

## Natural Gas Supply Security of the EU: Exploring the Roles of Black Sea and Caspian Sea Regions

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### Abstract

*Energy security, especially natural gas supply security, is the one of the highest priorities for the European Union. In this context, the Black Sea and Caspian Sea regions are capable of playing two different key roles in helping to ensure stable natural gas supplies to Europe: Caspian Sea Region as a producer in its own right, and Black Sea region as an entry point and a transit for the Caspian natural gas supplies. However, there are both political and economic complications considering energy diplomacy and pipeline politics. This article attempts to expose and enlighten these complications from the energy security angle. Moreover, it addresses the core issues of the transit gas across the Black Sea region and the natural gas producers of the region and their impact on the natural gas supply security of the EU.*

**Key words:** Black Sea Region, the EU, Natural Gas, Security of Supply, Caspian Sea Region

### Introduction

The EU member states suffer from the same tendencies as other importing countries. Today, EU energy consumption represents 15 per cent of world energy consumption, third to China and US<sup>1</sup>. The dominant fuel in the EU is oil, with 37 per cent, but natural gas is by far the fastest growing source of energy, accounting for 24 per cent of consumption in 2010<sup>2</sup> and the EU accounts for 18 per cent. Natural gas usage has increased both due to higher overall energy demand and a decline in coal consumption from 26 per cent in 1991 to 15 per cent in 2010<sup>3</sup>. According to Eurostat, the EU currently imports 55 per cent of the energy consumed, and it is expected that this rate will continue to increase. ExxonMobil's 2009 report forecasts that the EU's natural gas import dependency will rise from 60 to 65 per cent in 2015, to 75 per cent in 2020 and to 81 per cent in 2030<sup>4</sup>. Russia currently supplies 39 per cent of natural gas imports, and the EU's dependence on Russian supplies is expected to rise steadily in the near future.

Since 77 per cent of the EU energy consumption consists of fossil fuels<sup>5</sup>, namely oil, gas and solid fuels, and it possesses only a small proportion of the world reserves of these fuels, it is heavily dependent on energy imports. Therefore, conflicts in the producing regions, problems related to transit, price fluctuations, climate change and increasing dependency on foreign imports have created a rising sense of urgency in the EU. In a period of growing dependence on imported oil and natural gas, emerging challenges require a re-evaluation of present EU policies and the consideration of possible strategies for the maintenance of the security of energy and diversification of supply.

This paper deliberately chooses to focus on the aspect of natural gas supply security as the consumption of natural gas is rapidly increasing in the EU, and it is only possible to transport it via pipelines or via tankers in LNG format, unlike oil, which is more flexible. In addition, the literature on the natural gas supply security of the EU is developing, but still remains insufficient. Therefore, this article makes an important contribution to the literature by comparing two geographical regions, the Black Sea and Caspian Sea from

analytical perspective. Since the security of supply risks and diversification of supply needs are increasing in European energy security, the EU is searching for major alternatives to satisfy these needs. One of the major policy options for the EU is to build connecting pipelines to producing regions. It is important to note that pipeline diplomacy includes several countries, since there needs to be a transit route connecting the producer to the consumer. Therefore, this paper analyzes the two regions that are both producers and transit routes, namely the Black Sea and Caspian Sea regions, in order to determine how they will affect the European Natural Gas Security in the near future, considering the energy security concept and geopolitics from European perspective. Moreover, this paper explores the long-term impact of the cooperation and competition between these two regions and their potential capacity that may be developed, focusing on their strengths and weaknesses in order to produce results for further analysis.

### **Conceptualization of energy security**

The scope of energy security has been evolving in line with world geopolitical trends. Assertions of the form 'we import x per cent of our oil from region y' or 'we depend on foreign sources for z per cent of energy' are no longer valid for strategic thinking in energy security<sup>6</sup>. Energy security should be considered by taking into account of energy and economic development, the environmental aspect of energy and the threat of terrorism to energy supply.

The recent model of energy security was born after the 1973 crisis. It focused mainly on security of oil supplies from producing countries. At that time, the connection between energy, political change, and conflict behaviour was the central concern in energy security literature. The main setback was its exclusive focus on analysis of the international and domestic effects of increasing oil prices, with limited mention of political implications because it was rather concentrated on effect of the oil crisis on oil prices and its influence on western economies, especially in the US.

