Russian counterpart Alexander Novak, and the EU's Commissioner for Energy, Günther Oettinger, gathered at a tripartite meeting in Warsaw. In the meeting, Novak warned that Ukraine would not be able to store sufficient gas to supply Europe in the winter and stated that if pre-payment for June was not made until May 31<sup>st</sup>, Gazprom would reduce gas supplies to Ukraine or provide it with the capacity it has paid for by 31 May.<sup>315</sup>

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<sup>311</sup> Reuters. “Russia’s Ukraine tactics sharpen EU split on sanctions”, accessed on 11 May 2014 at <http://www.reuters.com/article/2014/04/15/us-ukraine-crisis-eu-idUSBREA3E15120140415>

<sup>312</sup> *Ibid.*

<sup>313</sup> *Ibid.*

<sup>314</sup> *Ibid.*

<sup>315</sup> Euractiv. “Trilateral gas talks with Russia fail”, accessed on 12 May 2014 at <http://www.euractiv.com/sections/energy/trilateral-gas-talks-russia-fail-301901>

Oettinger said the partners promised that the gas flow would not stop and deliveries to the EU would continue until the end of May 2015 even if legal issues had not been concluded.<sup>316</sup> On the other hand, Prodan stressed that Kiev was ready to pay a fair market price, and stated that since April 1<sup>st</sup> Ukraine had faced an unjustified, discriminatory price at 500 dollars for 1,000 bcm (up from under 300 dollars) and would not be able to pay for Russian gas at this price.<sup>317</sup>

Oettinger also met Poland's Prime Minister Donald Tusk before the tripartite meeting and at a press conference after the meeting said that a *divide and rule* policy pursued by Russia was unacceptable by the EU Member States and called for application of a single gas price for all European countries.<sup>318</sup> He stressed that monopoly of Russia increased gas prices in EU Member States and hinders the development of a competitive internal market across Europe.<sup>319</sup>

After the tripartite meeting in Warsaw, Oettinger told *Financial Times* that in view of Russia's annexation of Crimea and destabilization efforts in eastern Ukraine, the EU has suspended talks regarding the exemption of South Stream from third party access rule of the EU, previously an idea held by the Commission.<sup>320</sup> However, in the last week of April 2014, Russia has filed a complaint to World Trade Organization against EU's Third Energy Package rules claiming that they required discriminatory certification requirements for third countries and were in breach of international trade rules.<sup>321</sup> Oettinger emphasized that it would not be realistic to expect a change of attitude and rules on the EU side and stressing there is a different culture in Russia, indicated to the fact that Russian government and Gazprom intended to dominate all rings of the chain from gas production to gas-fired power generation plants.<sup>322</sup>

Since June 2014, it was likely that the EU could face another political dispute over gas prices between Russia and Ukraine which would result in a supply disruption in the winter of 2014-2015. However, following several failed rounds of talks, the EU,

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<sup>316</sup> *Ibid.*

<sup>317</sup> *Ibid.*

<sup>318</sup> *Ibid.*

<sup>319</sup> *Ibid.*

<sup>320</sup> *Financial Times, op. cit.*

<sup>321</sup> *Ibid.*

<sup>322</sup> *Ibid.*

Ukraine and Russia have signed a deal and agreed upon the continuation of Russian gas supplies to Kiev in return for payments for its debts to Gazprom. According to the deal, Ukraine will pay Gazprom 3.1 billion dollars in two tranches by the end of the year for previous debts and will have 1.5 billion dollars from existing accords with the EU and the IMF to pay for about 4 bcm new gas until March for which Russia is insisting on cash up front. At the news conference after the signature, Oettinger said "We can say to the citizens of Europe that we can guarantee security of supply over the winter".<sup>323</sup> However, if Ukraine does not pay the rest of the amount, there is still a risk of supply disruption.

On 1 December 2014, in a visit to Turkey, President Putin announced the withdrawal of the South Stream project by accusing the EU sanctions and lack of construction permits on EU territories of hampering the construction work. Instead, Putin offered to pass the pipeline through Turkey which could become a hub for supplying Southern Europe at the Turkish-Greek border. Putin also offered 6 % discounts in gas purchased by Turkey.<sup>324</sup> However, Turkey is at odds with Russia in regional political matters such as the civil war in Syria. Putin backs Syrian President Assad while Turkish President Erdoğan heavily criticizes Assad for his violent actions on Syrian citizens. Also, Turkey and Russia has deep differences in their approach to the political crisis in Ukraine as well. Despite these, Russia is Turkey's second largest trade partner after Germany and Turkey imports 60 % of its gas from Russia.<sup>325</sup> Economic interests outran political differences between the two.

Putin's announcement has frustrated some EU Member States which had viewed South Stream as an alternative to the pipelines passing through Ukraine where sudden supply disruptions and political disputes with Russia endangers supplies to those countries. Most affected members are Austria, Bulgaria, Hungary and candidate Serbia. It is estimated that Bulgaria will also lose more than 400 million euros annual transit

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<sup>323</sup> Reuters. "Ukraine, Russia, EU agree to natural gas supply deal", accessed on 11 November 2014 at <http://www.reuters.com/article/2014/10/30/us-ukraine-crisis-gas-idUSKBN0II0XQ20141030>

<sup>324</sup> Reuters. "Putin drops South Stream gas pipeline to EU, courts Turkey", accessed on 8 December 2014 at <http://www.reuters.com/article/2014/12/01/us-russia-gas-gazprom-pipeline-idUSKCN0JF30A20141201>

<sup>325</sup> *Ibid.*



income.<sup>326</sup> So, Russia's cancellation of South Stream not only caused loss of future income for these countries on the route but it also stressed the importance of diversification of routes for EU Members dependent on Russian gas delivered through Ukraine.

## 2.8. RUSSIA-CHINA NATURAL GAS AGREEMENT

After facing economic sanctions by the EU and the U.S. as a result of the events in eastern Ukraine and annexation of Crimea, Russia immediately directed its attention to alternative markets to compensate any future commercial losses that could occur in case of a loss of demand in European markets as well as preserving its political stance. The EU consumes approximately 450 bcma gas and one third of it comes from Russia. Exports to European markets are a serious income source for Russian economy, a source Russia could not risk losing. 80 % of Gazprom's revenues come from gas exports to Europe. A loss of demand in European markets in the medium term could cost Gazprom billions of dollars. This moved Russian interests to Asia-Pacific markets.

In this context, in September 2007, the Development Program for the establishment of an integrated natural gas production, transportation and supply system in Eastern Siberia and Far East was put forward by Russian ministries of industry and energy. Eastern Gas Program targets the exportation of gas to China and Asia-Pacific countries via realization of the pipeline projects shown below in Map 7. Gazprom has been designated as the coordinator of the Program by the Russian government.<sup>327</sup>

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<sup>326</sup> Novinite. "Bulgaria's Foregone Revenue from South Stream Hard to Forecast – Energy Minister", accessed on 8 December 2014 at <http://www.novinite.com/articles/165170/Bulgaria%E2%80%99s+Foregone+Revenue+from+South+Stream+Hard+to+Forecast+%E2%80%93+Energy+Minister>

<sup>327</sup> Gazprom, "Eastern Gas Program", accessed on 12 April 2014 at <http://www.gazprom.com/about/production/projects/east-program/>



**Map 8: Pipeline Projects under the Eastern Gas Program.**<sup>328</sup>

Within this framework, Russia has long desired to export gas to China from European prices which is 350-450 dollars per 1,000 bcm of gas. It aimed to penetrate the energy hunger in the Asia-Pacific markets which have been growing at a faster pace than ever, in order to use this as a political leverage against the EU by creating an alternative source of income. However, China wanted to substitute coal with Russian gas and therefore did not want to pay Gazprom higher prices than it pays for coal, which was energy equivalent of 100 dollars of coal per 1,000 bcm gas.<sup>329</sup> This curtailed the construction of a gas pipeline between the two countries. On the other side, Russia also did not feel the immediate necessity to take concrete steps.

Nonetheless, Gazprom signed a strategic partnership agreement with China National Petroleum Corporation (CNPC) in 2004 and kicked off Altai natural gas pipeline project in 2006 as well as starting the construction of Siberia pipeline in 2007.<sup>330</sup> In 2009 Gazprom and CNPC signed the Framework Agreement on the major terms and conditions of natural gas supply from Russia to China envisaging annual exports of up to 68 billion cubic meters of gas to the Chinese market. In 2010 the Extended Major Terms of natural gas supply from Russia to China were signed. Construction of Altai natural gas pipeline was completed in 2013 whereas work on Siberia line is still

<sup>328</sup> Source: Gazprom, <http://www.gazprom.com/f/posts/69/808097/map-vostok-eng.jpg>

<sup>329</sup> Bobo LO. *Axis of Convenience: Moscow, Beijing and the New Geopolitics*. London: 2008, Chatham House. p. 149.

<sup>330</sup> Hürriyet. "Çin'le 400 milyar dolarlık gaz satışı için tarihi anlaşmayı imzaladı", accessed on 22 May 2014 at <http://www.hurriyet.com.tr/ekonomi/26462392.asp>

continuing.<sup>331</sup> Flow of natural gas has not started yet; but in September 2013 Gazprom and CNPC inked the Agreement on the major terms and conditions of pipeline gas supply from Russia to China via the eastern route.<sup>332</sup>

Accordingly, on 21 May 2014, Gazprom and CNPC have signed an energy agreement for gas exportation from Russia to China.<sup>333</sup> The agreement contains a deal for exportation of 38 bcma gas (upon the agreement of the Parties extendable to 68 bcma) to China at 350 dollars per 1,000 bcm for the next three decades.<sup>334</sup> The first delivery of gas is envisaged to start in 2018 through the eastern route and cooperation on the development of a western route is under discussion.<sup>335</sup> 55 billion dollars of investment will be actualized by Russia on its transmission system while total investments will reach 70 billion dollars.<sup>336</sup>

Russia will also receive 25 billion dollars of pre-payment from China to allocate Power of Siberia gas trunkline (unified gas transmission system encompassing the Yakutia and Irkutsk gas production centers designed for supplying natural gas to Russia's Far East and China) which will constitute the most basic part of the eastern route.<sup>337</sup> Gazprom announced that the agreement contains such major provisions as the price formula linked to oil prices and the 'take-or-pay' clause.<sup>338</sup> China's gas consumption is expected to double by 2018.

