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CONSIDERATIONS ON ENERGY SECURITY IN EUROPE

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CONSIDERATIONS ON ENERGY SECURITY IN EUROPE

Abstract:

The insufficiency of own energy resources forces the European Union to be supplied from abroad, something that has important implications for the Member States' security. Nevertheless, and even considering that Europe can't aspire to the increasing energetic independence achieved by North America, the existence in Eurasia of the major world gas proved reserves makes possible to the Union to guarantee its energy security without diminishing its global security, providing that the relation with key actors as Russia is reformulated.

Resumen:

La insuficiencia de recursos energéticos propios obliga a la Unión Europea a abastecerse desde el exterior, lo que tiene importantes implicaciones para la seguridad de los Estados Miembros. Sin embargo, y aunque Europa no puede aspirar a la creciente independencia energética lograda por Norteamérica, la existencia en Eurasia de las mayores reservas mundiales probadas de gas posibilitan a la Unión el garantizar su seguridad energética sin disminuir su seguridad global, siempre que se reformule la relación con actores clave como Rusia.

Keywords:

Security, energy, gas pipelines, European Union, Russia, South Corridor.

Palabras clave:

Seguridad, energía, gaseoductos, Unión Europea, Rusia, Corredor Sur.

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1. INTRODUCTION

The insufficiency of own energy resources in order to cover the needs of consumption forces the European Union (EU) to be supplied from abroad, similarly to the situation with other raw materials. Nevertheless, the strategic nature of energy has converted its trade into something much more important than a simple mercantile exchange, to come to occupy a key position in the national security of the Member States and the whole of the Union itself.

In particular, two main challenges facing the EU as an importer of energy have been identified. On the one hand, there is the degree of socio-political conflict and instability that exists in many exporting countries, located in some of the hottest spots of the planet. On the other hand, other countries are predisposed to use energy policy as an instrument of its foreign policy, as a means of pressure on other states.

This Document studies the availability of resources in the region spanning from the Atlantic to Vladivostok, the attempts to articulate a coordinated external energy policy for the whole EU, the particularities of the EU's relationship with Russia in this field, and some of the new trends that may change the prevailing view of energy security, now imbued with economic criteria that are not always suitable from a geopolitical standpoint.

2. NATURAL GAS IN EURASIA

Proved reserves

The statistics by regions of the British Petroleum (BP)[1] also cover by the term "Europe and Eurasia" the former Soviet republics of the South Caucasus and Central Asia, and Turkey. In regards to the proven reserves of natural gas, to that region by the end of 2011 stood at 78,700 bcm, representing 37.8% of the world total and that with the current production rate will hesitate 75, 9 years more, even if no new field is discovered.

Although the global data is relevant to our analysis, of course the uneven distribution by country must be taken into account. Beforehand, Russia represents more than half, with reserves of 44,600 bcm, followed in importance by Turkmenistan with 24,300 bcm. By

[1] All data in this rubric have been taken from the BP Statistical Review of World Energy 2012, whose section on natural gas is available at:
http://www.bp.com/subsection.do?categoryId=9037150&contentId=7068622

contrast, in the West the largest reserves are in Norway with 2,100 bcm and in Netherlands with 1,100 bcm, while Turkey has no gas.

The overall interpretation is that the EU has proven reserves of only 1,800 bcm, representing 0.9% of the world and which will be exhausted at the current rate of production in 11.8 years, while the Commonwealth of Independent States (CIS) has 74,700 bcm, 35.8% of the total equivalent to 96.3 years of production.

Production

With regard to the exploitation of these reserves, the annual production in the studied region reaches 1036.4 bcm, representing 31.6% of the world total. By country, Russia is the largest producer after the U.S. with 607 bcm (18.5% of total), followed by Norway with 101.4 bcm and Netherlands with 64.2 bcm, while Turkmenistan produced only 59.5 bcm (1.8% of the world total, despite having a stockpile of 11.7%).

Therefore, it is found that the West is relatively overusing their meager reserves of the North Sea, while it is in the area of the CIS where that production could increase exponentially, even in the case of Russia whose huge share of production is less than the share of proven reserves.

Consumption

On the consumption side, the first data to consider is that in 2011 the total for the region was 1,101.1 bcm (34.1% of the world total), which is still below the historical high of 1,130.6 bcm reached in 2008 before the great economic crisis. If we compare this figure with the aforementioned of production (1036.4 bcm), we can observe that the region is not self-sufficient for just 35.3 bcm, but for practical purposes it can be considered that yes it is because:

- If Russia were to increase its production in those 35.3 bcm (a rise of 5.8% to 642.3 bcm per year), that would make it to represent 19.6% of the total, a percentage even less than its proven reserves (21.4%).
- Turkmenistan could also cover the shortfall by increasing its production by 60% to 94.8 bcm per year. Although it may seem a lot, it should be noted that only from 2010 to 2011 Turkmen production increased by 40.6%, and that those 94.8 bcm represented 2.9% of the world total, still well below the 11.7 % of proven reserves available in Ashgabat.

- Finally, if Turkey were excluded from the region and was considered as part of the Middle East, since it does not contribute on the side of production, and yet consumes 45.7 bcm, even without an increase in production the region would be self-sufficient on overall figures.

Dividing consumption in the two big sub-areas considered, the EU one reached 476.9 bcm (produced 159.1, resulting in a deficit of 317.8 bcm), while the CIS consumed 599.5 bcm (produced 776.1 resulting in a surplus of 176.6 bcm). In this case, Norway (non EU member) should be mentioned, as it consumes only 3.6 bcm, so that no less than 96.5% of its production is available for exporting to the EU, 97.8 bcm.

And lowering the level of analysis to individual states, the most striking fact is that Russia, with a population of 142 million, consumed 424.6 bcm, while the EU consumed only 23.3 bcm more with a population of 500 million. That is due to the inefficiency of energy consumption in the Federation, by the easy availability of resources and policies to subsidize the prices in the domestic market.

As a consequence, Moscow has, in practice, an amount of gas to export well below of its potential. Thus, for example, with a per capita consumption which even doubles the one of the EU, Russia would devote to the domestic market about 254.2 bcm, and would have no less than 353 bcm for exportation (instead of the current 182).

Transport and trade

Finally, all the gaps between production and consumption of the various countries and regions are reflected in the movement and marketing of gas production, for which there are two basic ways: by gas pipeline or as liquefied natural gas (LNG). In principle, and as it has been shown so far, in the studied region the shipment overproduction across countries would ensure energy independence of Europe and Eurasia. However, the reality is different.

Thus, within the scope of LNG Europe and Eurasia imported 90.7 bcm, an amount equivalent to 8.23% of consumption. The main suppliers were Qatar (43.4 bcm), Algeria (16.8 bcm), Nigeria (15.7 bcm) and Egypt (4.3 bcm), all outside the region, while the main consumers were the United Kingdom (25.3 bcm), Spain (24.2 bcm) and France (14.6 bcm).

However, gas trade was conducted primarily by pipeline, the way in which the EU imported 245 bcm, from which 117.1 bcm were provided by Russia (47.8%), 92.8 bcm by Norway (37.9%), and 32.8 bcm by Algeria (13.4%). Turkey has its own supply structure, because it

imports 35.6 bcm by pipeline (66% from Russia, 23.6% from Iran, and the rest from other countries).

With respect to the CIS, Russia imported 30.1 bcm, mainly from Kazakhstan and Turkmenistan, and in turn exported 66.4 bcm to other countries, primarily Ukraine (40.5 bcm) and Belarus (18.1 bcm). The game importer-exporter of Moscow can be explained because at the stage of the USSR Ukraine was the main consumer of Turkmen gas, a scheme that continued after independence with Russia acting as a transit country of that gas through its territory.

When in 2005 the leaders of the Orange Revolution settled in the Kiev government, the Kremlin urged Gazprom to redesign that business model, so that Turkmen gas became bought by the Russians, who in turn resold to Ukrainians at a higher price mixing it with their own gas. That was one of the causes of the two gas wars, in 2006 and 2009, which also threatened Russian supply to the EU, as 80% this goes to through Ukrainian territory.