In contrast, the current concept of energy security needs to be expanded to include 'the protection of the entire energy supply chain and infrastructure'<sup>7</sup>. It is important to consider new geopolitical factors in order explain the contemporary state of the energy security concept.

The fundamental issues of diversification is currently one of the most commonly discussed as regards the energy security concept, and the present work will take this issue as a starting point in assessing the natural gas supply security predicament of the EU.

In order to define the concept of energy security, this study uses a typology developed by Barton et al, according to whom, 'the definition of energy security is a condition in which one country and or several, or most of its citizens and businesses, have access to sufficient energy resources at reasonable energy prices for the foreseeable future free from any serious risk of major disruption of service.'<sup>8</sup>

Barton et al choose to interpret this broad definition of energy security into four following different sub-categories: (1) security of supply, (2) security of demand, (3) reliability of supply, and (4) physical security of installations and personnel<sup>9</sup>. Hence, the category 'security of supply' is the main concern of this study, which focuses on the consumer countries' desire to have at all times an adequate level of supplies.

Therefore, the EU does not only need diversification of its energy supplies, but also it needs to secure its supply chain from disruption. This can only be achieved by supplementing the volatile transit ways or building additional pipelines in order to reach a higher level of diversification. One of the ways for the EU to reduce the dependence on imported natural gas is to reduce the strategic leverage of countries in the region. Another issue for security of supply is to secure the transit ways. During the analysis, implications of transit ways on the security of supply will be discussed.

The present work focuses particularly on the security of supply of natural gas to the EU, since the European natural gas consumption is rapidly growing together with the increasing dependency on single actor,

Russia – both a Black Sea and Caspian country-, leading to a need for alternative sources and routes. It is crucial to note that in assessing the geopolitical connections, natural gas supply has important difference from that of oil, on which much of the present literature is focused on the oil. Natural gas and oil import dependency have two important differences. First of all, natural gas is less polluting than the major fossil fuels, namely oil and coal. Natural gas demand in the EU has been growing over over 3 per cent per annum in the last decade and according to the Commission of European Communities' report and it is expected to continue to rise more quickly than oil due to new geopolitical trends. Second, natural gas is different from oil in terms of security, because most of the natural gas contracts are long term contracts.

The EU does not only need diversification of its energy supplies, but also it needs to secure its supply chain from disruption. The only way to do this is to supplement the volatile natural gas suppliers in Russia and North Africa, and also the declining North Sea, in order to reach a higher level of diversification. One of the ways for the EU to reduce dependence on imported natural gas from these regions is to reduce the strategic leverage of countries, and increase the security of the transit ways. Therefore, new pipelines connecting to new basins, or diversify the existing routes are logical options. Consequently, this work analyses the pipelines in both regions with the aim of demonstrating which is likely to be more instrumental for the European Energy Security.

### EU energy policy

The political reality of the European Union changes when faced with energy issues. Although the European Union is a multileveled and polycentric emerging political field, it is divided into two different poles, national decision-making centres on the one hand, and EU institutions with powerful transnational political resources on the other. In spite of its liberal intergovernmental setting and fully integrated structure in some policies, especially after the launch of the Euro currency<sup>10</sup>, these two poles mean that the EU is divided over its common energy policy.

The main structural tension in the EU's energy policy is between these national and supranational poles. It appears that 'the double political stratification process between supranational/ intergovernmental and national levels on the one hand and between executive and legislative legitimacy on the other hand has been legitimized through incremental changes'<sup>11</sup>. This is the problem in the decision making process, but what creates this problem is the sovereignty issue. The main obstacle to progress in energy policy is the various preferences of member states, all of which have 'their differing domestic energy resources, different energy requirements, and large, state owned, monopolistic energy industries'<sup>12</sup>.

In this context, however the idea of implementing a Common Energy Policy has been receiving greater attention from all the member states due to the increasing dependency of all EU members on external energy suppliers and the continuing central role of energy in all dimensions of the economic life.