In 30 years, 1.14 trillion cubic meters of gas will be sold to Chinese markets and the total value of the contract is 400 billion dollars.<sup>339</sup> It equals a quarter of the gas export volumes to European markets.<sup>340</sup> Having regard to the fact that gas to Europe is exported at 380-420 dollars per 1,000 bcm, it is fair to say that China's insistence of

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<sup>331</sup> *Ibid.*

<sup>332</sup> Gazprom. "News release", accessed on 29 May 2014 at <http://www.gazprom.com/press/news/2014/may/article191451/?from=banner>

<sup>333</sup> "China and Russia sign historic gas deal", *op. cit.*

<sup>334</sup> *Hürriyet, op. cit.*

<sup>335</sup> "News release", *op. cit.*

<sup>336</sup> *Hürriyet, op. cit.*

<sup>337</sup> *Ibid.*

<sup>338</sup> "News release", *op. cit.*

<sup>339</sup> *Hürriyet, op. cit.*

<sup>340</sup> *Ibid.*

discounted prices have turned out at advantage.<sup>341</sup> Under normal conditions, 15-17 % profit is acceptable in the gas sector; but here it is lowered to 10 % for the exclusive consumption by Beijing. In other words, Russia gave commercial concessions to gain political advantages vis-à-vis the West.

Besides, the agreement will produce some commercial consequences for global gas markets as well. Because China pays higher for LNG imports, Russian exports to China will gain Beijing a negotiation power against LNG exporters. This could result in a decrease in Chinese demand for LNG and lower LNG prices globally due to global supply surplus.<sup>342</sup> This could also lead to cancellation of LNG projects by new exporters of gas in Australia, North America and the Eastern Mediterranean which intend to export LNG to Asia-Pacific markets, because it will reduce their financial capacity to pay off their investments in building LNG terminals and ships.<sup>343</sup> It is also reported that due to the unpredictability of the future of the LNG markets, some Asian customers avoid signing long term agreements for LNG imports and this has created pressure on LNG exporter countries and firms.<sup>344</sup>

The next chapter examines the shale gas production in the U.S. and its impact on the EU's energy security as well as its implications for the global energy markets.

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<sup>341</sup> *Ibid.*

<sup>342</sup> Henning GLOYSTEIN. Reuters. "Analysis-Russia-China gas deal creates benchmark for global market", accessed on 28 May 2014 at <http://uk.reuters.com/article/2014/05/22/uk-gas-russia-china-pipeline-idUKKBN0E219Y20140522>

<sup>343</sup> *Ibid.*

<sup>344</sup> *Ibid.*

### 3. IMPACT OF US SHALE GAS PRODUCTION ON THE EU'S ENERGY SUPPLY SECURITY

Shale gas production has recently lowered domestic gas prices, improved industrial competitiveness and reduced dependence on imported energy in the U.S. However, the impact of shale gas production have not remained limited with the U.S. and will certainly affect global LNG prices, pricing mechanisms for gas and other producers's strategies. The chapter will demonstrate how European and Asian gas markets, EU's energy supply security and Russia's gas exports will be influenced if the U.S. starts exporting its shale gas to the global markets.

#### 3.1. SHALE GAS

Shale gas is found in shale formations. Shale formations allow gas or oil to be stored naturally under the ground as they are fine-grained sedimentary rocks with low permeability.<sup>345</sup> Only a few years ago, with the joint use of horizontal drilling and hydraulic fracturing technologies, large volumes of shale gas was made available for economical recovery which was uneconomical before. Shale gas production rejuvenated the U.S. economy and made it possible to utilize the extraction technology worldwide.

Experience and knowledge acquired from Barnett shale play in Texas increased the efficiency of shale gas production in the U.S.<sup>346</sup> Suitable well locations in areas with potential for economical gas production are identified and surface and subsurface geology and seismic techniques are employed by geophysicists and geologists to develop maps of the subsurface.

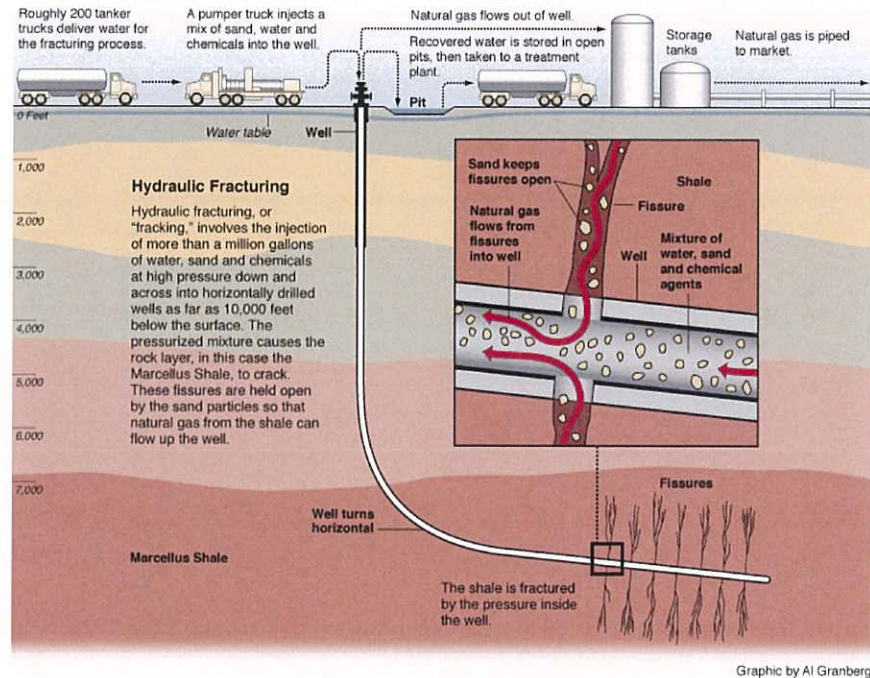
Hydraulic fracturing (commonly called fracking) extracts the gas with a method which creates fractures on the shale rocks by pumping water, chemicals and sand at high

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<sup>345</sup> "International Energy Outlook 2013", *op. cit.*, p. 42.

<sup>346</sup> *Ibid.*

pressure down and across into the horizontally drilled well.<sup>347</sup> Economical extraction of shale gas is made possible with joint use of hydraulic fracturing and horizontal drilling.

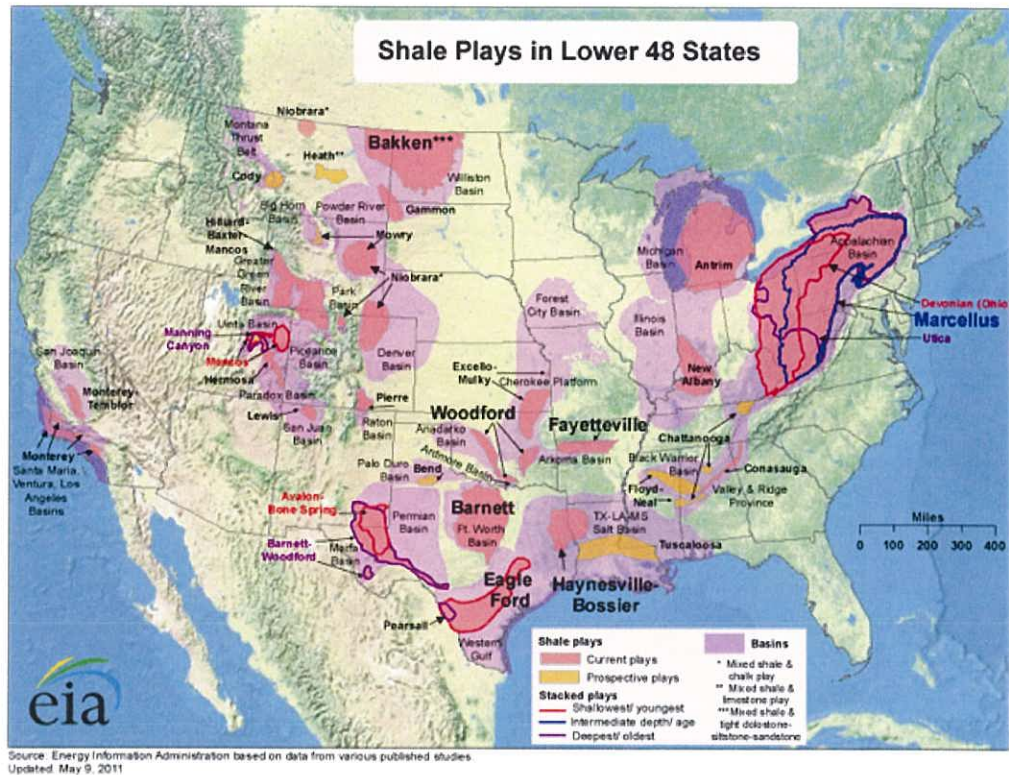


**Figure 3: Horizontal Drilling and Hydraulic Fracturing.**<sup>348</sup>

As shown in Figure 3, firstly shale rocks - 3,000 meters below the surface - are reached by vertical drilling, then drilling turns horizontal and more than 4 million litres of water, mixed with chemicals and sand, is injected into the drilled well at high pressure, this mix reaches the shale rocks through the holes on the horizontally drilled well and creates cracks on the rock which releases gas upwards to the surface. Sand makes the cracks remain open during the operation. Gas is injected into the storage tanks and delivered to the pipeline networks. Waste water is accumulated in open pits and then transported to a treatment plant. Keeping only 500 meter distance between wells is sufficient for producers to drill another well.