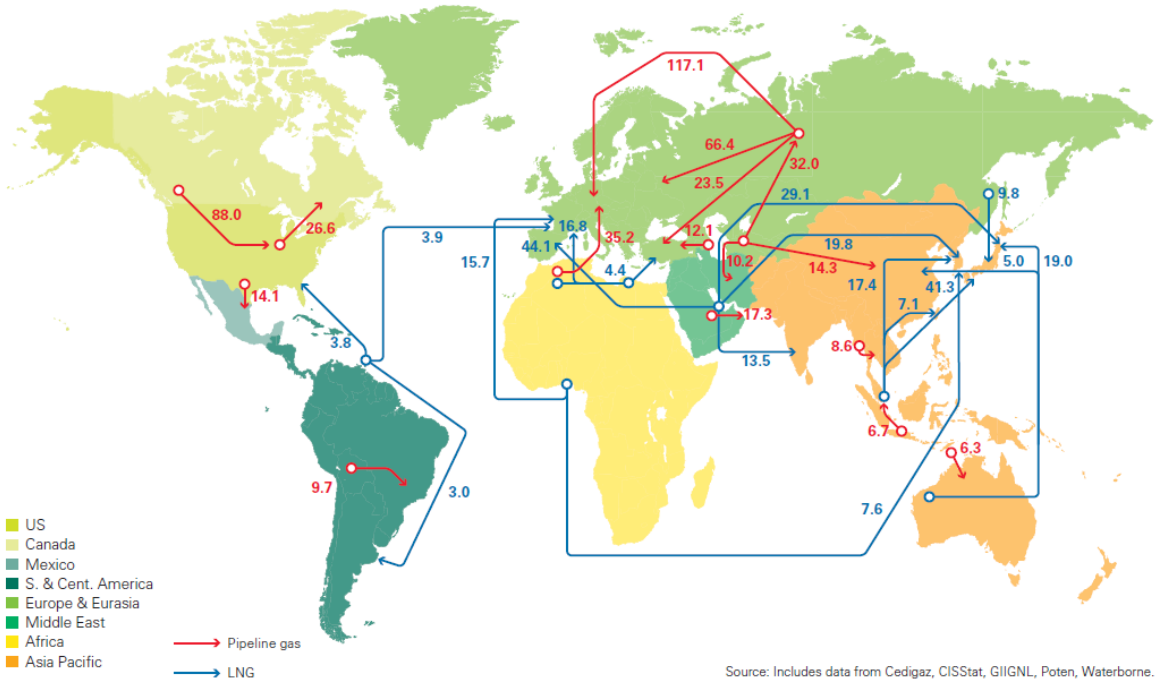

Figure 1: interregional trade of natural gas (BP Statistical Review of World Energy 2012)

Finally, we should also make a reference to the gas escaping from the region to other areas, in relatively modest amounts but that will increase in the future. Thus, Russia exported 14.4 bcm of LNG from the Far Eastern Federal District to Japan (9.8 bcm), South Korea (3.9 bcm) and other small quantities to China, Taiwan and Thailand. For its part, Turkmenistan sent to

China 14.3 bcm and 10.2 bcm to Iran, so that 41% of its production is not destined to Eurasia.

3. THE "EUROPEANISATION" OF THE ENERGY POLICY

The interventionism of the European Commission in the field of energy, especially after the entry into force of the Lisbon Treaty in December 2009, is reflected in the European Energy Strategy 2020[2], and in the Communication on security of supply and international cooperation[3]. This process called Europeanisation of the energy policy has been studied in depth in other documents[4], this is why we are going to highlight only the main aspects that affect our analysis.

The Europeanisation of the external energy policy moves in a complicated balance, because regulatory and economic criteria of the Commission contrast with the geopolitical realities, adapted to national interests, history and geography of each of the Member States.

Thus, most of the EU has high capacity connections by pipeline with Russia, but it´s exposed to outages as the aforementioned of 2006 and 2009, while the Mediterranean outlying areas lack adequate connections with the rest of the EU, and depend largely on other regions, especially North Africa and the Middle East, of great instability since the start of the Arab Spring revolts in 2011.

The principle of diversification of the sources of supply

One of the paradigms held by the Commission is the diversification of supplies, since it is intended that all European regions have at least two different sources. To do this, the three major infrastructure proposals are: the Southern Corridor, from the Caspian, Central Asia and the Middle East; the North-South Corridor, connecting the Baltic, Black, Adriatic and Aegean seas; and the North-South in Western Europe, which would link with Africa.

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[2] Energy 2020: A strategy for competitive, sustainable and secure energy, Brussels, November de 2010, available on http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0639:FIN:EN:PDF.

[3] On security of energy supply and international cooperation– "The EU Energy Policy: Engaging with Partners beyond Our Borders", Brussels, September de 2011, available on: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0539:FIN:EN:PDF

[4] See ESCRIBANO Gonzalo, "The time of Europe, also in external energy policy", Working Document 2/2012, Real Instituto Elcano, January 2012, available on: http://www.realinstitutoelcano.org/wps/portal/rielcano/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/programas/energiacambioclimatico/publicaciones/dt2-2012.

As shown, the strategy is focused on two main goals: improving the EU internal interconnections, a perfectly reasonable goal, and reducing the dependence on Russia, something that deserves a more in-depth study, first of all due to the intention of limiting the supply of a European supplier at the cost of increasing dependence on countries outside the region.

And all this because the reliability of the Federation as a supplier is called into question, but that's debatable since even in the most critical moments in the 90s the supply of Russian gas to Europe was never interrupted, and that only occurred when the new government in Kiev refused to approximate the price of supplies to the amounts paid by the West, even to appropriate (syphoning) the gas sent by Russia to the EU through its territory.

Although the Commission drew as a lesson the need to reduce dependence on Russia, some key Member States (such as Germany and France) interpreted that the problems were the responsibility of the transit country, and accelerated the direct interconnection projects with the Federation, bypassing not only to Ukraine, but also to the Baltics and Poland. This way was born the Nord Stream pipeline, which connects Russia and Germany at the bottom of the Baltic, with an annual capacity of 55 bcm, which is expected to double in the future[5].

Figure 2: Layout of the Nord Stream and link to the European pipeline network (Company website)

[5] For more information, see RUIZ Francisco, "Developments and trends in the European geopolitics of the gas", Framework Document 31/2011, Spanish Institute for Strategic Studies, November 2011.

These infrastructures require huge investments (7,400 million Euros in the case of the Nord Stream), which can not be made profitable unless the corporations that fund them maintain a monopoly of access. However, the European legislation of the "Third Energy Package" goes in the opposite direction, attempting to apply the principle of separation of activities, forcing large producing corporations to divest from its transmission assets.

In any case, the ambitious plans of the European Commission were modified by Germany and France, who were not willing to make their state monopolies losing ownership of their gas and electricity networks. Therefore, companies like EDF and RWE ceded only network operating system to independent companies of the system, theoretically being subjected to an external audit.

In the case of third countries, Community regulations prohibit an energy company to buy a European company in the sector if it does not meet the requirements of decoupling between generation and transmission, what has been called very eloquently as "Gazprom clause". However, and despite this setting of Brussels with the Russian giant, Germany managed to qualify it again by including the possibility that through a bilateral agreement the purchase of assets could be authorized without complying with the clause.

The summary is that the core members of the EU, especially Germany[6], are unwilling to allow the Commission to spoil its privileged relationship with Russia, which for example has allowed announcing after the Fukushima disaster the future closure of all its nuclear plants, and give preference to its national interests supporting the measures taken in Brussels.

The geopolitical risks of the diversification of the sources

Returning to the fundamental principle of Europeanized energy policy, the diversification of the supply sources, we will try to demonstrate that the *sine qua non* adherence to this concept involves a number of important geopolitical risks, and we will do it by studying the Spanish case.

[6] About German energy, see SOLERA Miriam, "German foreign policy of energy diversification: principles and lines of action (1998-2012)", Working Document 11/2012, Real Instituto Elcano, September 2012, available on: http://www.realinstitutoelcano.org/wps/portal/rielcano/contenido?WCM_GLOBAL_CONTEXT=/elcano/elcano_es/programas/energiacambioclimatico/publicaciones/dt11-2012_solera_alemania_energia_politica_exterior.