### Natural gas' role in European energy matrix

The importance of natural gas in the EU's energy composition has noticeably increased. According to Energy Information Administration (EIA) statistics, natural gas consumption of EU 27 has increased from 312 bcm in 1980 to 536 bcm in 2008. This is expected to increase more in the future due to the restrictions on CO2 emissions, which are higher in coal-fired power plants, and barriers to development of renewable power generation. Natural gas consumption in the EU is expected to grow from the present 530 bcm per year to 600-650 bcm in 2020<sup>13</sup>. In contrast, proven reserves of natural gas have steadily decreased. The EU itself has only 1.3 per cent of proven world natural gas reserves, and its own production represents only 5.7 per cent of world total in 2009<sup>14</sup>. As thus shown, the EU has limited indigenous energy production capacity. However, in order to satisfy the increase demand for natural gas consumption, EU member states are importing their energy need from other sources. In 2010, almost 60 per cent of natural gas consumption came from other sources. This import dependency is expected to increase even more in the future<sup>15</sup>. In 2004, the European Union passed 50

per cent of import dependency level and in 2008; it reached 61 per cent level<sup>16</sup>. According to the forecasts of the European Commission, this dependency will increase to 81 per cent in 2030. As a result, an increasing gap between production and consumption of natural gas is one of the main weaknesses of European energy security.

The United Kingdom (69.6 bcm) and Netherlands (66.6 bcm) are the main internal natural gas suppliers of European Union<sup>17</sup>. However, their production capacity has been steadily decreasing. In 1997, Netherlands reached its peak in gas production with 76.7 bcm, while United Kingdom reached 108,4bcm in 2000<sup>18</sup>. Since the passing of these peaks,, the EU has become over dependent to external natural gas resources.

Today, there are three main natural gas suppliers to the EU, namely Russia, Norway and North Africa. Due to the problems related to energy security and geopolitics, the EU is currently seeking to diversify its natural gas suppliers (Roberts, 2010). In statistical terms, as of 2008, Russia was the largest supplier with 115 bcm, followed by Norway and Algeria with 85 and 49 bcm respectively<sup>19</sup>.

There are five main basins which have available natural gas reserves for the EU: the Russian, Middle East, North Sea, Caspian and Mediterranean basins. The North Sea and Mediterranean basins have already been extensively exploited by the EU, the Caspian Basin is largely untapped and Russian and Middle Eastern basins are readily available to meet the increasing demand. Although there is a ready infrastructure and increasing supply flow from the Russian basin, European Union is seeking to decrease its dependency on Russia, due to member states experiencing supply shortages and blackouts caused by Russian-Ukraine gas crisis in 2006-2009. These crises have caused the EU to question the reliability of Russia as an energy supplier. For this reason, EU energy policy has shifted to alternative pipeline constructions, such as the Nabucco project, to connect to different energy suppliers. On the other hand, Russia is also proposing new pipeline projects such as the South Stream, as it is also seeking to bypass Ukraine and create secure outlets for its natural gas exports.

### The Role of the Black Sea Region

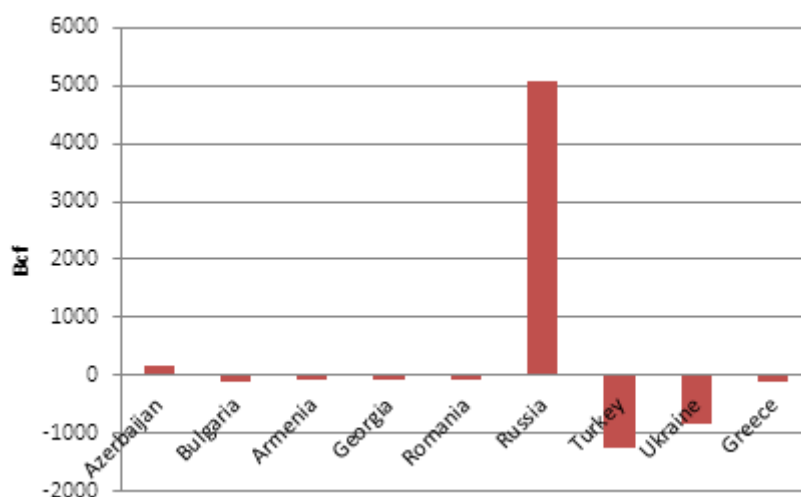
The Greater Black Sea region is a simple political-geographic delimitations and refers to a vast region stretching from the Balkans to Western Caspian Sea region, as there are good geo-strategic, economic, and socio-political reasons for linking the “Black Sea” area with the wider geographic area, including Azerbaijan, Armenia and Greece to the six littoral countries namely, Bulgaria, Turkey, Russia, Ukraine, Romania and Georgia. The region is especially important for the EU from security of supply angle. It is an immediate neighbourhood of the EU, and home to Russia. Therefore, there are several existing and planned natural gas pipelines, connecting the region to the EU. As mentioned above, in view of the increasing European dependency on Russian natural gas, together with declining North Sea production, the safe and uninterrupted supply of new sources from the Caspian Basin through and around the Black Sea assumes utmost importance.<sup>20</sup>