<sup>347</sup> *Ibid.*

<sup>348</sup> Source: ProPublica. <http://www.propublica.org/special/hydraulic-fracturing-national>



**Map 9: Shale gas resources in the U.S.**<sup>349</sup>

Shale plays shown in Map 9 are located in formations across the 48 states in the U.S. excluding Alaska. So far, shale gas has been produced mainly from the plays located in eastern and southeast parts of the U.S. and consumed by domestic customers.

However, there has been a rise in environmental concerns for potential harms in shale gas production. Hydraulic fracturing requires use of large volumes of water. It is claimed that use of large volumes of water could have a negative impact on other uses of water and natural habitats of aquatic creatures.<sup>350</sup> Secondly, any leak, dispersion or spill of the liquid mixed with chemicals through flawed well construction and other ways could contaminate the adjacent environment.<sup>351</sup> Thirdly, large volumes of waste water contain dissolved chemicals and other pollutants that require treatment before re-use or disposal. Therefore, it has become a challenging issue to treat and dispose the large volumes of recovered water.<sup>352</sup> According to the U.S. Geological Survey's

<sup>349</sup> Source: [http://www.eia.gov/energy\\_in\\_brief/article/about\\_shale\\_gas.cfm](http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm) Energy in Brief

<sup>350</sup> U.S. EIA, "Energy in Brief", accessed on 11 May 2014 at [http://www.eia.gov/energy\\_in\\_brief/article/about\\_shale\\_gas.cfm](http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm)

<sup>351</sup> *Ibid.*

<sup>352</sup> *Ibid.*

research, hydraulic fracturing could cause small earthquakes, too small to be a concern for safety though.

### 3.2. NATURAL GAS PRODUCTION, CONSUMPTION AND PRICING IN THE U.S.

On 30 March 2011, White House published the *Blueprint For A Secure Energy Future* which stresses affordable, clean and secure energy supply as well as detailing plans for supplying oil and gas from indigenous resources. President Barack Obama stated in his speech on the same date:

We cannot keep going from shock to trance on the issue of energy security, rushing to propose action when gas prices rise, then hitting the snooze button when they fall again. The United States of America cannot afford to bet our long-term prosperity and security on a resource that will eventually run out. Not anymore. Not when the cost to our economy, our country, and our planet is so high. Not when your generation needs us to get this right. It is time to do what we can to secure our energy future.<sup>353</sup>

Within the target of developing and ensuring indigenous energy supply, improvement of American innovation and technology is considered necessary to produce more energy in a safe and responsible manner at the local level and to become a leading country in global energy economy.<sup>354</sup>

In this scope, thanks to shale gas production gas prices have seen their lowest and it has helped reducing American dependence on imported energy since 2007. Domestic shale gas production in the U.S. shale gas revolution in 2008 has increased from 36 bcma in 2007 to 280 bcma in 2012.<sup>355</sup> As of 2010, share of shale gas in domestic gas production increased from 14 % in 2009 to 23 % in just one year.<sup>356</sup> The largest unconventional gas reserves are Barnett in Texas, Marcellus in New York and Pennsylvania and West

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<sup>353</sup> The White House. "Blueprint for a secure energy future", accessed on 28 May 2014 at [http://www.whitehouse.gov/sites/default/files/blueprint\\_secure\\_energy\\_future.pdf](http://www.whitehouse.gov/sites/default/files/blueprint_secure_energy_future.pdf)

<sup>354</sup> *Ibid.*

<sup>355</sup> Anadolu Agency. "US crude oil exports to lower global energy prices", accessed on 3 November 2014 at <http://www.aa.com.tr/en/economy/397560--us-crude-oil-exports-to-lower-global-energy-prices>

<sup>356</sup> Jacopo BELLELLI. "The Shale Gas Revolution in the United States: Global Implications, Options for the EU". Directorate General for External Policies: European Parliament, 2013. p. 4.



Virginia shale reserves.<sup>357</sup> Barnett reservoir started production in late 1990s and is only one of the many production facilities across the U.S.<sup>358</sup> Lower prices rejuvenated growth in the country by providing employment for 600,000 people and boosting improvement in industrial and manufacturing sectors.<sup>359</sup>

Thanks to shale gas production, American dependence on imported oil decreased from 60 % in 2005, to 39 %. As of January 1, 2011, total proved and unproved U.S. natural gas resources (total recoverable resources) were estimated to total 63 tcm. The U.S. is closer now to being completely self-sufficient in production of hydrocarbons and it will leave behind, the biggest oil and gas producers, Saudi Arabia by 2020 and Russia by 2015.<sup>360</sup>

As shown in Graphic 3, the U.S. Energy Information Administration's *Annual Energy Outlook 2013* indicates that the 44 % increase in gas production, expected to occur between 2011 and 2040, will stem from development of shale gas, tight sand gas and coal-bed methane resources as well as highlighting the fact that shale gas is expected to make the largest contribution to the additional gas production with a 113 % increase in its share from 34 % in 2011 to % 50 in 2040.<sup>361</sup> Although the share of tight sand gas and coal-bed methane is expected to fall, their production will rise by 25 % and 24 % between 2011 and 2040; however the increase in coal-bed methane production will not take place before 2035 during which demand for natural gas and prices thereof will peak.<sup>362</sup>

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<sup>357</sup> *Ibid.*, p. 5.

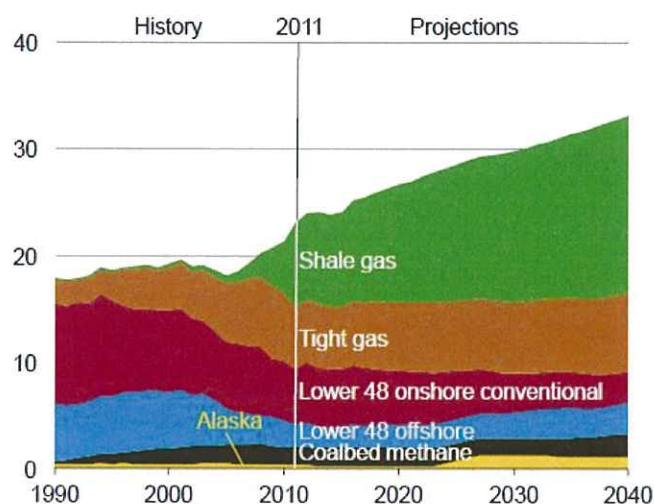
<sup>358</sup> *Ibid.*

<sup>359</sup> *Ibid.*, p. 6.

<sup>360</sup> *Ibid.*

<sup>361</sup> U.S. EIA. "Annual Energy Outlook 2013". p. 79

<sup>362</sup> *Ibid.*



**Graphic 3: Natural gas production by sources in the U.S., 1990-2040 (trillion cubic feet)<sup>363</sup>**

Besides, offshore gas production is expected to increase by 35 % between 2014 and 2040. A production increase in Alaska is expected as well with the exportation of Alaskan LNG in 2024, reaching 22 bcma in 2027. By 2040, natural gas production in Alaska will reach 33 bcma. Even though an increase in U.S. gas production is observed in the projection studies, onshore non-associated natural gas production will fall from 102 bcma in 2011 to 53 bcma in 2040. Hereby, the share of onshore non-associated natural gas production in domestic consumption will fall from 16 % in 2011 to 6 % in 2040.<sup>364</sup>

Hot competition between coal and gas observed so far in U.S. power generation sector will continue to exist in specific parts of the country.<sup>365</sup> However, coal-fired power plants will regain the popularity and market share they have lost lately due to a boost in shale gas production, because gas prices are expected to rise at a faster pace. Gas-fired power plants are expected to be preferred for their high efficiency and low-costs in new installed capacity. Share of natural gas in power generation is expected to reach from 24 % in 2011 to 27% in 2025 and to 30 % in 2040.<sup>366</sup> Coal will continue to be the primary

<sup>363</sup> *Ibid.*

<sup>364</sup> *Ibid.*

<sup>365</sup> *Ibid.*, p. 39.

<sup>366</sup> *Ibid.*, p. 5.

source in power generation, whereas its share has fallen from 51 % in 2003 to 42 % in 2011 and is expected to fall to 35 % in 2040.<sup>367</sup>

On the other hand, natural gas use in industrial production is also expected to rise from 192 bcma in 2011 to 220 bcma in 2025.<sup>368</sup> As of 2025, its growing pace will slow.<sup>369</sup> Total gas consumption will increase in the U.S. from 690 bcma in 2011 to 835 bcma in 2040. Natural gas use in the U.S. is expected to increase in all sectors other than household consumption.<sup>370</sup> Decrease in household consumption of gas emanates from higher efficiency in household applications and migration of population to warmer regions of the country.<sup>371</sup> In this respect, there emerges a common view that increased gas production, consumption and potential exportation will increase the prices. Gas prices are formed on a demand and supply basis at “Henry Hub”, the most renowned pricing point in the U.S.

Recently, gas prices have stayed low thanks to the supply surplus in the internal market and efficient production methods, however due to new production development costs emanating from the need to supply the growing demand and exportation, prices will rise again at Henry Hub.<sup>372</sup> Natural gas spot prices at Henry Hub are expected to increase 2.4 % every year and reach from 4 dollars per million Btu to 7.83 dollars (2011 dollars) per million Btu in 2040.<sup>373</sup>

As shown in Graphic 4, natural gas prices remain low at the beginning of the projection period, as producers continue to extract natural gas resources from the most productive and inexpensive areas. Over time, however, the depletion of resources in inexpensive areas leads producers to basins where recovery of the gas is more difficult and more

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<sup>367</sup> *Ibid.*, p. 39.