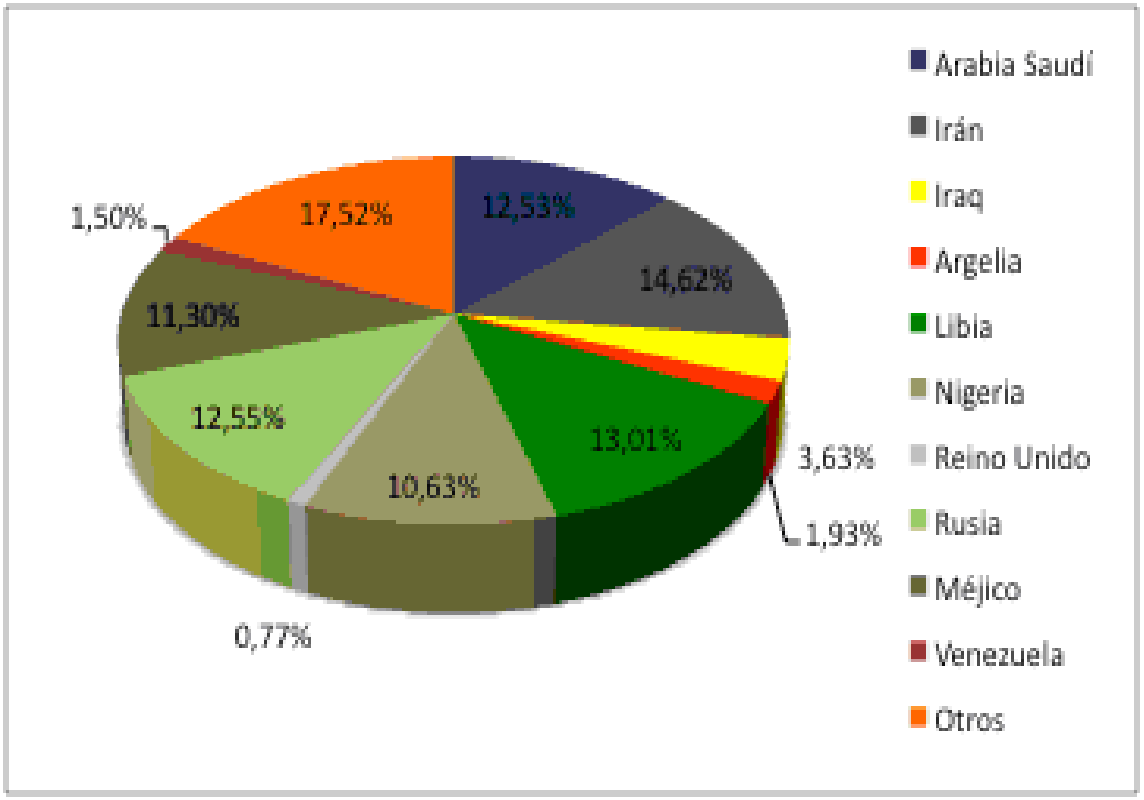

Figure3: percentage by countries of the supply of oil to Spain (2010, Ministry of Industry)

Spain has an almost total dependence on external sources of supply of hydrocarbons, and its energy policy has been based precisely on diversifying the origin of those supplies, so that in case one source fails, the impact would be relatively limited and easily manageable.

In the case of oil, in 2010 the main suppliers to Spain were Iran (14.62%), Libya (13.01%), Russia (12.55%), Saudi Arabia (12.53%), Mexico (11.3%) and Nigeria (10.63%), with several minor sources completing the total (see Figure 3). As we can see, the diversification could not be higher, but let's examine in greater detail the countries that compose that mix of providers:

- Iran: the theocratic state of the Ayatollahs continues to develop its nuclear program, despite the pressure from the international community, and continues to threaten the security of Israel, either directly, or through its proxy in Lebanon (Hizbullah). In June 2012, entered into force the embargo on Iranian oil by the EU.

- Libya: although Colonel Gaddafi had stopped funding international terrorism and had returned to the international community, the civil war that destroyed this country in 2011 interrupted the energy supplies. Libya continues to be under great insecurity.

- Saudi Arabia: the rule of the Al-Saud, officially aligned with the West, funds the proselytism of its radical version of Islam, the Wahabism, contributing to arouse fanaticism in sectors of the Muslim population which follow more moderate tendencies, like the Sufism of Maghreb.

- Nigeria: the country is divided between the Muslim north and the Christian south. The radical Islamist group "Boko Haram"[7] has unleashed a strong terrorist campaign, which joins to the organized crime of the Niger Delta that has traditionally acted against oil interests.

The outlook, therefore, does not seem very encouraging, and perhaps from a point of view focused on security in capital letters, and not only on the purely economic criteria of the energy security, it would not be absurd to increase dependency on geopolitically reliable countries, as Russia or Mexico.

A similar analysis can be done with Spanish gas imports, which in 2010 were distributed in percentage terms as shown in the following figure:

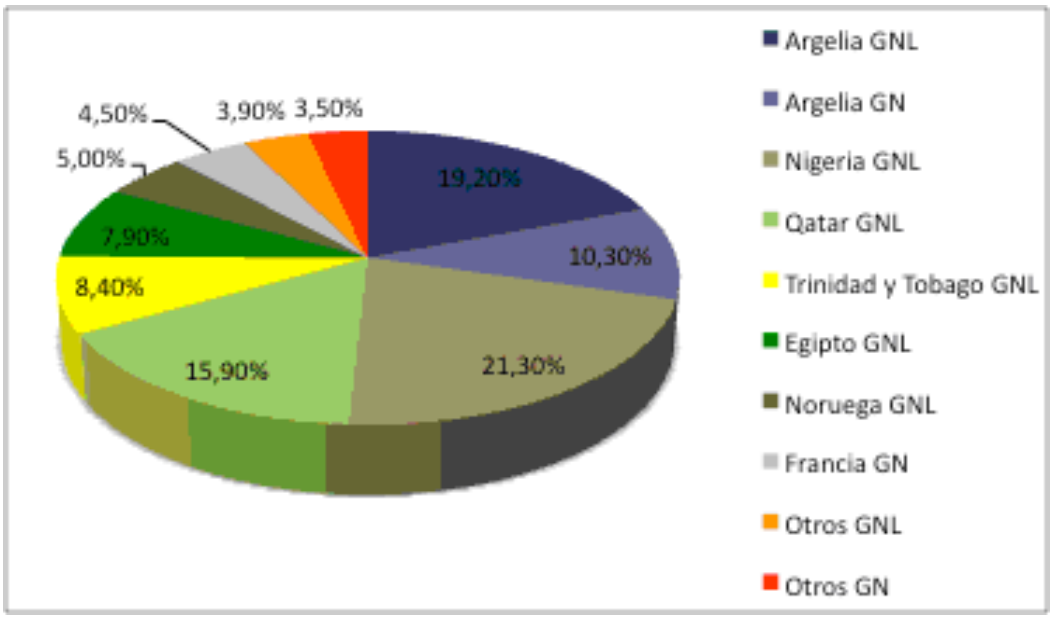

Figure 4: percentage by countries of gas supply to Spain (2010, Ministry of Industry)

In this case, the percentages represented by the main suppliers are significantly higher, with 29.5% for Algeria, 21.3% for Nigeria, 15.9% for Qatar, and as far as 8.4% for Trinidad and

[7] On that subject, see LABORIE Mario, "Boko Haram: Jihadist terrorism in northern Nigeria", Information Document 39/2011, Spanish Institute for Strategic Studies, October 2011.

Tobago. Due to the mentioned isolation of the Iberian Peninsula of the major European gas networks, Spain has opted mainly for LNG instead of the connection through pipeline, with the notable exception of Algeria with which we are connected by two infrastructures:

- The Maghreb-Europe, which became operational in 1996 with a capacity of 10 bcm, and which links Algeria with Spain through Morocco.
- The MEDGAZ, which became operational in 2011 with a capacity of 8 bcm annually, and which links directly Algeria and Spain through the Mediterranean.
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Unlike the rest of the northern African countries, Algeria has remained relatively oblivious to the tensions of the Arab Spring, and it should be reminded that even during its bloody civil war of the 90s it has never interrupted the supplies to Spain, this is why we can considered it as a geopolitically stable supplier and also very close to the European continent. With regards to other countries, the case of Nigeria is identical to that of oil[8], while the comments made about Saudi Arabia are fully applicable to Qatar.