**Table 1.** Level of Natural gas reserves in the Region

Country	Natural Gas reserves (Tcm)
Azerbaijan	1,3
Romania	0,6
Russia	44,8
Ukraine	0,9

Source: BP Statistical Review of Energy 2010

The Black Sea region is rich in reserves of natural gas due to the presence of Russian reserves. In addition, Azerbaijan, Romania and Ukraine also have considerable natural gas reserves, compared to other regional countries, displayed in table 1.



**Figure 1.** Natural Gas Import-Export Balances of Black Sea Regional Countries (2009)

Source: BP Statistical Review of Energy 2010

An analysis of natural gas import-export balances of regional countries reveals that, as with the reserves, only Russia and Azerbaijan has positive balance, shown in figure 1. Romania and Ukraine have negative balances, even though they have rich natural gas reserves. There are two main reasons, namely the high levels of population and consumption. Turkey and Ukraine are both dependent on foreign exports. Moreover, these two countries are not only significant consumers of natural gas, but also transit ways for both Black Sea and Caspian regions.

**Table 2.** Proposed and Existing Pipelines in the Black Sea

Project	Transit Countries	Status	Capacity
South Stream	Russia-Bulgaria-Greece-Italy-Serbia-Hungary-Croatia-Slovenia-Austria	Proposed	63bcm/y
Nabucco	Turkey-Bulgaria-Romania-Hungary-Austria	Proposed	31bcm/y
BTE	Azerbaijan-Georgia-Turkey	Operational (2006)	20bcm/y
AGRI LNG	Azerbaijan-Romania-Turkey	Proposed	7bcm/y
Blue Stream	Russia-turkey	Operational (2006)	16bcm/y
Tebriz-Erzurum	Iran-Turkey	Operational (2001)	14 bcm/y
South European Gas Ring	Turkey-Greece-Italy	First stage completed	63bcm/y
White Stream	Georgia-Ukraine-EU	Proposed	32 bcm/y
Brotherhood Pipeline	Russia-Ukraine-Slovakia-Austria-Germany	Operational (1983)	100 bcm/y +
Nord Stream	Russia-Baltic Sea-Germany	Under Construction	55 bcm/y
Yamal-Europe	Russia-Belarus-Poland	Operational (1997)	33 bcm/y

This region, which includes Russia and Azerbaijan, has a number of existing and proposed pipelines in the region. Pipeline construction is not a recent issue in the region. The first pipeline, Northern Lights, became operational in 1983 during the cold war period when the Soviet Union exported natural gas to the EU through, and today it can carry over 100 bcm of gas per year.

As seen in in table 2, Russia is the main, in fact, and the only natural gas exporter in the Black Sea Region. The study deliberately chooses to categorize Azerbaijan as a Caspian region natural gas exporter, as most of its reserves are situated in the Caspian Sea, in contrast to Russia, which is no longer developing natural gas reserves in the Caspian.

