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DOCTORAL THESIS

- SUMMARY -

RUSSIA-EU ECONOMIC COOPERATION IN THE FIELD OF ENERGY

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KEYWORDS : oil, gas, coal, uranium, hydroenergy, pipelines, resources, Russia, EU, gas pricing.

Introduction

Our motivation for writing the doctoral thesis entitled „Russia-EU economic cooperation in the field of energy” lies in the importance of this topic for EU member states’ need for energy security and because of the need to explain some aspects connected to natural gas price mechanism for imports made from Russian Federation.

The fundamental objective that we have set to achieve is represented by the research of existing relations between states, respectively between energy companies from Russia and EU countries ***in supplying natural gas***, oil issues being addressed only in terms of a general characterisation of the global energy situation.

In order to achieve these specific objectives, we have made two assumptions: 1) under existing economic interdependencies worldwide, both the EU and Russia are forced to cooperate, especially in the energy field, part of the economic wider spectrum that is vital for both geopolitical actors; 2) the EU needs to determine Russia to become even more dependent on its market, this being the best way to ensure EU energy security.

Chapter 1. Eurasian energy complex in the world energy configuration

In this chapter, relying on statistical data, we will present the global energy structure, as well as the EU and Russian energy structure.

After having discussed the „*fossil capitalism*”¹ and the current political organization of contemporary world, a *carbon democracy*², the paper presents the main trends concerning the production, consumption and prices of the main fossil energy resources of the planet.

Section **1.1.** is an overview of existing energy resources at global level, their distribution on regions and an analysis of production, consumption and world trade with the main types of resources. Thus, despite numerous predictions concerning the limited fossil energy resources, statistical data showed an increase in time from 1980 to 2009 of both oil reserves (1.99 times) and natural gas (2.31 times).

¹ Elmar Altwater, The social and natural environment of fossil capitalism, *Social Register*, 2007, no. 43, p. 39-59;

² Timothy Mitchell, Carbon democracy, *Economy and society*, vol. 38, no. 3, 2009, p. 399-432;

Regarding the distribution of key world energy resources, we have noticed that in the case of oil and natural gas there is a strong geographical concentration of resources – oil for about 62.2% and natural gas for about 64.3%³ being geologically available in the Middle East and the Russian Federation. A more balanced distribution globally is noted for coal and uranium, a situation that does not involve dependence on a specific geographic area for those that are using this type of resources.

The biggest world oil producers are: Russia (12.9% of the global production), Saudi Arabia and United States of America (11.8% respectively 8.3% of the global production), while exports are looking differently, Saudi Arabia being the world largest producer (18.2% of world exports), followed by Russia (12.3%) and Iran (6.1%). Russia's second place among exporters is the result of its high domestic consumption.

In terms of natural gas, one can also notice a rising trend of production and consumption in Europe and Eurasia during the last 4 decades, as a result of the change that took place in the European countries after the oil crisis, and the increase of production is the result of a new producer appearing on the European market, the Soviet Union.

In terms of worldwide energy consumption, we have found some very important trends. In most regions of the world, the share of oil and coal consumption has decreased, leaving room for an increase in the consumption of natural gas, hydro and nuclear energy. However, we have noticed that in time, the most developed economies have first shifted towards an increase in gas consumption, while the emergent economies, like China, continued an intense use of coal for primary energy production. As a general conclusion concerning energy consumption, in the last 20 years China and the Asia-Pacific region have been the largest consumers of energy worldwide, and in the region (and sometimes worldwide) China is the consumer that determines the trend.

In terms of prices, we have noticed a continuous rise in energy prices during the first decade of the 21st century, with coal having the most stable level, and much reduced variations. At the same time, similar trends are being noticed for two energy resources, oil and natural gas – as a result of the link between the price of gas and that of oil.

³ According to data from BP Statistical Review of World Energy 2010;

A very strong relation has been identified between the economic development of a country or region, the availability of geological gas and the volume of gas consumption, which shows the deciding role that gas plays in the world energy structure.

In section **1.2.**, we have presented the situation of reserves, production and consumption within the European Union. Between 1980 and 2009, in the EU the oil and gas reserves have almost halved, different evolutions being registered in different states. In terms of primary energy production in the EU, the share of oil and oil products is 44%, that of coal 4.5%, of natural gas 22%, followed by other fuels (the figures are for 2008). Analyzing the share of natural gas in the consumption of final energy for a longer period of time, we have seen that generally, natural gas fluctuates between 20-25% in this kind of consumption.