The issues of maritime (in)security

In any case, besides the problem of the socio-political conflict and instability in many of these supplier countries, there is another important issue that is seldom mentioned, the need to protect the sea lanes via which imported oil and gas from the same areas is transported.

In fact, the maritime security is one of the greatest challenges of our time, and for decades the control of the international water, not under the jurisdiction of any coastal State, has been entrusted to a few countries with military fleets with a global reach, in particular U.S.

However, Washington seems to be reducing in a gradual way its global presence for the purpose of domestic economic recovery, so the rest of the world must assume a greater burden in maintaining freedom of navigation. In addition, the phenomenon of "failed States" makes that even in jurisdictional waters of certain areas the international community has had to assume a role in the fight against organized crime.

In this regard, the maritime piracy is perhaps the phenomenon that has become more relevant in the recent years, although it is not a new phenomenon at all. In the Gulf of

[8] There is a project of a Trans-Sahara pipeline from Nigeria to Algeria (and from there to Europe), with a capacity of 20 to 30 bcm annually, but the current insecurity in the Sahel, with episodes like the international military intervention in Mali to cope with Islamist terrorists, make it very doubtful that such infrastructure could become viable someday.

Guinea the attacks are aimed the theft of part of the burden, but in waters of Somalia the pirates hijack ships and crews for ransom by them, in negotiations that can last for months.

The World Bank has estimated at $18,000 billion the annual cost of piracy in the Indian Ocean[9], some of which correspond to the costs of military operations launched by the West, as the EU NAVFOR ATALANTA or the OCEAN SHIELD of NATO.

Returning to the example of Spain, its oil imports by sea from the Persian Gulf must pass through such conflictive areas as the Strait of Hormuz (threatened with closure by Iran), the pirate-infested waters of the Gulf of Aden, the Strait of Bab-el-Mandeb (where the French oil tanker "Limburg" suffered a terrorist attack in October 2002), and the Suez Canal (closed by Egypt from 1967 to 1975), before reaching a relative safety of the Mediterranean.

In the case of gas, the LNG provides a much more flexible import than the gas pipelines, as it allows readjusting trade flows to the demand, but this should not obscure the implications relating to the maritime safety, as the LNG of Qatar must follow exactly the same path as Saudi oil to reach Europe, or as an alternative surround all Africa.

4. THE FRAMEWORK OF THE UE-RUSSIA RELATIONS IN THE FIELD OF ENERGY

As already mentioned, the European energy policy (ergo the Commission) is looking for a diversification of the supplies, avoiding excessive dependence on Russia, and is trying to prevent the acquisition of business assets in the sector by corporations that do not respect the Community acquis, as Gazprom. Those goals seem to justify any means, reaching the paroxysm in the case of the South Corridor, which will be studied in detail subsequently.

And yet, as also mentioned above, some key Member States are not willing to follow the precepts of Brussels in this field. Thus, for example, in March 2012 the CEO of the French corporation Total, Christophe de Margerie, affirmed during a visit to Moscow that *"the uprisings taking place in the Arab oil and gas producer countries have sent a signal to investors to turn to Russia, because this country offers a much more secure and stable environment".*

[9] DO Quy-Toan, The pirates of Somalia: ending the threat, rebuilding a nation, World Bank, 2013, available on: http://documents.worldbank.org/curated/en/2013/01/17672066/pirates-somalia-ending-threat-rebuilding-nation.

Perhaps for this reason, it seems that there appears a change in tendency relating to the energy relations between the EU and Russia, whose main evidence is the "Roadmap for Energy Cooperation EU-Russia until 2050"[10], document from which, due to its importance, is made a summary of its main contents.

A farsightedness for the energy relations in Europe

The "Roadmap" of the energy cooperation covers the markets of electricity, gas, oil, and renewables, in addition to cross-cutting issues to all of them and the fundamental issue of energy efficiency.

It starts by recognizing something fundamental, such as the mutual dependency of the two actors in this area, because if Russia is a key energy supplier to the EU, the Russian neighborhood with an advanced market of 500 million consumers is of similar importance for Russia. This biunivocal relationship should allow strengthen the synergies and establish a long-term strategic cooperation.

There are also mentioned forecasts of the institutions such as the International Energy Agency (IEA), which in its report of 2011 forecasts an increase in energy demand of 40% for the period of 2009-2035, with a 90% of that rise from non-OECD Member States, and with a natural gas trade multiplied by two.

In this changing environment, the goal should be to achieve a "Pan-European Energy Space", with an integrated and functional infrastructure network, transparent, efficient and competitive markets, contributing to ensure energy security and achieving sustainable development goals of the EU and Russia.

Concerning to natural gas, the Russian industry objectives include an increase in production putting into operation new deposits, which offset the depletion of the current ones; the renovation of the existing transport networks and the development of new ones; the development of production and export of the LNG; and the liberalization of the gas market, allowing a non-discriminatory access of various companies to infrastructures.

In terms of the EU, the goal is to ensure a safe, sustainable and at affordable cost energy, to contribute to its competitiveness, and although it calls for a de-carbonization of the economy, from among fossil fuels the natural gas is the preferred one, because is the most

[10] Available on: http://ec.europa.eu/energy/international/russia/doc/2013_03_eu_russia_roadmap_2050_signed.pdf.

economical, the less polluting, and an adequate support for the intermittence in the supply of renewable sources.

With regard to prospective studies on the evolution of the natural gas consumption in the EU, the findings are not conclusive as they vary a lot from one to another, especially because it will depend on uncertain factors such as the price of gas compared with the price of other sources, the promotion policies of other sources less contaminating, the evolution of the economy, the development of capture technology and storage of polluting gases, etc..

However, and despite those uncertainties and the growth of the Asian market, in 2035 the forecast is that Russia is the largest world producer of gas and that the EU is its main customer. Therefore, it must be reduced the shadow of the doubt that has chaired the mutual relations in recent years:

- In the EU, it is mentioned the need for Russia to be regularly informed of the long-term prospects of the gas demand, so that it can plan the investments in new infrastructures[11].

- On the Russian side, the EU should be informed of the long-term ability to provide gas to Europe, facilitating investments of the Union into the Russian energy market.

Finally, there are established a serie of recommendations, actions and milestones to be achieved in 2020, 2030 and 2050, most of which contribute to the mentioned aim of improving mutual trust and, consequently, the strategic relationship in this field.

Does Russia have alternative markets to the EU?

While are materialized the good words of the "Road Map" of the energy cooperation between the EU and Russia, the fact is that several EU countries (especially the Eastern ones) are aggressively implementing the Third Energy Package against Gazprom interests, and that in many areas Russia is still perceived as a threat in this field, rather than an opportunity.

[11] That is, the opposite of what promotes the Third Energy Package of the UE. Take the case of the gas pipelines that transport, once in Germany, the gas from the Nord Stream, OPAL and NEL. It had a cost of $1.300 million, funded by W&G (the German Wintershall, with 51% of the shares, and Gazprom with 49%). In the OPAL, W&G has 80% of the shares (E.ON Ruhrgas the remaining 20%), and in the NEL has 51% (the Dutch Gasunie 25% and the Belgian Fluxys 24%). So, they are pan-European projects, which have requested to be exempted from the obligation to provide access to other companies, but the mere presence of Gazprom is likely to condition a contrary decision, which in practice is equivalent to a forced expropriation of resources.

An example is the case of the Greek state-owned corporation DEPA, which went on sale as part of the measures to the great economic crisis. Gazprom offered nearly $2,000 million for the company, a value much higher than its market price, but the European Commission and the United States pushed pressure on Athens to sell it for less than half to the Azeri SOCAR, considering that this agreement would be more favorable strategically.

The justification of why it is more favorable to the West selling a European company to the hereditary republic of the Aliyev family, of Altaic ethnicity and Muslim religion, set in a highly unstable region of Asia, rather than to a European nation, of Slav ethnicity and Orthodox Christian religion, with a high internal stability, is not easy to find in a geopolitical terms, unless Russia is still considered an enemy to contain.