Because of continuing instability in the Middle East and North Africa, volatile energy prices and growing concerns about the energy supply, the Greater Black Sea region is emerging both as a producer and as a transit area for energy, i.e. as an energy hub. As Lesser puts it, “the Black Sea has become a leading theatre in which the new dynamics of energy security are being played out, a theatre in which transit countries as much as producing countries are leading stakeholders.”<sup>21</sup>

Through the energy security angle, the Black Sea region is in a good geographical location to become a transit way for resources, coming from Azerbaijan, Iran and Caspian area. Even though the existence of Russia underpins the role, the region is an important transit way. Ukraine, Russia, Azerbaijan, Georgia, Turkey, Bulgaria and Greece are the main transit area through the existing, under construction and proposed pipelines.

The pipelines are also enhancing the economic development and regional cooperation in the region, since there are several countries participating in the projects. In addition, this cooperation could bring prosperity and stability to the region. Rather than being dominated by Russia, the BTE and proposed Nabucco project can be seen as a option to bypass Russia when looked from European perspective.

However, there are also long-standing conflicts in the region. There is a real concern that natural gas pipelines could be sabotaged by terrorist or rebel groups, and that transit states could illegally tap into these pipelines for their own needs.

The present study focuses on how natural gas will reach Europe's major consumer markets. It is important to note that regional countries have balance their domestic energy security with their current or prospective roles in ensuring broader regional or continental energy security, and thus economically, the Black Sea states may be in a position to influence the terms under which natural gas reaches Europe.<sup>22</sup>

### **The Role of the Caspian Sea Region**

The Caspian Sea is a 700-mile-long body of water in Central Asia, bordered by Azerbaijan, Iran, Kazakhstan, Russia, and Turkmenistan. However, it is the basin area rather than the sea itself which has an important impact on the area. This area is what the study defines as the Greater Caspian region. In addition to the Caspian littorals<sup>23</sup>, the Greater Caspian Region includes Iraq, Uzbekistan, Georgia and Turkey, since these countries are considerably influenced by the energy regime in the Caspian Sea as producers, as consumers and as transit routes. These four countries cannot be excluded in the understanding of the dynamics of the region in an enhanced approach.

The Greater Caspian region has emerged in the last decades as one of the major focal points of international affairs for a combination of political, economic, and geostrategic reasons due to its sizeable energy reserves. The region contains a significant amount of natural gas. The proven natural gas reserves of five Caspian countries are 10 trillion cubic meters, while their potential reserves reach 17 trillion cubic meters. This is very significant, even excluding the reserves of Iran and Iraq. Iran has 29.66 trillion cubic meters in natural gas reserves, while Iraq also has 3.2. In addition, Uzbekistan has 1.6 trillion cubic meters, while Turkey and Georgia respectively have 0.010 and 0.050 as is illustrated in Table 3.

**Table 3.** Estimates of Proven and possible Natural Gas Reserves in the Greater Caspian region

Region	Country	Proven Reserves of Natural Gas (trillion cubic meters)	Possible Additional Natural Gas EIA <sup>a</sup>
Greater Caspian region	Azerbaijan	1,3	1,3
	Iran <sup>b</sup>	n.a./29,6	0,3
	Kazakhstan	1,8	2,4
	Russia <sup>c</sup>	n.a.	n.a.
	Turkmenistan	8	4,5
	Uzbekistan	1,6	7,7
	Iraq	3,2	n.a.
	Georgia	0,05	n.a.
	Turkey	0,01	n.a.
	TOTAL	45,56	16,2
Reference Areas	Qatar	25,3	n.a.
	United States	7,7	7,6
	Saudi Arabia	8	n.a.

n.a. - Not available from sources listed below.

a Excludes proven reserves. Data from various sources compiled by EIA in Survey cited below.

b First part is the resources near the Caspian Sea, second part is the overall reserves in Iran-

c Only resources near the Caspian Sea are included.

Source: ENI World Oil and Gas Review 2009, BP Statistical Review of World Energy 2010-11, EIA, Energy Information Administration; Caspian Sea Region: Survey of Key Oil and Gas Statistics and Forecasts, July 2006; U.S. Geological Survey.

In comparison, Qatar has 25.7 trillion cubic meters of natural gas, while the United States, Saudi Arabia, United Arab Emirates and Venezuela's proven natural gas reserves are 7.7, 8, 6 and 5.5 trillion cubic meters respectively. The data clearly reveals that the Greater Caspian region is the major alternative in terms of natural gas for the global energy market.