<sup>368</sup> *Ibid.*, p. 5.

<sup>369</sup> *Ibid.*

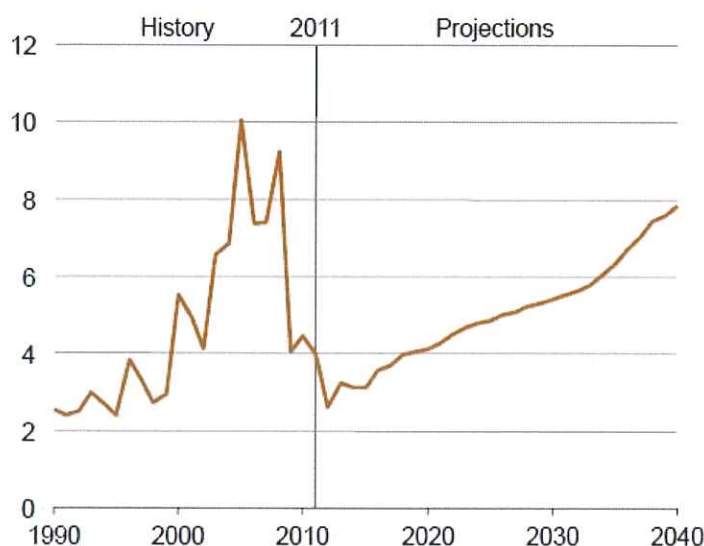
<sup>370</sup> *Ibid.*, p. 76.

<sup>371</sup> *Ibid.*

<sup>372</sup> *Ibid.*

<sup>373</sup> *Ibid.*

expensive, causing the cost of production to rise gradually.<sup>374</sup> Prices begin to rise after 2015, and they continue rising in the projection through 2040.<sup>375</sup>



**Graphic 4: Annual average Henry Hub spot natural gas prices, 1990-2040 (2011 Dollars per 1 million Btu)<sup>376</sup>**

### 3.3. SHALE GAS POLICIES AND PRODUCTION POTENTIAL IN THE EU

The Council of the EU stresses in its 4 February 2011 decisions that sustainable production potential of conventional and unconventional fossil fuel sources like shale gas and shale oil must be evaluated in order to ensure security of supply of Europe.<sup>377</sup>

European Parliament calls for provision of necessary administrative and monitoring sources for sustainable shale gas activities and stands for strong regulatory regimes to deal with environmental concerns rather than putting a ban on it.<sup>378</sup> The Commission's

<sup>374</sup> *Ibid.*

<sup>375</sup> *Ibid.*

<sup>376</sup> *Ibid.*

<sup>377</sup> "4 February 2011 Conclusions", *op. cit.*

<sup>378</sup> European Parliament. "Parliament Resolution on Industrial, Energy and Other Aspects of Shale Gas and Oil", accessed on 28 May 2014 at <http://www.europarl.europa.eu/sides/getDoc.do?type=REPORT&language=EN&reference=A7-0284/2012>

“European Energy Security Strategy” attaches importance to the issue by identifying it as a key action:

- Member States should assess the potential of unconventional hydrocarbons taking full account of Recommendation 2014/70/EU in order to ensure that the highest environmental standards are implemented;
- The Commission will launch a European science and technology Network on unconventional hydrocarbon extraction.<sup>379</sup>

Leading shale gas reserves are located in Western and Northern parts of Europe. Against the U.S. potential of 24 tcm, recoverable shale gas potential across Europe is 17 tcm. Europe is home to 10 % of global shale gas resources. The largest reserves in Europe are in Poland (5.2 tcm), France (5 tcm) and Norway (2.3 tcm).<sup>380</sup> Besides, Ukraine, Sweden, Denmark and the United Kingdom have remarkable basins.

As can be concluded from Map 10, despite their vast resource potential, France, Czech Republic, Luxembourg, the Netherlands and Bulgaria banned shale gas exploration and extraction activities putting forward diverse reasons including environmental concerns. France, Czech Republic and Bulgaria banned hydraulic fracturing as a provisional measure. Bans mainly build upon the environmental risks related with water pollution as a consequence of hydraulic fracturing. On the other hand, Poland, Romania and the United Kingdom support exploration and extraction of shale gas.<sup>381</sup>

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<sup>379</sup> “European Energy Security Strategy”, *op. cit.*

<sup>380</sup> Bellelli, *op. cit.*, p. 16.

<sup>381</sup> *Ibid*, p. 17.



**Map 10: Shale gas extraction permits and activities in Europe.**<sup>382</sup>

Especially Poland is strongly in favor of shale gas production for reducing its reliance on Russian gas.<sup>383</sup> Polish government gave priority to legislative and regulatory efforts regarding shale gas exploration and extraction activities at basins in the Baltic Sea, Lublin and Podlaise. Poland licensed the U.S.'s Chevron and various firms for exploration and well testing activities.

The United Kingdom is considering shale gas production to balance the decrease in the production of its conventional sources.<sup>384</sup> In May 2010, British House of Commons' Energy and Climate Change Committee concluded that there was no concrete evidence regarding subsurface water pollution as a consequence of hydraulic fracturing. In December 2012, the United Kingdom abolished the one-year ban on exploration of shale gas which was put with the fear of earthquakes. In order to simplify the regulatory framework in shale gas industry and provide a tax reduction, British authorities established the Department of Unconventional Oil and Gas.

<sup>382</sup> Source: <http://www.economist.com/news/business/21571171-extracting-europes-shale-gas-and-oil-will-be-slow-and-difficult-business-frack-future>.

<sup>383</sup> Bellelli, *op. cit.*, p. 17.

<sup>384</sup> *Ibid.*

In February 2011 Energy Council in the Netherlands published a report strongly in favor of shale gas.<sup>385</sup> However, public protests obliged Dutch authorities to take a step back and not to take further decisions without acquiring sufficient information on environmental and social dimensions. Public opposition has also been present in Sweden and Germany.<sup>386</sup> Nevertheless, Germany is looking for ways to compensate the supply gap that will come out of phasing out nuclear power with shale gas production. Despite moderate shale gas reserves (226 bcm) in the country, Germany has permitted exploration activities in Northern Rhine Westphalia region.

The competitive gas prices in the U.S. has led to increased U.S. coal exports to Europe where gas prices are higher and coal is preferred as an alternative fuel by power generators. It is reported that, the U.S. coal exports rose 24 % and hit a record of 66.2m short tons in the first half of 2012.<sup>387</sup> About 13 % of U.S. coal production which represented more than half of the exports went to Europe.<sup>388</sup> From a peak in July 2008 of 161 dollars a ton for central Appalachian steam or thermal coal, used to generate power, the price of the U.S. coal fell to 63 dollars.<sup>389</sup> It is also reported that the fall in the price of carbon dioxide emissions permits in the EU's trading scheme has encouraged utilities to switch from burning gas to coal, which creates higher emissions.<sup>390</sup>

There is no European-wide consensus over shale gas production. Public opposition differs the way governments act. Many countries pursue a policy of "wait and see". A significant political dynamic inside the EU is missing toward the development of shale gas.<sup>391</sup> Contrary to the U.S., population density and widespread urbanization in Europe hinders the exploration and production activities on most of territories with high potential.<sup>392</sup> Furthermore, landownership law in the EU, like in the U.S., provides the

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<sup>385</sup> *Ibid.*

<sup>386</sup> *Ibid.*

<sup>387</sup> Financial Times. "US coal exports to Europe soar", accessed on 13 November 2014 at <http://www.ft.com/intl/cms/s/0/fbf0b9fa-0d63-11e2-97a1-00144feabdc0.html#axzz3IwvjK0Y5>

<sup>388</sup> *Ibid.*

<sup>389</sup> *Ibid.*

<sup>390</sup> *Ibid.*

<sup>391</sup> Roderick KEFFERPÜTZ. (2010) "Shale Fever: Replicating the US Gas Revolution in the EU?" Centre for European Policy Studies (CEPS) Policy Brief No. 210, p. 5.

<sup>392</sup> "Annual Energy Outlook 2013", *op. cit.*, p. 18.

states with the possession of subsurface resources and does not permit landowners to be awarded a share from the extraction activities.<sup>393</sup> Negotiations with hundreds of landowners for land access and production rights is another major obstacle since shale gas extraction necessitates acquirement of large land holdings.<sup>394</sup> Expertise and technology required for efficient production of shale gas is not found in Europe yet, as well as the strong presence of public opposition and concerns for transparency and negative effects on human health and the environment. Inevitably, public opposition could draw a much more different portrait in Europe than the one in the U.S. Shale gas production cannot be expected to transform thoroughly the EU's internal energy market, yet still significant benefits such as national policies of Member States, dependence rates on imports, demand for gas and social acceptance could result in an increase in government revenues and private sector employment and a reduction in dependence on imported energy.<sup>395</sup>

### 3.4. THE UNITED STATES: A NET EXPORTER OF NATURAL GAS

*Annual Energy Outlook 2013* by the U.S. EIA states that by 2019, natural gas production will outrun domestic consumption increasing by 1.3 % annually and this will make the country a net exporter of natural gas, thus eliminating import dependence in gas.<sup>396</sup> Net natural gas exports of the U.S. is expected to reach 102 bcma in 2040 most of which is foreseen to compensate the production and consumption gap in Mexico. There will be a sharp decrease in natural gas imports from Canada as of 2016 to 2022, then reaching stability.<sup>397</sup>

Current volumes of LNG imports will also cease after the U.S. becomes a net exporter of gas by 2016.<sup>398</sup> Excluding the exports from Kenai facility in Alaska, exports from the

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<sup>393</sup> *Ibid.*

<sup>394</sup> Jude CLEMENTE. "Shale Gas in Europe: Challenges and Opportunities" USAEE Working Paper No. 2142176, San Diego State University: 2012.