In light of this hostility, and taking into account that the EU could have alternative supplies to the Russians (with all the nuances of its geopolitical convenience), it must be wondered whether in the opposite direction Russia has available alternatives to who is its largest and best customer.

First, the Asian areas of the Federation border the emerging markets of the Asia Pacific region. The problem is that the gas that could be supplied by pipe to these countries is not the same as the one shipped to the EU, as it has to use separate networks (many of them pending to be build) from the East Siberian fields and the Sakhalin Island.

With regard to China[12], it suffices to say that the Agreement of 2009 by which Russia would supply 30 bcm to the western region of Xinjiang and 38 bcm to the eastern Manchuria is still not implemented, due to disagreements over the price to pay. Currently there are negotiations just for the eastern 38 bcm, and Beijing is willing to pay about $100 less than the EU for each 1,000 m^3. Furthermore, as will be detailed in a later epigraph, China is already connected by gas pipeline to Central Asia, so it has the ability to negotiate from a position of strength.

Therefore, the main eastern alternative for Russia is Japan and the Republic of Korea, which, as already mentioned, Russia sends its unique LNG exports from Sakhalin, 13.7 bcm in 2011. That amount may be increased in 2018 when the new Vladivostok liquefaction plant enters into service, and Japan provides a financial contribution to its construction.

But the great Russian LNG development will occur in the Arctic. In that ocean is located the gigantic Shtokman field, with confirmed reserves of 3,900 bcm, in which development

[12] See RUIZ Francisco, "Relations Russia-China in the energy field", Russia Today, May 2013, available on: http://rusiahoy.com/blogs/2013/05/15/las_relaciones_rusia-china_en_el_ambito_de_la_energia_27855.html.

consortium participated Gazprom (51%), the French Total (25%) and the Norway Statoil (24%). Western companies would provide the complex technology needed, and the initial intention was that 50% of production (24 bcm during 25 years in phase I) will be sent by pipeline from Murmansk (600 km to south) to Western Europe using the phases III and IV of the Nord Stream, and the other 50% in the form of LNG by ship to the U.S.

However, the high cost ($30,000 million only for Phase I), the boom of the shale gas in the U.S. (which annuls any possible export to that country), and the lack of agreement on the relaxation of the draconian contractual terms that Gazprom imposed on its partners in the project (using the need for resources prior to the economic crisis), caused the abandonment of Statoil in August 2012 as considered the project economically unviable. With Shtokman waiting for better times, the interest has shifted to the Yamal Peninsula, Arctic waterfront, where the Yamal LNG consortium (80% of the Russian Novatek and 20% of Total) will exploit the Tambey field (about 23 bcm), while last January was signed an agreement between Gazprom and Novatek itself to produce LNG with Gydan field (about 28 bcm), although this development seems to depend on breaking the gas export monopoly enjoyed by Gazprom.

The important thing is that the future Arctic LNG production, unlike the initial Shtokman project, will be directed entirely to the Asian market, which in 2025 will require 600-800 bcm per year (50% in the form of LNG). And that will be possible due to the global warming and the gradual melting of the named northern route along the coast of Siberia, providing a long-distance route but perfect from the point of view of the maritime security.

Figure 5: deposits in Yamal, in red Tambey and Gydan (Website of Gazprom)

5. THE CASE OF NABUCCO AND THE SOUTHERN CORRIDOR

Existing such agreement on the strategic nature of a bilateral relationship between EU-Russia in the field of energy, mutually beneficial, it remains paradoxical the action of the Union in the South Corridor, in which the dogma of diversification can carry it to commit

bulk geopolitical mistakes. The main features of the development projects in the area have already been studied in previous Documents[13], so we will focus on the latest developments.

The jigsaw puzzle of the Caspian gas

As is known, on the European side of the corridor there are several projects competing for the gas that, presumably, will come from the Caspian through Turkey (starting in 2017 for the 10 bcm of production annual if the Azeri Shah Deniz II field). With the "South East European Pipeline" (SEEP) and the "Interconnector Turkey-Greece-Italy" (ITGI) offside, the fight is centered between:

- Nabucco, which meets the criteria of Europeanisation of energy policy, as it is driven by the Commission and even financed by Community funds. The ambitious initial project of 3,300 km of track and 32 bcm of capacity has been converted to Nabucco West, 1,300 km of route and 16 bcm of capacity.
- Trans-Adriatic Pipeline (TAP), with a route of 520 km by Greece, Albania and Italy, which could include a connection to Montenegro, Bosnia and Croatia, as well as a gas tank in Albania.

The differences between these projects are significant, one of a more institutional nature and the other of a more business nature.

- Firstly, the economic ones, since the TAP would cost about $2,000 billion, while the original project of the Nabucco would cost between $10.000 and $14.000 billion.
- Secondly, in the shareholding structure, because while in Nabucco the participating companies lack access to their own supplies[14], in the case of the TAP[15] the Norway

[13] See RUIZ Francisco, "Gas geopolitics: developments in the Southern Corridor of supply to the UE", Analysis Document 10/2012, Spanish Institute for Strategic Studies, February 2012; and RUIZ Francisco, "Gas labyrinth in Eurasia: geopolitical projects, realities, y consequences**",** Analysis Document 30/2012, Spanish Institute for Strategic Studies, July 2012.

[14] In the Nabucco shareholding there are involved, with 16.67% each group, the Bulgarian Energy Holding (Bulgaria), the Botas (Turkey), the FGSZ1 (Hungary), the OMV (Austria), the RWE (Germany), and Transgaz (Romania). The RWE announced in December 2012 its intention to withdraw from the project, something that is the major handicap for its viability.

[15] The TAP is promoted by a consortium formed by the Norway Statoil (42.5%), the Swiss EGL (42.5%) and the German E.ON Ruhrgas with the remaining 15%. On January 22 it was signed an agreement by which three of the participants in Shah Deniz II (BP, Total and SOCAR) receive an option to purchase up to 50% of the shares, similar to the agreement reached with twelve days before the consortium of Nabucco. Thus, waiting for the election of one or another project for Shah Deniz II gas, producers have ensured their position in both.

Statoil, with 42,5% of the shares, also own the 25,5% of the consortium that will explode the Shah Deniz II field[16].

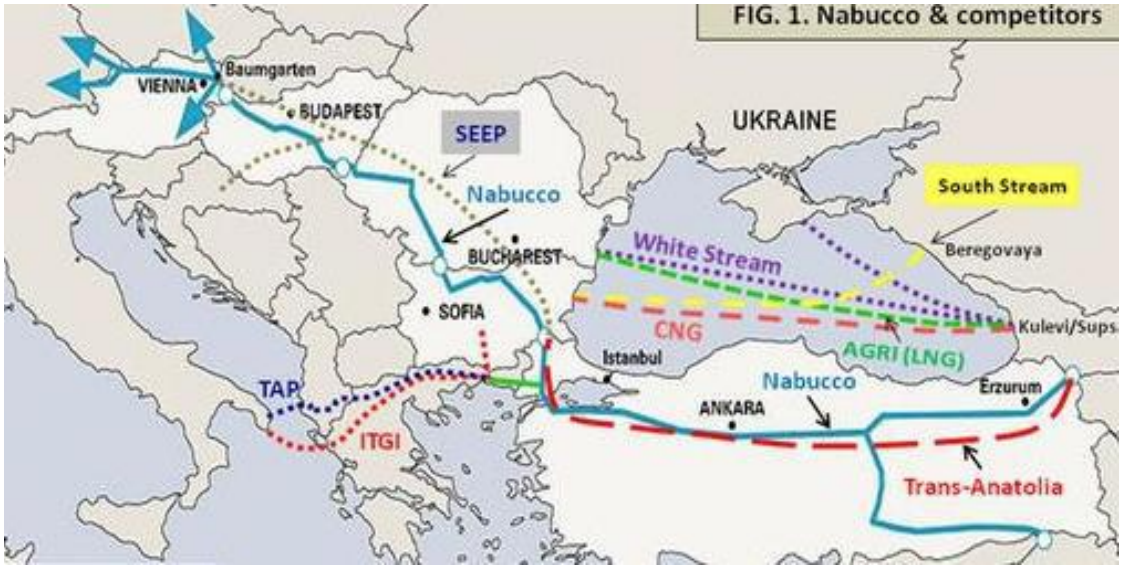

Figure 6: projects of gas pipelines in the Southern Corridor

- Thirdly, in the profitability, that in the case of the TAP would be assured with only the first 10 bcm of the Shah Deniz II, while the Nabucco would need other supplies of uncertain origin.