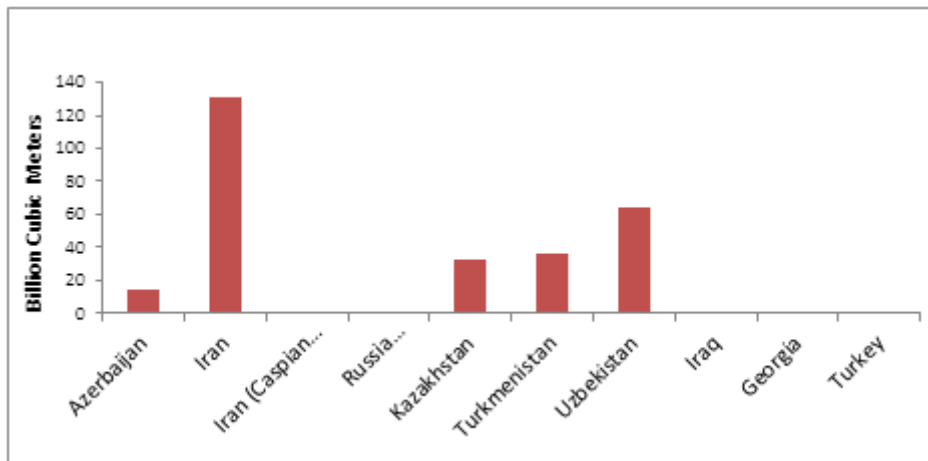
By adding together the possible additional reserves of natural gas in the region, as illustrated below in Table 3, it can be seen as a major challenge to Russia's 44.8 trillion cubic meters. However, the Greater Caspian region still needs a massive investment for the exploitation and exploration of its reserves. Because of the presence of these extensive untapped reserves, a focus of intense competition for countries with growing energy needs in the future.

### Production of Natural Gas

After the demise of the Soviet Union, the natural gas production of the Greater Caspian region is also being restored with massive Russian and foreign investment in Former Soviet Union countries. Turkmenistan and Uzbekistan have the greatest proportion of Greater Caspian region natural gas production as Caspian Sea littorals. Although Uzbekistan will remain a major producer in the immediate future, 'its export potential will become negligible due to the high level of domestic consumption resulting from the fact that it is the most populous country in the region'.<sup>24</sup> In addition to these two countries, Iran is the major natural gas producer, and

reached fourth rank after Russia, the US and Canada by 2008. Although, (technically) a non-Caspian sea producer, it is considered a member of Greater Caspian regional matrix. However, Iran's unique geo-economic features distinguish it from other gas-rich countries in the region. It is centrally located among the world's major oil and gas producers, sharing land and sea borders with 15 countries.<sup>25</sup> With adequate investment, Iran has the potential to become one of the world's major oil exporting countries.

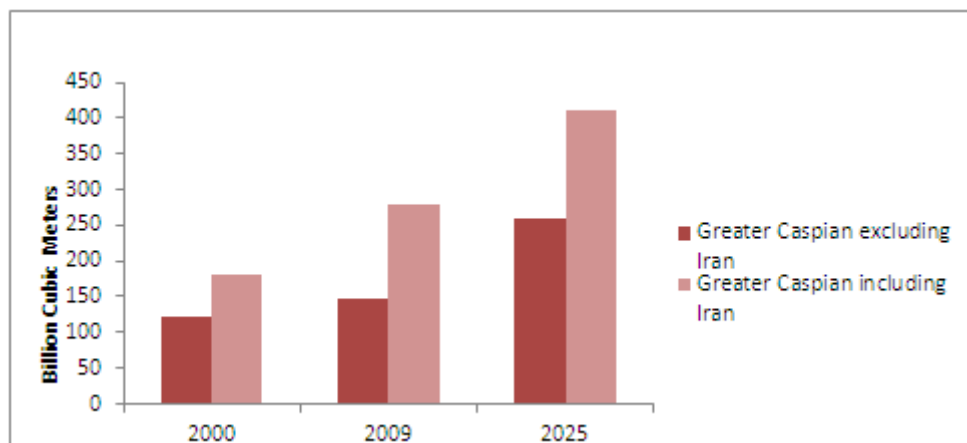
Even though figure 2 places Azerbaijan as only the fifth major producer in the region, energy analysts and major analysis of the EIA, BP, Royal Dutch Shell and ENI consider it has the potential to play a leading role after the exploration success at Shah Deniz field<sup>26</sup>. On the other hand, Iraq<sup>27</sup> also has the potential to become a natural gas exporter after the recovery from the civil war in near future, with planned pipelines and investments. In addition, Kazakhstan<sup>28</sup> is expected to play a leading role in long-term natural gas production.