In section **1.3.** we have analyzed the situation of reserves, production and energy consumption in the Russian Federation. After comparing the figures of the production with those of the consumption, we have noticed that Russia owns a positive energy balance for all resources (excepting coal until 1997), a situation that allows Russia to be actively and vigorously engaged in the international energy trade. In terms of commercial energy exchanges, there is an overwhelming Russian dependence on the European market for its natural gas (over 96% of its gas is destined for Europe), due to the existing transport infrastructure, while in the case of oil exports, Russia is more autonomous, possessing multiple transport possibilities to the EU, CIS, as well as to Asia and North America.

Chapter 2. Economic cooperation Russia-European Union

In this chapter we discuss and analyze the cooperation starting from the delimitation existing between the terms of *economic international cooperation* and *economic international collaboration*, in order to conclude that the first is being contained by the second. As a component of economic collaboration, through cooperation (usually realized at microeconomic level) the objectives set in different agreements signed by governments or national institutions are achieved, that are connected to a much wider collaboration, even if euphemistically speaking, these agreements are called cooperation agreements between states in different areas of activity.

In section **2.1.** we present the characteristics of the economic cooperation between Russia and European countries before and after the communist regime took power in this country, until the Second World War. At the end of the czarist period, Russia was the world's largest debtor,

being the preferred destination for investors from France, Germany and Great Britain⁴, and in 1914 one third of Russia's industry was owned by foreigners⁵, the main investor being France with 33% of all foreign investments, followed by Great Britain and Germany with 23%, respectively 20%. The most attractive sectors for foreign capital were metallurgy, the mining and mechanic industry, with more than 50% foreign capital. Other important sectors were chemical industry – 40% and textile industry – 20%.

During the interwar period, Soviet Russia's contacts with the rest of the world had a lower intensity and were conducted according to three vectors⁶ of its foreign trade policy: a) first, it was oriented toward internal needs of the state that had begun the industrialization process; b) afterwards, it was characterized by autarchy and a self-sufficiency policy; c) during the last phase of the interwar period, the country was especially interested in imports, ignoring exports almost completely. These vectors that characterized Soviet Russia's relations with the European countries were based on the need to avoid a deepening dependence of the Soviet economy on that of capitalist Europe. The best way of understanding Russia's foreign trade in that period is throughout the data from the table below:

Table 1. USSR foreign trade – mil. rubles (1913-1937)

Years	Export	Import	Foreign Trade Balance
1913	6596.4	6022.5	573.9
1924	1476.1	1138.8	337.3
1928	3518.9	4174.6	-655.7
1930	4539.3	4637.5	-98.2
1937	1728.6	1341.3	387.3

Source: data from Tony Cliff, *Państwowy kapitalizm w Rosji od Stalina do Gorbaczowa*, p.187;

In section 2.2. we provide an analysis of post-war economic relations between the Soviet Union and the main founders of the European Economic Community. We also provide an analysis of the USSR-EEC relations, as well as for COMECON-EEC relations. The main feature of these relations was a trade based on the supply of new technologies from the EEC countries to the USSR and its satellites. In this context, there are important figures for the West-European technology exports to the USSR, in 1965 adding up to 294 millions dollars, in 1976 to 3 billion

⁴ Paul Gregory, *Before command: an economic history of Russia from command to the first five-year plan*, Princeton University Press, New Jersey, 1994, p. 67-74;

⁵ Seurot, François, *Le système économique de l'URSS*, Presses Universitaires de France, Paris, 1989, p. 26;

⁶ Franklin D. Holzman, *Foreign Trade under Central Planing*, p.53;

dollars⁷, a 10 time increase in only one decade. Therefore, USSR was specializing in supplying the EEC with raw materials and commodities while importing high-tech products.

The hydrocarbons trade between USSR/Russia and European countries dates from the 60's and the beginning of the 70's, when the first pipelines were built to transport oil – Druzhba (*Friendship*) between 1960-1964 – and natural gas – Bratstvo (*Brotherhood*) from 1968, first to socialist countries and afterwards extended to the other side of the Iron Curtain. In 1970 the first „gas for pipe” agreement between the Federal Republic of Germany and the Soviet Union was signed, and the first supplies of Russian gas to West-German, Italian and French markets began in 1973-1974⁸. The agreement mentioned that investments in the gas transport infrastructure from the Soviet fields in West Siberia would be made with German capital, the Soviet supplier being unable to create the technology needed for an adequate pressure within the pipe for such a distance.