Therefore, in principle it seems that the TAP has more chances of being elected, but the political pressure on Azerbaijan could change the sign of the decision, given the consideration of Nabucco West as a strategic project for Europe. In any case, the struggle between the two projects will report large profits to the producer companies, which may sell the Shah Deniz gas to the highest bidder.

However, what matters for our analysis is that, whatever business decision is taken, and based on the sacrosanct principle of the diversification of sources, in both cases the supply of gas by pipeline in the Southeast Europe would depend on the goodwill of Turkey as a transit country, to what can be perceived the following risks:

- The growing political and social distancing of Turkey from Europe since the accession to power in 2002 of the "Party of Justice and Development" of Recep Tayyip Erdogan,

[16] Shah Deniz is operated by the BP (United Kingdom, 25.5% of share), the Statoil (Norway, 25.5%), the SOCAR (Azerbaijan, 10%), the Total S.A. (France, 10%), the LukAgip, (Union of Eni, Italy, and LUKoil, Russia) (10%),the NIOC (Iran, 10%), and the TPAO (Turkey, 9%).

with a growing Islamisation of society and a reaffirmation as a regional power under the so-called neo -Ottomanism.

- The possibility that Ankara would use that condition of key transit country to pressure the EU in endless accession negotiations. This risk is increased by the fact that it is not a producer State, so that the prejudices of a cut would be minor.

- The undeniable lack of security of Turkey to the many disputes that is involved: the occupation of northern Cyprus since 1974, the conflict in the southeast against the Kurdish PKK since 1984, the border with Armenia closed since 1993, the active role in the civil war that struck Syria since 2011, and even the incipient internal protests of the Kemalist opposition.

In summary, that to solve the problems caused by Ukraine as a transit country in 2006 and 2009, the EU advocates to put future supplies in the hands of an extra-European country, involved in all the conflicts of its region, and increasingly away from our sociopolitical model.

But even if we obviate the abovementioned risks of making Turkey a transit country for the Southeast Europe, it is necessary to consider the problems associated with the origin of those supplies, which is none other than the Caspian region.

Beforehand, Azerbaijan is one of the key countries in this complex chess match of the Southern Corridor. It is a reliable supplier, relatively stable, and with a long tradition of cooperation with foreign companies in the energy sector (as seen in the abovementioned composition of shareholding in Shah Deniz II). However, it should be taken into account that:

- Its gas production in 2011 was only of 14.8 bcm, representing 0.5% of the world total, a rate at which it's proved reserves of 1,300 bcm (0.6% of world total) would end in 86 years.

- Of those produced 14.8 bcm, almost half went to a domestic consumption, leaving an amount for export (7.5 bcm) almost negligible if compared with the gas needs of the EU.

TANAP is expected to reach in 2026 a capacity of 30 bcm[17], which in no case can be provided by Azerbaijan. Therefore, the binomial TANAP-Nabucco West should look for additional sources of supply.

[17]Regarding the use of the TANAP, it is important to note that the goal of Azerbaijan is to bring closer its gas to the EU, which would also provide benefits to Turkey as a transit country. But Ankara is really looking for a

It is better not to look to the south, because the alternatives are the Egyptian gas through the Arab Gas Pipeline (running through the Sinai, Lebanon and Syria, and that has been the subject of numerous terrorist attacks), the Iraqi gas (in a country on edge of a civil war between ethnic groups), or the Iranian gas (subject to an international boycott by the challenge of its nuclear program).

Therefore, the only real alternative is Turkmenistan, but this requires the construction of another gas pipeline along the bottom of the Caspian Sea. The problem is that the coastal States (Russia, Azerbaijan, Iran, Turkmenistan and Kazakhstan) have failed to define the legal status for the Caspian (some consider it a lake and others an internal sea), Russia and Iran have protested against the gas pipeline (in theory because of environmental reasons), and even the countries which would unite (Azerbaijan and Turkmenistan) are in constant dispute over various fields of the Caspian.

Figure 7: Turkmenistan gas pipelines

greater supply of Azerbaijani gas (at about \$330/1000 m^3) for its domestic market, reducing its dependence on Russia (that supplies it through the Blue Stream at \$400/1000 m^3), and especially on Iran, which after the construction agreement of the TANAP raised the price to Turkey from \$505 to \$585/1000 m^3. Therefore, although the initial capacity of 16 bcm of the TANAP only 6 would be to supply the western part of Turkey, as the capacity is increased no one can assure what percentage of them would be available to the EU.

Finally, if all the obstacles mentioned are overcome, the EU would be linked by gas pipeline to Turkmenistan, and it would be able to negotiate with Ashgabat the supplies of its huge reserves. But, would it be easier than to negotiate with Russia? Not likely, because while the Federation is a European country (with the nuances of its historical peculiarities), the isolationist Turkmenistan of the President Berdimuhamedov retains many of the peculiarities of its predecessor Niyazov, who among other things:

- He called himself Turkmenbashi ("leader of the Turkmens"), and renamed with that name the coastal population of Krasnovodsk.

- He planted all the country with huge statues of himself, including one in the Karakum desert and another covered with gold in the highest building of the capital.

- He wrote the Ruhnama ("the book of the soul"), which must be memorized by all high school students in order to graduate, as well as by the public employees.

Apart from all this, there is the fact that Turkmenistan has alternative routes to introduce its gas production because, in addition to the old gas pipelines that unite it with Russia, since 2009 it sends supplies to China (through Uzbekistan and Kazakhstan), it has projected with the U.S. support the TAPI (Turkmenistan, Afghanistan, Pakistan and India), and it has even signed another agreement with China on a new infrastructure that will unite both through the northern Afghanistan and Tajikistan.

Russian alternative in the Southern Corridor: South Stream

As expected, Russia has not remained indifferent to that dispute over the various Southern Corridor projects, as they all aim to replace Gazprom by other alternative suppliers. Therefore, Moscow has boosted its own project in the Black Sea, the South Stream gas pipeline, to complete the bypass of Ukraine and achieve a direct link with its customers from Southeast Europe, as the achievements in the Baltic with already mentioned Nord Stream.

This Project began in 2007, and its construction was started in December 2012, with the attendance of the President Putin and Gazprom executives and their Western partners in the project con (the Italian ENI and the French EDF).

Figure 8: South Stream route (Website South Stream AG)

South Stream intends to send up to 63 bcm by the bottom of the Black Sea to Bulgaria (with a possible branch to the Former Yugoslav Republic of Macedonia), Serbia (with a possible branch to the Republic of Srpska in Bosnia), Hungary and Slovenia. Initially it was envisage a southern branch Greece-Adriatic-Italy, but was replaced by a possible link with the TAP or the ITGI.

One of the main obstacles to South Stream was achieving the Turkey's permission for laying in the Black Sea part of its sovereignty[18], but that was resolved on December 28 of 2011 with the downward revision of the price that Ankara pay to Moscow for the Russian gas, provided by the Blue Stream pipeline, and by the agreement to extend the latter to southern Turkey, from where gas could be distributed to Lebanon, Syria or even to the Turkish Republic of Northern Cyprus.

According to Russian plans, in 2015 it would start pumping gas to Bulgaria, and in 2019 it would reach the maximum of capacity. However, the outlook is not as favourable as the Nord Stream, mainly because even if the original Nabucco was unrealizable and, therefore,

[18] In a desperate attempt no to be entirely offside, the Ukrainian government of Viktor Yanukovich offered Russia the possibility of moving to north the "South Stream" route, bringing it closer to Crimea and thereby avoiding the transit through Turkish waters, a proposition rejected by the Kremlin in view of Kiev insistence on achieving a reduction in gas prices agreed in 2009, as will be explained below.

posed no threat to the South Stream, its replacement in the Asian section by the Azeri-Turkish project of the TANAP can be a significant handicap[19].