**Figure 2.** Current Natural Gas Production Level in the Greater Caspian

Source: BP Statistical Review 2010

Figure 3 demonstrates that the Greater Caspian area has been making an important contribution to the world's natural gas production since 2000, currently, producing almost 147.8 billion cubic meters (including Iraq), which rises to 278 billion cubic meters when the production of Iran is included. It is expected that by the year 2025, the Greater Caspian Area, including Iraq, will produce 250 billion cubic meters, which, added to Iran's natural gas production, is expected to reach to a peak of 400 billion cubic meters.



**Figure 3.** Greater Caspian Natural Gas Production

Source: EIA International Energy Outlook, ENI World Oil and Gas Review 2009, BP Statistical Review 2010, World Energy Outlook 2025. The estimation of the year 2025 has been calculated according to the medium of the expectations by the different sources.



At peak output, this region, excluding Iran, is forecasted to contribute 7.5 to 8.7 per cent of world natural gas production, which, when added to share of Iran, is forecasted to reach as much as 12.4 to 14 per cent of world natural gas production by the year 2025.

According to the 2009 data, the Greater Caspian region is either the third or fifth major natural gas producer in the world, depending on whether Iran is included (demonstrated in figure 5) and is expected to reach the level of the United States by the year 2025, when US production is expected to begin its decline.<sup>29</sup>

Nevertheless, the requirement for the Greater Caspian area in this analysis is that these figures represent the current production and expected production forecast, which are extremely dependent on assumptions regarding the efforts made by regional producers to match their domestic consumption, export and investment levels. This is particularly applicable to Uzbekistan, Iraq, Iran and Turkmenistan, where great uncertainty lingers regarding the viability of available export options.

The Greater Caspian Sea region could meet some of the demand due to its sizeable proven and possible oil and natural gas reserves, a power struggle in the Greater Caspian region to control the pipelines transporting the landlocked Caspian energy resources seems inevitable.

The emergence of the Caspian states in the aftermath of the Soviet Union as independent international actors has changed the geopolitics of the region. With the collapse of the Soviet Union, its internal dynamics and problems became the foreign policy questions of the newly emerged independent states. Due to a lack of a background of independence, some of these new countries faced the formal Soviet internal equations.

The difficulties of exploiting the hydrocarbon deposits in the Caspian Basin reflects an unsettled division of the Caspian Sea. Although, it does not stop the littoral countries, namely Azerbaijan, Iran, Kazakhstan, Turkmenistan and Russia, exploiting their resources; the divisions mean that exploration and exploitation could not reach their full potential.

Furthermore, the conflicts in the South Caucasus have emerged as an obstacle in transporting hydrocarbons to the West from the Caspian basin. The three main conflicts, namely Nagorno-Karabakh, the Abkhazian and South Ossetian Conflicts, are the main challenges for the pipeline diplomacy of the region. Iraq also has a crucial role due to its level of hydrocarbon reserves and its instability. The US-led coalition's invasion of Iraq resulted in an increased security risk in the overall Greater Caspian calculations.

### Conclusion

European energy policy is characterized by national approaches, which gives it the impression of being the least successful areas of integration, regardless of its general importance for the wider region. The main problem in the past, as well as in the present, is the recognition of energy as a national rather than a communal priority. The sector was unable to reap the benefits of a common approach, as all too often it involved clashes between national interests and the sovereignty of the members of the community.