<sup>395</sup> "Annual Energy Outlook 2013", *op. cit.*, p. 18.

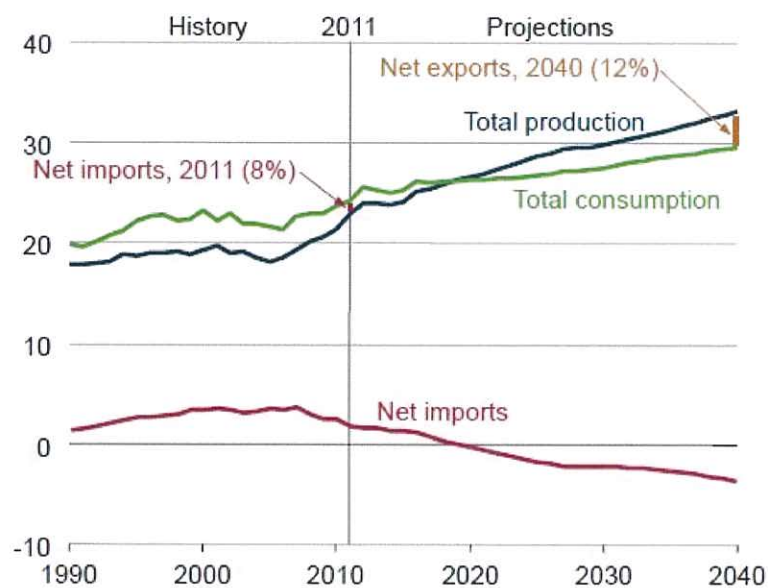
<sup>396</sup> *Ibid.*, p. 3

<sup>397</sup> *Ibid.*

<sup>398</sup> *Ibid.*



U.S. domestic production is estimated to start in 2016 and reach 45 bcma in 2027.<sup>399</sup> Half of the exports is expected to be from the mainland U.S. whereas the other half will be realized from Alaska. However, it is not possible to mention with certainty about the conditions of exportation which will mainly depend upon immeasurable factors including deep subsea reservoirs and shale gas resources in overseas countries as well as the resources in the Poles.<sup>400</sup> The speed and extent of price convergence in global gas markets and the competitiveness of natural gas against fuel oil in the domestic and international markets could be counted among the main factors upon which the future of U.S. LNG exports depend.<sup>401</sup>



**Graphic 5: Total volumes of natural gas production, consumption and net exports in the U.S. according to Reference Scenario, 1990-2040 (trillion cubic feet)<sup>402</sup>**

As can be conferred from Graphic 5, the U.S. imported 56 bcm gas in 2011. From 2020 to 2040 exports will increase by 17.7 % annually. Having regard to the data on the graph, 8 % of the consumption in the U.S. is imported gas. In 2020, net exports will be less than 1 % of the domestic consumption; however it is expected to reach 12 % in 2040. The U.S. gas exports are estimated to increase by 1 % annually from 2011 to

<sup>399</sup> *Ibid.*

<sup>400</sup> *Ibid.*

<sup>401</sup> *Ibid.*

<sup>402</sup> *Ibid.*

2040.<sup>403</sup> Total gas production will reach 850 bcma in the U.S. as of 2016 and 102 bcma is estimated to be exported via pipelines or as LNG in 2040.

In conclusion, exports to Mexico are expected to reach from 14 bcma in 2011 to 68 bcma in 2040.<sup>404</sup> Excluding the exports from Kenai facility in Alaska, exports from the U.S. domestic production is estimated to start in 2016 and reach 45 bcma in 2027.<sup>405</sup> Report indicates that more optimistic resource assumptions and scenarios put forth exportation of 113 bcma in which all additional export volumes will be from 48 mainland states.<sup>406</sup> In this respect, according to changing price and production conditions depending upon many factors, the U.S. is expected to export volumes of LNG changing between 45 bcma and 113 bcma by 2040.

### 3.5. ASSESSMENT

Russia has recovered state authority and ownership over hydrocarbon resources by eliminating oligarchs from the energy production and turning foreign firms into minor partners to Gazprom in upstream development fields. Then, Russia lifted subsidies in gas prices for former USSR countries including Georgia, Belarus, Ukraine and Armenia, in order to exert price pressure and political influence on its “regions of privileged interests” for keeping these countries away from military and economic integration with “the West”. Likewise, Gazprom’s export strategy has enabled Russia to increase national wealth by taking advantage of global rises in oil and gas prices, curtail liberalization and establishment of a properly functioning, competitive single market in gas and restrain the arrival of new entrants in the market, create disunity among Member States and hamper solidarity in EU decision-making regarding a coherent external energy policy. In addition, Gazprom has been implementing a strategy toward attainment of the ownership and control of downstream distribution assets and operation across Europe and this reinforces the dominant position of Gazprom both as a gas producer and a supplier in the EU markets.

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<sup>403</sup> *Ibid.*, p. 78.

<sup>404</sup> *Ibid.*, p. 79.

<sup>405</sup> *Ibid.*

<sup>406</sup> *Ibid.*, p. 3.

In case of a political crisis, the EU's dependence on Russian gas restricts the Union's ability to apply further political and economic sanctions on Russia and creates vulnerability for Member States. This vulnerability leaves the EU open to Russia's political and military assertiveness. Current political conflict between the EU, Ukraine and Russia since November 2013, has put Brussels on a knife edge both in terms of the necessity to actively respond to the destabilization efforts of Russia in Ukraine and of the need to ensure uninterrupted and affordable flow of gas to European markets.

In response to this vulnerability, the EU strategically attaches particular importance to:

- 1) Diversification of gas sources and routes of transportation to gain negotiation power against Gazprom in gas sales and purchase contracts,
- 2) Gaining the required flexibility and diversification supply sources to effectively stand against Russia's military and political actions in its adjacent neighborhood,
- 3) Having secondary supply and storage means against disruptions such as those in 2009 and 2014,
- 4) Development of competitive spot and hub markets based on balance of supply and demand for natural gas trade rather than continuing with contracts containing oil-indexed prices and take-or-pay obligations,
- 5) Establishment of a coherent, unified external energy policy and ensuring solidarity among Member States.

On the other hand, Russia's endeavors to diversify its demand portfolio by signing a gas deal with China could be considered as an attempt to find alternative markets and transportation routes for Gazprom vis-à-vis political confrontations with the EU. Russian strategy is not limited to Chinese markets though. It also includes a vision for penetrating other markets in the Asia-Pacific region such as Japan with increasing demand for natural gas after Fukushima disaster, and South Korea with a developing industrial production and manufacturing sector. However, China alone could not be accepted as a way out for Russia because increasing dependence on Chinese markets for federal revenues and national economic growth would lead to Beijing's political influence over Moscow. Therefore, a balanced and diversified market approach weighing equally between European and Asian markets is also important for Russian export strategy.

To this end, Gazprom has taken steps toward constructing LNG export terminals on Russia's Pacific shores including plans for Sakhalin Island and Vladivostok.<sup>407</sup> Currently, Russia lacks internal infrastructure to meet the growing demand for gas in Asia. Thus, new pipelines will be constructed that could cost billions of dollars. Nevertheless, realization of exports to China via new pipelines is expected to make room for Gazprom at markets located in China's eastern shores, Japan and South Korea as well as providing a geographical advantage for the firm in the region vis-à-vis North African, Australian and North American exporters.<sup>408</sup>

On 1 December 2014, at a visit to Turkey, Putin announced the withdrawal of the project by accusing the EU sanctions and lack of construction permits on EU territories of hampering the construction work. Instead, Putin offered to pass the pipeline through Turkey which could become a hub for supplying Southern Europe at the Turkish-Greek border. Putin also offered 6 % discounts in gas purchased by Turkey.<sup>409</sup> However, Turkey is at odds with Russia in regional political matters such as the civil war in Syria. Putin backs Syrian President Assad while Turkish President Erdoğan heavily criticizes Assad for his violent actions on Syrian citizens. Also, Turkey and Russia has deep differences in their approach to the political crisis in Ukraine as well. Despite these, Russia is Turkey's second largest trade partner after Germany and Turkey imports 60 % of its gas from Russia.<sup>410</sup> Economic interests outran political differences between the two.

Putin's announcement has frustrated some EU Member States which had viewed South Stream as an alternative to the pipelines passing through Ukraine where sudden supply disruptions and political disputes with Russia endangers supplies to those countries. Most affected members are Austria, Bulgaria, Hungary and candidate Serbia. It is estimated that Bulgaria will also lose more than 400 million euros annual transit

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<sup>407</sup> Gloystein, *op. cit.*

<sup>408</sup> *Ibid.*

<sup>409</sup> Reuters. "Putin drops South Stream gas pipeline to EU, courts Turkey", accessed on 8 December 2014 at <http://www.reuters.com/article/2014/12/01/us-russia-gas-gazprom-pipeline-idUSKCN0JF30A20141201>

<sup>410</sup> *Ibid.*

income.<sup>411</sup> So, Russia's cancellation of South Stream not only caused loss of future income for these countries on the route but it also stressed the importance of diversification of routes for EU Members dependent on Russian gas delivered through Ukraine.