Moreover, the attempted capacity of 63 bcm seems somewhat excessive, such as it is a cost of at least $30,000 billion. Russia has not succeeded in establishing clearly where all that gas would come from, since the only identified source is the joint development by Gazprom and the German BASF/Wintershall (present in the shareholding of South Stream with 15%) of the field of Urengoy (Western Siberia), with an expected annual production of 8 bcm from 2015.

6. THE GAS PROBLEMS BETWEEN RUSSIA AND UKRAINE, UNSOLVABLE?

As shown so far, the gas supply to the EU became a major problem after 2006, after the first gas war between Russia and Ukraine. Despite the arrival in 2010 to the Presidency of Ukraine of the supposedly pro-Russian Viktor Yanukovich, the tension is still very present in the energy relations between Moscow and Kiev. Once again, everything related to Ukraine was addressed in a previous Document[20], so we will just point out the latest developments since its publication.

Naftagaz-Gazprom: the never-ending story

Since Kiev pursues its dependence on Russian to decrease as much as possible when the current contract expires (in 2019), the Ukrainian companies have begun to look for alternatives to the supply by pipeline from its neighbor.

Regarding the so-called unconventional gas or shale, Ukraine has signed an agreement with the Royal Dutch Shell to explode the field of Yuzivske in the eastern regions of Donetsk and Kharkov. The investment may exceed $10,000 billion, and is expected to extract 8 bcm per year after five years, which could reach 20 bcm at full capacity.

[19] An evidence of the threat that poses the TANAP to Russia is that, after the signing of the project by the Azerbaijani President Aliyev and the Turkish Prime Minister Erdogan in June 2012, Moscow threatened Ankara with cancel the supply contracts since 2018. That is to say, to receive the first 6 bcm from the Caspian Turkey could lose the 23 bcm that Russia currently supplies it. See KUSZNIR Julia, "TAP, Nabucco West, and South Stream: the pipeline dilemma in the Caspian Sea basin and its consequences for the development of the Southern gas corridor", Caucasus Analytical Digest num. 47, February 2013, available on: http://www.isn.ethz.ch/Digital-Library/Publications/Detail/?ots591=0c54e3b3-1e9c-be1e-2c24-a6a8c7060233&lng=en&id=160678.

[20] See RUIZ Francisco, "Ukraine: ¿Bearing to the EU, to Russia or to the breakup?" Framework Document 15/2012, Spanish Institute for Strategic Studies, October 2012.

Returning to 2011 figures from BP, Ukraine produced 18.2 bcm, consumed 53.7 bcm, and imported from Russia 40.5 bcm. The latter amount, being greater than the necessary to cover the consumption, was less than the minimum amount of 42 bcm contemplated in the agreements of 2009, according to the clause "take it or pay". In 2012 the Russian gas import decreased to 33 bcm (25 of them by the state consortium Naftagaz), which has led to a claim of Gazprom of $7,000 billion for breach of contract, dispute that will be resolved in the international courts.

The fact is that the problem will get worse in the coming years, as the government of Yanukovych does not relinquish its fight against the contract signed in 2009 between Putin and Tymoshenko (and that has implied for the latter a 7-year prison sentence), and in order to reduce dependency[21] he has taken the following measures:

- Increase in production of the Black Sea to 3 bcm per year.
- Replacement in certain area of the gas by the local coal for heating and generation of electricity.
- Introduction of technologies of energy savings and energy efficiency.
- Plans for the construction of a LNG terminal in the Black Sea, which could process up to 10 bcm.
- Receipt of supplies from the West, reversing the direction of the gas pipelines[22].

Finally, there is another program of shale gas extraction, in this case in association with the U.S. Chevron in the western provinces of Lvov and Ivano-Frankivsk. However, this project faces the opposition from Ukrainian ultranationalist "Freedom Party", dominant in the area, due to environmental reasons.

[21] By the year of 2013, it is considering a figure of 20 to 27 bcm of Russian gas import, something that in case of materializing would motivate, without doubt, a new demand for Gazprom.
[22] Naftogaz has signed in October 2012 an agreement with the German RWE for receive gas through the Poland network, with a supply that could reach 5 bcm in 2013, and at a price in the first quarter of 2013 of $390 per 1,000 m^3, compared to the 406 billed by Gazprom. Kiev intends to reach similar agreements with Hungary, Slovakia and Romania.

Figure 9: Yamal-Europe routes and of the pretended Yamal-I

The apparent paradox is explained because the Western Ukraine is a largely agricultural area, while in the east, dominated by the pro-Russian "Party of Regions" and where the majority of ethnic Russians live, predominate the industrial interests of the ruling elite, so it is looking for a cheap energy even if at the risk of dealing with Russia.
Precisely it was the President Yanukovych who complained in a recent visit to Lithuania that the EU has left Ukraine in its disputes with Russia; although in 2010 it joined the European Energy Community in the hope of torpedoing the South Stream and involving Brussels in the modernization of its gas transportation network. Given the reticence of the EU due to the lack of transparency of that network, the modernization could end up in the hands of a bilateral Naftagaz-Gazprom consortium, moving Ukraine away from the Energy Community and the path of the European integration.

The Russian counterattack

In this continuous struggle between Russia and Ukraine, on April 3 the President Putin and the Gazprom CEO Miller announced an agreement to build a new gas pipeline, the Yamal-II, which starts in Belarus and will cross Poland to reach Slovakia. The Russian goal is to divert by this new route up to 15 bcm of which now pass through the Ukrainian pipelines to Europe.

The consortium that would build the new gas pipeline is the same that controls the Yamal-Europe I (Belarus-Poland-Germany, with 33 bcm of capacity), the EuroPolGaz, in which Gazprom has a 48% of shares, just as the Polish state-owned company PGNiG. Despite the latter, the Polish Prime Minister Tusk was quick to say that the EuroPolGaz is not a Polish

company, and that despite the benefits which that gas transit could bring it, his country will not participate in any initiative to bypass Ukraine.

Nonetheless, the mere announcement can change the gas landscape in the Eastern Europe. Beforehand, because Slovakia would be delighted with the project, since it would make profitable its huge capacity of transporting Russian gas to the EU (of 90 bcm), currently underused. In addition, because unlike the megalomaniac (and probably non-viable) South Stream project, the Yamal-II is a practicable option and of a high-impact on Ukraine, which thus might be seen forced to comply with the conditions imposed by Moscow.

Gathering together in only one box all the mentioned pipeline export capacities from Russia to Europe, the result is the following:

Gas pipelines in service	**Capacity**
Ukrainian transit pipeline system	140 bcm
Nord Stream I & II	55 bcm
Yamal-Europe I	30 bcm
Baltic pipelines	12-15 bcm
Blue Stream	16 bcm
Gas pipelines in project	**Capacity**
South Stream	63 bcm
Nord Stream III & IV	55 bcm
Yamal-II	15 bcm

Some experts believe that this transport capacity far exceeds both the Russian supply capacity as well as the European needs, referred to as the "high cost redundancies"[23].

Indeed, adding all those figures it reaches a total capacity of 385 bcm, obviously excessive, but that analysis is based on false premises, as the Nord Stream, South Stream and Yamal-II pipelines (188 bcm in total) are not conceived as an addition to the traditional export route through Ukraine (140 bcm), but as a substitute for it.

This means that Russia has preferred to invest huge amounts of money to build new gas pipelines in order to freeing itself from the dependence on Ukraine as a transit country, and it has not been alone in the attempt as the big Western European corporations have funded the projects, as they agreed on the diagnosis of the supply problems suffered in 2006 and 2009.

[23] SOCOR Vladimir, "High-Cost Redundancies: Gazprom's Pipeline Projects in Europe", *Eurasia Daily Monitor*, Vol. 10, num. 74, April 2013.

Therefore, the analysis must take another approach. Although the imports of Russian gas to the EU in 2011 were of 117.1 bcm, it should be recalled that the gas consumption in the Union that year exceeded in 317.8 bcm the production. The difference between the two figures is mainly covered by:

- The 92.8 bcm provided by Norway by pipeline, reserves that would be exhausted in 20 years at the current rates of production (although the progressive exploitation of the Arctic will increase that time horizon).

- The 32.8 bcm provided by Algeria by pipeline, that on the contrary would last for 55 years longer.