Cooperation and competition between the Black Sea and Caspian Sea regions is a good illustration of different policy options for the EU. Currently, the EU's participation in the pipeline politics is complex. The current EU dependency on Russian energy exports has been already explained above. In an era when it is searching for alternative energy supplies in order to decrease its dependency on Russian exports, the EU is facing major decisional conflicts on energy issues<sup>30</sup>. Due to the lack of a common energy policy in the union, individual states tend to favour different pipeline projects. For example, by supporting the South Stream from the Black Sea Region, the Italians are going against the EU goal of diversifying energy supply, as this pipeline will provide natural gas from Russia, like the already existing Brotherhood and Yamal-Europe pipelines. In other words, it is an alternative route, but not an alternative source. On the other hand, the EU as a whole, is backing the proposed the Nabucco project from the Caspian Sea region. This project is crucial as a first step in establishing a common energy policy. The Nabucco Project, the whole concept of the Caspian region as an

alternative is aligned with the ideas stated in the European Energy Strategy, adopted by the European Council in December 2003, the EU neighbourhood policy, adopted in 2004 and also the recent Green Papers. The Nabucco Project could help the union to diversify its energy sources and secure the necessary supplies.

Greater Caspian energy assets have the potential to significantly reduce consumers' reliance on Middle East and Russian natural gas. This raises the prospect of crises, competition, cooperation and conflicts that directly involve the US, the EU, Iran, Russia and Turkey in the East-West energy corridor. As discussed above, the actual production of natural gas is not the only potential source of competition between the international actors. The demise of the Soviet Union, triggered disputes over the best pipeline routes to transport the oil and natural gas of the Greater Caspian region to Western markets. Iran is promoting itself as the most economic route; Russia is following a policy of striving to become a monopoly in energy transportation, and the US, and to a certain extent, the EU, is promoting Turkey as an export route. In its drive to reduce its dependency on Russia, the EU should continue increasing the level of pipeline diplomacy in the Caspian Sea Region.

On the other hand, current role of Black sea is being profoundly influenced by the presence of Russia. Since Russia is both the largest exporter of natural gas to the EU and a Black Sea country, the role of Black Sea is currently seen as emphasizing production. However, its location also provides the option of becoming a transit corridor for various pipelines. Moreover, the balance between these parameters varies considerably, and therefore it is even more important to assess whether a regional Black Sea identity could be established in order to promote the three elements of the energy chain: supplier, transit and consumer countries.

Therefore, these two regions have different roles from the perspective of energy security. From the European side, realization of the projects from the Caspian Sea region will not only contribute to European natural gas security, but also to establish a united European energy policy. Even though the projects in the Black Sea region can be seen as rivals to those in the Caspian, the question of which of the two regions will eventually succeed is less important when taking into consideration the expected increasing European gas demand, in the near future. Thus, from the European perspective rather than being exclusive, these regions can be seen as complementary in view of the fact that several pipelines traverse both regions.

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23. This study only includes the Caspian shore of Russia into its Greater Caspian matrix.
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25. Sarmadi-Rad M. A. (2005) Iran's Strategy for Export of Natural Gas - Working party on Gas, UN/ECE, 15th Session, January, Geneva.
26. In 2009, the EIA is expecting an increase in production from SOCAR and the Shah Deniz gas and condensate field which should allow the country to increase production to over 500 Bcf per year, which will be offset by steadily increasing domestic consumption (400 Bcf during 2006). Azerbaijani government sources expect the country to produce up to 1.1 Tcf by 2011.
27. Iraq has one of the world's biggest number of discovered natural gas fields awaiting development by foreign firms under service contracts (SCs) and production sharing agreements (PSAs). However, these can only happen when a new legitimate petroleum law is approved by the Iraq Parliament.
28. Kazakhstan produces about as much natural gas as it consumes, and following maintenance at Tengiz and Karachaganak in the last couple of years, the country is poised to become a net exporter in 2008. In addition, the Kazakhstan Energy Ministry estimated that production during 2007 totaled 1,037 billion cubic feet (Bcf), over 70 percent of which was produced by international consortia at the Tengiz and Karachaganak fields. It is important here to mention that natural gas production has increased by over 8 percent from the previous year.
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