The EU does not possess the merit the other actors might take for granted: "namely, actorship flowing from sovereign state status".<sup>412</sup> The EU as an international legal personality has to be mandated by the unanimous decision of the Member States to conduct a coherent and active external energy policy.<sup>413</sup> However, the EU's heavy reliance on Russian gas supplies and Gazprom's discriminatory gas export strategy have led to disunity among Member States in speaking with one voice in external energy relations. Thus, Russia has a strategic advantage in political confrontations with the EU. Now that the gas deal with China provides an alternative market for Russian gas for the coming decades, the EU has to intensify efforts to find alternative suppliers. In spite of the advantages at hand, Russia is also aware of the limits to European patience. Putin very well knows that direct military involvement of Russia in Ukraine is the red line and it would trigger harsher EU sanctions on Moscow due to then increased public pressure and international reactions. That is why, instead of direct military intervention, Moscow prefers arming opposition groups to occupy government buildings in eastern Ukraine where Russian-speaking population are in majority.

In view of the gravity of the political situation in Ukraine, the EU is under pressure to find alternative gas sources and transportation routes for ensuring its security of supply. In this scope, Iraq, Iran, Turkmenistan and U.S. LNG are the leading medium and long term options for diversification in source countries for the EU. Islamic State's expansion in Iraq as well as the presence of a commercial and political dispute between

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<sup>411</sup> Novinite. "Bulgaria's Foregone Revenue from South Stream Hard to Forecast – Energy Minister", accessed on 8 December 2014 at <http://www.novinite.com/articles/165170/Bulgaria%E2%80%99s+Foregone+Revenue+from+South+Stream+Hard+to+Forecast+%E2%80%93+Energy+Minister>

<sup>412</sup> Rafael LEAL-ARCAS and Andrew FILIS. "Conceptualizing EU Energy Security Through an EU Constitutional Law Perspective" *Fordham International Law Journal*, Vol. 36, pp. 1224-1300, 2013, Queen Mary School of Law Legal Studies Research Paper No. 148/2013, p. 1298.

<sup>413</sup> For a legal understanding of the competences of the Member States and the EU in energy supply security please see: Sanam S. HAGHIGHI, (2008), "Energy Security and the Division of Competences between the European Community and its Member States". *European Law Journal*, 14: 461–482.

the central government and Kurdistan Regional Government over distribution of energy exports revenues, absence of solid results of the agreement reached over Iran's nuclear programme and inability to construct the Trans-Caspian Natural Gas Pipeline due to disputes over Azerbaijan and Turkmenistan over borders on the Caspian Sea makes the U.S. shale gas sources the most viable and available option for the EU after TANAP/TAP.

Shale gas is expected to make the largest contribution to the additional gas production with a 113 % increase in its share from 34 % in 2011 to % 50 in 2040. The the U.S. becomes a net exporter of gas by 2016.<sup>414</sup> Excluding the exports from Kenai facility in Alaska, exports from the U.S. domestic production is estimated to start in 2016 and reach 45 bcma in 2027.<sup>415</sup> More optimistic resource assumptions and scenarios put forth exportation of 113 bcma in which all additional export volumes will be from 48 mainland states.<sup>416</sup> In this respect, according to changing price and production conditions depending upon many factors, the U.S. is expected to export volumes of LNG changing between 45 bcma and 113 bcma by 2040.

Currently, the EU averagely imports 150 bcma gas from Russia which approximately makes up one third of European gas consumption. TANAP/TAP is expected to provide 31 bcma gas at full capacity. Additional 50-70 bcma gas import from the U.S. complemented with the gas supplied by TANAP/TAP is likely to give the EU considerable negotiation power and political advantage vis-à-vis Russia. Furthermore, U.S. exports could also contribute to the establishment of competitive spot and hub markets like Henry Hub and NBP across Europe. One of the reasons is that the prices will be linked to Henry Hub where supply and demand is determining the prices rather than oil-indexation. Another reason is that the exporters from the U.S. will be composed of various competitive private sector firms unlike Russia's state-owned giant monopoly Gazprom.

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<sup>414</sup> "Annual Energy Outlook 2013", *op. cit.*, p. 79

<sup>415</sup> *Ibid.*

<sup>416</sup> *Ibid.*, p. 3.

Recently, gas prices have stayed low in the U.S. thanks to the supply surplus in the internal market and efficient production methods, however due to new production development costs emanating from the need to supply the growing demand and exportation, prices will rise again at Henry Hub.<sup>417</sup> Natural gas spot prices at Henry Hub are expected to increase 2.4 % every year and reach from 4 dollars per million Btu (140 dollars per 1000 cubic meters) to 7.83 dollars (275 dollars per 1000 cubic meters, 2011 dollars) per million Btu in 2040.<sup>418</sup> Liquefaction, transportation and re-gasification costs are expected to add to 7.83 dollars and make it 10-11 dollars (350-385 dollars per 1000 cubic meters).<sup>419</sup> Currently, per million Btu gas is 11-12 dollars in Europe (385-420 dollars per 1000 cubic meters) whereas it reaches 16 dollars in Asian markets (560 dollars per 1000 cubic meters).<sup>420</sup>

These price differences have directed the U.S. exporters' attention to profitable Asian markets where LNG prices are higher than Europe. However, Russia-China agreement will produce some commercial consequences for global gas markets as well. Because China pays higher for LNG imports, Russian exports to China (350 dollars per 1000 cubic meters against current 560 dollars) will confer Beijing a negotiation power against LNG exporters. This could result in a decrease in Chinese demand for LNG after 2018 and lower LNG prices globally due to global supply surplus. Convergence of prices in Asian markets and European markets at 12 dollars per million Btu (decreasing from 16 dollars in Asian markets) will make no difference in Asian and European markets for American exporters. European markets will become even more profitable as they are geographically closer to the eastern parts of the U.S. where shale gas resources are mainly located. This could also lead to cancellation of LNG projects by new exporters of gas in Australia, North America and the Eastern Mediterranean which intend to export LNG to Asia-Pacific markets, because it will reduce their financial capacity to pay off their investments in building LNG terminals and ships. Having regard to the

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<sup>417</sup> *Ibid.*, p. 76.

<sup>418</sup> *Ibid.*

<sup>419</sup> Bloomberg. "Russia-China Natural Gas Deal to Set LNG Price Floor Bank of America Says", accessed on 28 May 2014 at <http://www.bloomberg.com/news/2014-05-27/russia-china-natural-gas-deal-to-set-lng-price-floor-bofa-says.html>

<sup>420</sup> *Ibid.*

facts that the U.S. will have the capacity to export<sup>421</sup> 45-113 bcma by 2027-2040 and that the country will become the largest natural gas producer in the world leaving Russia behind by 2035, Washington will take a chance to sell its LNG in the international markets as a growing energy actor and producer.

Increasing domestic consumption, unprecise information about the exact size of the economically recoverable resources, construction of LNG terminals and export licensing are the main issues to be dealt with in order to put forward a direct and clear argument regarding the short-term possibilities for U.S. gas exports to Europe. Political, legal and technical barriers are likely to delay exports from the U.S. to Europe. The U.S. industries have gained considerable global competitiveness compared to European and Asian producers thanks to lowered gas prices in the domestic market which has made it possible to produce goods at lower costs. In order for the U.S. government to protect and sustain this competitiveness, it is claimed by European and Asian manufacturers and industrial producers that Washington has deliberately been delaying or hindering licensing of LNG export activities and terminals and thus infringing WTO rules, because exporting gas to overseas will increase domestic gas prices. Thus, absence of LNG export terminals in the U.S. could serve as an indicator for such claims.

Legally, the Energy Policy and Conservation Act of 1975 put a ban on most U.S. oil exports to stifle the impact of future oil embargos by foreign oil producing countries after the 1973 Arab oil embargo shook the U.S. with high world oil prices. However, now that Russia's invasion of Crimea is in place, there emerged arguments to lift the four-decades ban, to the effect that the U.S. could export natural gas to Europe and reduce the region's dependence on Russia.<sup>422</sup> Under rules imposed after the Arab oil embargo of the 1970s, U.S. companies can export refined fuel such as gasoline and diesel but not oil itself except in limited circumstances that require a special license. The embargo essentially excludes Canada, where U.S. oil can flow with a special

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<sup>421</sup> For a macro-economic analysis of U.S. Shale Gas Exports please see: Vipin ARORA and Yiyong CAI. "U.S. Natural Gas Exports and Their Global Impacts" Centre for Applied Macroeconomic Analysis, Working Paper 22/2014.