- The 84.5 bcm received in the form of LNG, most of which and with the exception of the 12.8 bcm from Algeria, the 3.9 from Trinidad and Tobago, and the 2.6 from Norway, come from geopolitically unstable countries, or which allocate the benefits to purposes contrary to the Western security, or by unsafe shipping routes.

Since Russia has room left to increase its exports to those 188 bcm of capacity of the new pipelines, increasing the production or reducing its domestic consumption, it is shown that a triple-tube supplies from Russia, Norway and Algeria would make a total of 313 bcm, sufficient to meet the current EU production needs and that could grow in the future.

Nevertheless, it is paradoxical that the lack of agreement between two sister nations, such as Russia and Ukraine, leads to situations such inexplicable as Kiev ends up receiving Russian gas from its western border, resold by Germany after received it by the Nord Stream, or that Moscow invests $30,000 billion in the South Stream to send 63 bcm to the Balkans, when through the existing lines in Ukraine it could send 50 bcm.

7. CONCLUSIONS AND PROSPECTS

The issue of the European energy security is extremely complex and in no case it can be expected to address in depth with the length of this document. However, and based on the data collected and the analysis carried out in the various epigraphs, it is possible to list a number of core ideas that serve to challenge many of the assumptions that seem to have become an unquestionable truth.

First of all, Europe would not pose its energy security as a problem if it wasn't for its reliance on foreign sources of supply, which should be reduced as far as possible. The energy efficiency initiatives contribute to this purpose by the consumption side, the same way as do on the supply side some sources such as the nuclear or the renewables, bringing closer the EU to its goals of reducing emissions of greenhouse gases.

Nevertheless, this process of "decabornisation" has its limits, so it will be inevitably to continue using the fossil fuels. In periods of high energy prices some European countries have returned to the local coal for electricity generation, but this does not seem an acceptable solution from the environmental point of view. Although not all forecasts agree, it seems that the natural gas will play an important role in the energy mix in the coming decades, especially in countries like Germany, which has dismissed nuclear energy.

For this reason, and to ensure a safe, sustainable and at affordable cost energy, the European Commission has been assuming a greater role in the design of the energy policy. Beforehand, it is intended to create a functional and integrated internal infrastructures network, which avoids the existence of "energy islands" as the Iberian Peninsula (due to the lack of proper connections with France). The achievement of this network which connects the entire EU through high capacity pipelines and in reversible direction must be one of the priorities for the energy security.

However, it is the paradigm of the diversification of sources which is more debatable, especially if is adopted on the basis that Russia and Gazprom are the threat to be contained, and without taking into account the geopolitical risks that involves the election of supply sources outside the region, because of its instability and insecurity as well as because of the traffic problems associated with the resources transit from areas far away from our continent.

And, as has been shown, Europe-Eurasia has proven gas reserves for 76 years, its production covers almost completely its consumption, and it has pipeline networks to compensate for the deficit production of the EU with the excess of the post-Soviet space. Therefore, an energy agreement that covers the pan-European energy space mentioned in the "Roadmap EU-Russia to 2050" would make unnecessary the import from other regions, and the exploitation of shale gas fields of serious ecological consequences.

Faced with the impossibility of taking that approach for the whole EU, countries like Germany have decided to strengthen its bilateral relationship with Russia, with no concerns about increasing its dependence. So, one might wonder who makes it impossible to establish a common EU position against Russia, if Berlin for choosing the most reasonable option from

the economic and geopolitical point of view, or Brussels by choosing alternatives based on "energy packages" and "Gazprom clauses".

On the other hand, a good alternative for the diversification of sources is the LNG, since its transport by sea provides a greater flexibility than the fixed pipeline transport. And this is how Spain understood it, and has provided itself with a great capacity regasification plants around its coastline, especially to reduce the excessive dependence on pipe supply from Algeria.

But in this regard it is noteworthy that the LNG which receives Europe in some cases comes from unstable areas, in other funds activities of some States that adversely affect our own security, and often follows transit routes that cross some of the hottest spots in maritime security challenges. Therefore, and although there should be a call for the LNG as a complement to the supply by pipeline, it is necessary to be very careful when choosing supplier countries in order to minimize all these issues.

The case of the South Corridor is the most representative of these contradictions. Beforehand, it is seen how the great solution designed by the Brussels bureaucracy, the Nabucco pipeline, has blurred just as was confirmed its economic infeasibility. In its Asian stretch it has been replaced by the Azeri-Turkish TANAP, and even in the European stretch it competes with the TAP to secure only the first 10 bcm from the Shah Deniz II field, in apparent disadvantage because its shareholders do not participate in the decision of the owners of the Azeri field.

Even if the combination of BTE-TANAP-Nabucco West is consumed, the Azeri production would clearly be insufficient to make it profitable. The possible contribution of countries like Iraq or Iran dismissed at the moment, what leads the EU to propose a gas pipeline for the bottom of the Caspian by which would move around the Turkmen gas. But Ashgabat is subscribing multiple supply commitments with the Asian countries, especially with China which is joined with it by large capacity pipelines.

In any case, what is surprising from a geopolitical point of view is that to solve the problems of energy insecurity caused by the disagreements between Russia and Ukraine, the solution is to put the security of supply in the hands of Turkey as a transit country and Azerbaijan/Turkmenistan as suppliers, all these Asian nations, surrounded by conflicts, of Altaic root, and with sociopolitical models much more away from the EU than from Moscow or Kiev.

Therefore, and instead of trying to get out of the pan only to fall into the fire, the main efforts of the EU external energy policy should aim to definitively resolve the disputes between Russia and Ukraine, to reverse the situation that existed before the Orange Revolution of 2004. But it cannot be posed to Kiev a false dichotomy that will force it to decide between moving towards the EU integration or the reintegration into organizations led by Russia.

In that sense, it is positive that the transit of Russian gas through Ukraine towards the EU does not represent anymore a percentage as high as in the past, thanks especially to the Nord Stream, as this causes that a new potential gas war had not such important consequences for the EU. But complete the bypass of Ukraine would be detrimental even for Russia, since it would have to make large investments for the implementation of the Yamal-II and, very particularly, of the South Stream to serve the limited market of Southeast Europe, rather than leverage the existing connections.

Without changing the contractual conditions of 2009, the greater flexibility of both sides regarding the supply levels, prices, transit fees and the clause "take it or pay", could make unnecessary the Russian projects to isolate Ukraine and the Ukrainian projects of independence from Russian gas. A key measure would be that the Ukrainian pipeline network, urgently needed investments in modernisation, passes into the hands of a joint venture of Naftagaz, Gazprom, and one or more Western corporations.

In summary, the energy security of the EU and its natural gas supplies would be ensured by: a suitable transport internal networks; common negotiating positions with the external suppliers; a triple supply through tube from Russia, Norway and Algeria (using already existing networks); regasification plants distributed along the coast; and a group of LNG suppliers through secure sea lanes (like the Caribbean, the Mediterranean, and the Arctic).

The supply to the southeast of Europe would be guaranteed by the Russian gas which comes through the Ukraine-Romania connection, in turn supported by the Algerian gas which could come through the TAP (reversing the direction), from Central Europe (through the connection north-south), or in the future with the LNG from the Eastern Mediterranean (Cyprus-Israel) and re-gasified in Greece or in other countries. Neither the Russian South Stream nor Nabucco West of the EU would be necessary, and would be avoided the geopolitical problems derived from the reliance on gas in Asia Minor.

Thus, the increase of the Azeri production in the Caspian would serve to cover, through the BTE and the TANAP, the growing needs of Turkey, which in turn could reduce its Iranian imports and even the Russian gas through the Blue Stream. The transcaspian pipeline would

be equally unnecessary, and the Turkmen gas would be available for China, Afghanistan, Pakistan or India. The same fate would have the LNG in the Persian Gulf, so the Asia-Pacific countries would be the ones who would have to worry about the maritime security of the supply routes.

And, although Europe cannot aspire to the growing energy independence achieved by North America (due to the U.S. shale gas or the Canadian oil sands), the existence in the region of the largest proven gas reserves in the world allow the EU to ensure its energy security without decreasing its overall security, as long as the maximalist positions in relation to the key players like Russia are abandoned.

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NOTE: The ideas contained in the ***Framework Documents*** are the responsibility of the authors, and not necessarily reflect the opinion of the IEEE or the Ministry of Defense.