<sup>422</sup> International Business Times. "Why The U.S. Bans Crude Oil Exports: A Brief History", accessed on 3 November 2014 at <http://www.ibtimes.com/why-us-bans-crude-oil-exports-brief-history-1562689>



permit.<sup>423</sup> The U.S. also has restrictions on exporting natural gas which allowed U.S. companies to export liquefied natural gas (LNG) to countries with which the U.S. has a free trade agreement (FTA); while LNG exports to non-FTA countries have to be firstly authorized by the U.S. Department of Energy.<sup>424</sup>

There have been tough negotiation talks over Transatlantic Trade and Investment Partnership (TTIP) between the U.S. and the EU on a wide range of issues including environmental protection and food security. Both sides believe in a deep and broad free-trade deal as the best way to create jobs, removing burdens and customs duties on businesses. In this scope, President Obama paid a visit to Brussels on 26 March 2014 for talks over TTIP and Ukraine crisis. At a press conference, he stated that the EU could not just rely on the U.S. energy to reduce dependence on Russia. He also stressed that once the U.S. and the EU have a trade agreement in place, “export licences for projects for LNG destined to Europe would be much easier, something that is obviously relevant in today’s geopolitical environment” adding that it could not happen over night.<sup>425</sup> It is reported that during a 65-minute lunch, European Council’s President Herman Van Rompuy and European Commission’s President Jose Manuel Barroso pressed Obama to step up U.S. gas exports, but he responded bluntly in telling the Europeans that they needed to take politically difficult steps to develop their own resources in a clear reference to opposition in parts of the EU on environmental grounds to nuclear power and the extraction of shale gas.<sup>426</sup>

Obama’s suggestion regarding domestic shale gas production within the EU is problematic. There is no European-wide consensus over shale gas production. Public opposition differs the way governments act. Many countries pursue a policy of “wait and see.” Contrary to the U.S., population density and widespread urbanization in Europe hinders the exploration and production activities on most of the territories with

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<sup>423</sup> The Wall Street Journal. “U.S. Ruling Loosens Four-Decade Ban On Oil Exports”, accessed on 3 November 2014 at <http://online.wsj.com/articles/u-s-ruling-would-allow-first-shipments-of-unrefined-oil-overseas-1403644494>

<sup>424</sup> “US crude oil exports to lower global energy prices”, *op. cit.*

<sup>425</sup> Reuters. “Obama tells EU to do more to cut reliance on Russian gas”, accessed on 28 May 2014 at <http://www.reuters.com/article/2014/03/26/us-usa-eu-summit-idUSBREA2P0W220140326>

<sup>426</sup> *Ibid.*

high potential.<sup>427</sup> Furthermore, landownership law in the EU, like in the U.S., provides states with the possession of subsurface resources and does not permit landowners to be awarded a share from the extraction activities.<sup>428</sup> Expertise and technology required for efficient production of shale gas is not found in Europe yet, as well as the strong presence of public opposition and concerns for transparency and negative effects on human health and the environment. Inevitably, public opposition could draw a much more different portrait in Europe than the one in the U.S. Shale gas production cannot be expected to transform thoroughly the EU's internal energy market, yet still significant benefits such as national policies of Member States, dependence rates on imports, demand for gas and social acceptance could result in an increase in government revenues and private sector employment and a reduction in dependence on imported energy.<sup>429</sup>

Technically, LNG import terminals are available for large volumes of LNG imports from the U.S. There are totally 21 LNG import terminals in Belgium, France, Greece, Italy, the Netherlands, Portugal, Spain, Sweden, Norway and the United Kingdom available for a total capacity of 176 bcm.<sup>430</sup> 33 % of this capacity was used in 2013 which constituted 19 % of the EU's gas imports (59 bcm).<sup>431</sup> If we assume this volume as average, annually 117 bcm capacity (66 %) is available for LNG imports from the U.S. and other producers. However, billions of dollars investment is needed to construct the necessary infrastructure including LNG liquefaction facilities, LNG tankers and interconnections in European markets. It is estimated that actualization of these investments, construction duration and signing of sales and purchases agreements will take at least seven years as of today.<sup>432</sup> This indicates to 2020 as the starting year for LNG exports to Europe.

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<sup>427</sup> Bellelli, *op. cit.*, p. 18.

<sup>428</sup> *Ibid.*

<sup>429</sup> *Ibid.*

<sup>430</sup> Gas Infrastructure Europe. "LNG Map", accessed on 28 May 2014 at [http://www.gie.eu/download/maps/2013/GLE\\_LNG\\_JULY2013.pdf](http://www.gie.eu/download/maps/2013/GLE_LNG_JULY2013.pdf)

<sup>431</sup> BP, "Statistical Review of World Energy 2013", accessed on 28 May 2014 at

[http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical\\_review\\_of\\_world\\_energy\\_2013.pdf](http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf)

<sup>432</sup> F. William ENGBAHL. (2014). "Replacing Russian Gas Deliveries with US Shale Gas? Washington Lies to the EU", accessed on 28 May 2014 at <http://www.globalresearch.ca/replacing-russian-gas-deliveries-with-us-shale-gas-washington-lies-to-the-eu/5377358>

*Currently*, the U.S. shale gas production has already expanded the global supply of natural gas and provided new supply opportunities for Europe by making previous volumes of LNG imports to U.S. markets available for other markets. Long-term LNG imports from Qatar are rerouted to Europe pushing spot prices down and forcing Gazprom to depart from long term pipeline contracts that still dominate European gas trade.<sup>433</sup> However, if new LNG capacities slow down due to deliberate inactivity by Qatar or other countries, the price disequilibrium between spot and pipeline gas will disappear.<sup>434</sup> Apart from shale gas production, the competitive gas prices in the U.S. has also led to increased U.S. coal exports to Europe where gas prices are higher and coal is preferred as an alternative fuel by power generators. About 13 % of U.S. coal production which represented more than half of the exports went to Europe.<sup>435</sup> It is reported that the fall in the price of carbon dioxide emissions permits in the EU's trading scheme has encouraged utilities to switch from burning gas to coal, which creates higher emissions.<sup>436</sup>

*In the short and medium terms*, gas trade between the EU and Russia is going to continue and commercially, we are not likely to see it end completely in the future. The EU does not intend to give up Russian gas supplies whilst Russia has been the main gas supplier to the Union since 1970s with immense volumes of gas exportation via thousands of kilometers pipeline infrastructure across Russian and European territories. The strategic interest of the EU is to diversify its sources of supply rather than totally switching to a new supplier. The EU wants Russian gas to be a balancing source in its gas imports. Solely depending on the U.S. or Russia or any other gas producer would not make any difference commercially.

*In the long term*, an effective bargaining position for the EU vis-à-vis Russia could be achieved through expanded LNG imports from the U.S. Nevertheless, this remains unlikely while the U.S. has no intention to export its gas to countries with which it does not have a free trade agreement. Moreover, exports will increase gas prices in the U.S.

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<sup>433</sup> Yuri YEGOROV and Ismael Alexander BOUDIAF. (2012) "US Shale Gas Revolution and World Gas Supply Shock" USAEE Working Paper No. 2142180, University of Vienna and Bocconi University. p.15.

<sup>434</sup> *Ibid.*

<sup>435</sup> "US coal exports to Europe soar", *op. cit.*

<sup>436</sup> *Ibid.*

domestic markets leading to reduced competitiveness for U.S. industries. Therefore, following the Ukraine crisis and annexation of Crimea by Russia, Europe is ready to give more concessions at TTIP negotiations in return for the actualization of sufficient volumes of LNG export to Europe which could provide significant bargaining position for Brussels against Gazprom. Furthermore, U.S. LNG exports would accelerate the formation of more diverse, liquid and competitive gas markets throughout Europe and other parts of the world with prices linked to hub prices on a supply and demand basis rather than oil-indexation. Although LNG markets are “globalizing” in terms of the increase in trade volumes and the number of countries now involved in LNG trade, LNG is still not likely to become a global commodity anytime soon due to the lack of a single pricing structure.<sup>437</sup> Therefore, it will take time to converge prices and pricing mechanisms for LNG worldwide. Shale gas revolution in the U.S. will also contribute to the development of gas extraction technologies and to shale gas production in Europe if environmental concerns and public opposition for hydraulic fracturing method are appeased through strict regulatory measures.<sup>438</sup>

*In the longer term*, shale gas production and exportation in the U.S. will become a potential game changer in the international LNG trade. Chinese-Russian gas deal will produce some commercial consequences for global gas markets as well. Because China pays higher for LNG imports, Russian exports to China will give Beijing negotiation power against LNG exporters. This could result in a decrease in Chinese demand for LNG and lower LNG prices globally due to global supply surplus.<sup>439</sup> This could also lead to cancellation of LNG projects by new exporters of gas in Australia, North America and the Eastern Mediterranean which intend to export LNG to Asia-Pacific markets, because it will reduce their financial capacity to pay off their investments in building LNG terminals and ships.<sup>440</sup> It is also reported that due to the unpredictability of the future of the LNG markets, some Asian customers avoid signing long term

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<sup>437</sup> Susan SAKMAR. *Energy for the 21st Century: Opportunities and Challenges for Liquefied Natural Gas (LNG)*. Elgar: Massachusetts, 2013. p. 1.

<sup>438</sup> For further information on the regulatory framework in the EU please see: Joanna GLOWACKI and Christoph HENKEL. “Hydraulic Fracturing in the European Union: Leveraging the U.S. Experience in Shale Gas Exploration and Production”. *Indiana International & Comparative Law Review*, Vol. 24, No. 133, 2014.

<sup>439</sup> Gloystein, *op. cit.*

<sup>440</sup> *Ibid.*

agreements for LNG imports and this has created pressure on LNG exporter countries and firms.<sup>441</sup> Therefore, in the longer term, it is likely that the U.S. exports to Southeast Asia and the EU, as a major driver for decreasing gas prices, will lead to the convergence of gas prices at lower levels globally and pave the way for the establishment of more competitive spot markets as well as bringing about abandonment of oil-indexation. Due to change of rules in global gas trade, Russia is likely to abandon oil-indexed gas prices in the longer term allowing for more competitive pricing mechanisms. However, we cannot give exact dates regarding when such a change could happen because new developments arrive frequently in global gas markets.

Political rivalry between the EU and Russia over Ukraine has kept the EU away from cooperating with Russia on South Stream. As a consequence, Russia has cancelled the project implementation. The absolute gains of the EU from South Stream were increased supply and by-passing Ukrainian territories in gas deliveries. However, the relative gain of Russia in constructing South Stream was increased political influence capability over eastern and southeastern Europe. As relations deteriorate between the EU and Russia over the political crisis in Ukraine and annexation of Crimea by Moscow, Brussels has become aware that cooperating over South Stream would confer Russia future capabilities to exert political pressure on the Union and increase its dependence on Gazprom. Therefore, the EU has suspended talks over the impending legal issues with Moscow in order to prevent Russia from gaining additional political advantage by constructing South Stream under its own terms. In conclusion, the EU gave up on its absolute gains from South Stream in return for preventing Russia from acquiring relative gains.

The U.S. perspective on Ukraine is similar to the EU's, however, Washington does not want to forgo the global competitiveness in industrial production it gained from domestic shale gas production. If the U.S. starts exporting LNG to Europe, it will lead to a rise in domestic gas prices. Hence, the U.S. is reluctant to lift the ban on gas exports to countries with which it does not have free trade agreements, since Washington cannot

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<sup>441</sup> *Ibid.*

risk the impetus in economic recovery due to reduced domestic gas prices. The absolute gain of the U.S. from cooperating with the EU over gas trade – either via TTIP or any other means of joint action – is increased income from gas exports whilst the relative gains of the EU will be diversified gas supply, reduced political and commercial dependence on Russia, more effective responses to Moscow in political crises, and increased global competitiveness in industrial production. Nevertheless, as the U.S. and most of the EU countries have been engaged in military cooperation under NATO against Russia since the Cold War, the U.S. does not view EU's relative gains as prospective political or economic threats to turn against Washington in the future. Therefore, Washington may cooperate with Brussels over gas trade if the U.S. interests in transatlantic trade are satisfied by the EU through TTIP.

In view of the absolute gains of the U.S. and the EU, Russia has sought cooperation with its close ally at the U.N. Security Council over diversifying its demand portfolio for gas exports vis-à-vis sanctions by the EU and political conflict over Ukraine. The absolute gains of Moscow from signing a gas deal with Beijing is increased demand security, increased income and acquirement of leverage against European reductions on gas demand. China's relative gain is commercial availability of increased volumes of gas and increased negotiation power against LNG exporters. However, as China's gas imports are diversified and the domestic demand for energy is increasing at a higher speed than any other country in the world, Beijing does not view 38 bcm gas imports from Gazprom would create a political vulnerability vis-à-vis Russia. Russia, on the other hand, does not intend to lose market share in Europe and thus has sought cooperation with Turkey over South Stream to overcome the legal obstacles put before Moscow by Brussels. Turkey's absolute gains are increased gas supply from Russia at lower prices, transit income, by-passing Ukraine in gas supplies, and leverage against the EU in its accession process. However, Russia's relative gains from new pipeline offer is increased political influence over Turkey as Ankara is 60 % dependent on Russian gas and Russian ROSATOM is to construct a nuclear power plant in Akkuyu. Turkey's engagement in the EU membership along with increasing demand for energy may push Ankara to underestimate the risk of increased dependence on Moscow in

return for increased strategic geopolitical importance it would acquire after becoming a gas hub for Europe.

In conclusion, this thesis argued and accordingly concluded that the EU's reliance on Russian gas exports creates political vulnerability for Brussels in responding to political crises with Moscow. Russia uses its vast gas sources and exports as a political weapon in its near abroad against the expansion of military and political presence of the West. The U.S. shale gas production could contribute to the EU's energy supply security and political independence vis-à-vis Russia; it has immediate and long-term effects on pricing and competitiveness of global gas markets, however exportation of it may take longer than expected due to technical and legal obstacles.

## CONCLUSION

This thesis studied the impact of U.S. shale gas exports on the EU's energy security and political independence vis-à-vis Russia. It aimed at responding to the following research questions: Does the EU's dependence on Russian gas exports create political vulnerability for the Union vis-à-vis Russian assertiveness? Is the shale gas production in the U.S. a viable option to reduce the EU's dependence on gas imports from Russia? To answer them, it utilized a methodology including historical reading, statistical data analysis, examination of news reports and reports and studies by international organizations and the EU.

In conclusion, this thesis argued and accordingly concluded that the EU's reliance on Russian gas exports creates political vulnerability for Brussels in responding to political crises with Moscow. Russia uses its vast gas sources and exports as a political weapon in its near abroad against the expansion of military and political presence of the West. The U.S. shale gas production could contribute to the EU's energy supply security and political independence vis-à-vis Russia; it has immediate and long-term effects on pricing and competitiveness of global gas markets, however exportation of it may take longer than expected due to technical and legal obstacles.

This thesis has reached the conclusion that Russia has recovered state authority and ownership over hydrocarbon resources by eliminating oligarchs from the energy production and turning foreign firms into minor partners to Gazprom in upstream development fields. Russia has used its energy power as a political weapon against former USSR countries including Georgia, Belarus, Ukraine and Armenia, in order to exert price pressure and political influence on its "regions of privileged interests" for keeping these countries away from military and economic integration with "the West". Likewise, Gazprom's export strategy has enabled Russia to increase national wealth by taking advantage of global rises in oil and gas prices, curtail liberalization and establishment of a properly functioning, competitive single market in gas and restrain the arrival of new entrants in the market, create disunity among Member States and hamper solidarity in EU decision-making regarding a coherent external energy policy.



In case of a political crisis, the EU's dependence on Russian gas restricts the Union's ability to apply further political and economic sanctions on Russia and creates vulnerability for Member States. This inadequacy is mainly emanating from the reluctance of the leading EU Member States to enforce concrete economic sanctions that would strangle Russian economy due to their profitable energy relations with Moscow and substantial dependence on Russian gas supplies for their industries. This vulnerability leaves the EU open to Russia's political and military assertiveness. Current political conflict between the EU, Ukraine and Russia since November 2013, has put Brussels on a knife edge both in terms of the necessity to actively respond to the destabilization efforts of Russia in Ukraine and of the need to ensure uninterrupted and affordable flow of gas to European markets.

On the other hand, Russia's endeavors to diversify its demand portfolio by signing a gas deal with China could be considered as an attempt to find alternative markets and transportation routes for Gazprom vis-à-vis political confrontations with the EU. Therefore, a balanced and diversified market approach weighing equally between European and Asian markets is also important for Russian export strategy.

The EU's heavy dependence on Russian gas supplies and Gazprom's discriminatory gas export strategy have led to disunity among Member States in speaking with one voice in external energy relations. Thus, Russia has a strategic advantage in political confrontations with the EU. Now that the gas deal with China provides an alternative market for Russian gas for the coming decades, the EU is under pressure to intensify efforts to find alternative suppliers. In view of the gravity of the political situation in Ukraine, the EU has to find alternative gas sources and transportation routes for ensuring its security of supply. The U.S. shale gas exports remain the most viable and available option for the EU after TANAP/TAP.

*Currently*, the U.S. shale gas production has already expanded global supply of natural gas and provided new supply opportunities for Europe by making previous volumes of LNG imports to U.S. markets available for other markets. This thesis has reached the

conclusion that *in the short and medium terms*, gas trade between the EU and Russia is going to continue. Commercially, it is not likely to end completely in the future.

*In the long term*, an effective bargaining position for the EU vis-à-vis Russia could be achieved through expanded LNG imports from the U.S. Nevertheless, this remains unlikely while the U.S. has no intention to export its gas to countries with which it does not have a free trade agreement. Political, legal and technical barriers are likely to delay exports from the U.S. to Europe. Moreover, exports will increase gas prices in the U.S. domestic markets leading to reduced competitiveness for U.S. industries. Therefore, following the Ukraine crisis and annexation of Crimea by Russia, Europe is ready to give more concessions at TTIP negotiations in return for the actualization of sufficient volumes of LNG export to Europe which could provide significant bargaining position for Brussels against Gazprom. Furthermore, U.S. LNG exports would accelerate the formation of more diverse, liquid and competitive gas markets throughout Europe and other parts of the world with prices linked to hub prices on a supply and demand basis rather than oil-indexation. Shale gas revolution in the U.S. will also contribute to the development of gas extraction technologies and to shale gas production in Europe if environmental concerns and public opposition for hydraulic fracturing method are appeased through strict regulatory measures.

*In the longer term*, shale gas production and exportation in the U.S. will become a potential game changer in the international LNG trade. It is likely that the U.S. exports to Southeast Asia and the EU, as a major driver for decreasing gas prices, will lead to the convergence of gas prices at lower levels globally and pave the way for establishment of more competitive spot markets as well as bringing about abandonment of oil-indexation.

Political rivalry between the EU and Russia over Ukraine has kept the EU away from further cooperating with Russia on South Stream. The EU has suspended talks over the impending legal issues with Moscow in order to prevent Russia from gaining additional political advantage by constructing South Stream under its own terms. In conclusion, the EU gave up on its absolute gains from South Stream in return for preventing Russia

from acquiring relative gains that could enable Moscow to inflict harm on Brussels in the future.

The U.S. perspective on Ukraine is similar to the EU's, however, Washington does not want to forgo the global competitiveness in industrial production it gained from domestic shale gas production. Nevertheless, as the U.S. and most of the EU countries have been engaged in military cooperation under NATO against Russia since the Cold War, the U.S. does not view EU's relative gains from gas trade cooperation as prospective political or economic threats to turn against Washington in the future. Therefore, Washington may cooperate with Brussels over gas trade if the U.S. interests in transatlantic trade are satisfied by the EU through TTIP.

The absolute gains of Moscow from signing a gas deal with Beijing is increased demand security, increased income and acquirement of leverage against European reductions on gas demand. China's relative gain is commercial availability of increased volumes of gas and increased negotiation power against LNG exporters. Mutual interests and pre-cautious cooperation are present between Russia and China against the EU-U.S. cooperation.

Further research on the U.S.-Russia relations – with particular focus on Obama and Putin periods – is needed to analyse the transformation of cooperative approach between the two into a power competition and political rivalry in the recent years over Ukraine, Syria and other global issues. On the other hand, the shale oil production in the U.S. and its impact on the Middle Eastern oil production, the European and Asian oil consumption and OPEC needs to be probed within the context of recent developments in the global oil markets. The overall impact of shale gas developments in the EU and the U.S. on Turkey also needs to be probed through further research to find out how Turkey could react to these developments as a fast growing economy.

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