The section also contains an analysis of the way in which the emergent energy dependency – both of the EEC and that of the USSR – were controlled. If the EEC created a specific mechanism of reducing dependency on a sole oil supplier (the Middle East), by implementing a program of saving energy, USSR went in an opposite directions, relying more on revenues from exports of oil and natural gas to a global market.

The **2.3.** section analyzes the legal foundations of economic and energy cooperation between USSR/Russia and EEC/EU in the late 80's, that were defined clearly at the beginning of the 90's. In 1988 the Trade and Cooperation Agreement was signed, replaced in 1994 by the Partnership and Cooperation Agreement (PCA), which expired in 2007. Even if the second agreement was intended to bring Russia closer to the EU, the results were unsatisfying.

On the basis of PCA provision regarding „integrating Russia in an common European economic and social space” and of the EU energy laws, the possibilities through which Russian energy companies are constrained to gradually adopt norms and rules concerning the activity within the EU are analyzed, as this would be a very efficient way for the Community to use its normative power in relations with the Russian Federation.

⁷ John P. Hardt, Kate S. Tomlinson, Soviet Economic Policies in Western Europe, publicat în Robin F. Laird, Erik P. Hoffman, *Soviet Foreign Policy in a changing World*, Aldine Publishing Company, New York, 1986, p.478;

⁸ Nina Poussenkova, Rethinking Russia: The Global Expansion of Russia's Energy Giants, *Journal of International Affairs*, vol. 60, no. 2, Spring/Summer 2010, p. 103-124

Using the legal framework, we analyzed statistical data for the EU-Russia trade that allowed us to conclude that after USSR's fall, the trade continues the same pattern that had begun in the 70s and 80s, when hydrocarbons represented more than 60 percent of all USSR exports to the EEC. Also, among Russia's main trading partners are the same countries – Germany and Italy – with whom the first energy agreements were signed in the above-mentioned period.

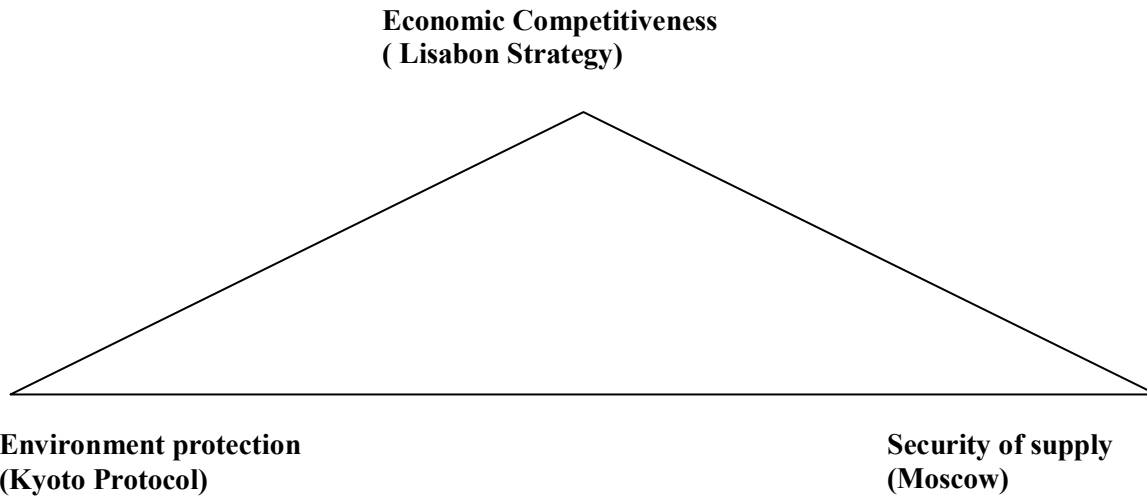
Chapter 3. The EU and Russia's energy policies in bilateral relations

Throughout this chapter, we analyze EU and Russia's energy policies, starting from the interdependency created between the two geopolitical actors in supplying and buying natural gas: Russia sells more than 95% of its gas to Europe, while the EU imports more than 40% of its consumed gas from Russia, its biggest supplier, followed by Algeria (30%) and Norway (25%).

In section **3.1.** we discuss EU documents that establish the Union's objectives for energy policy, the main document being the *Green Paper: Towards a European strategy for the security of energy supply*⁹. These objectives can be seen in the figure below. Through its energy policy, the EU intends to achieve its energy security, creating conditions to enhance competitiveness, by creating an internal energy market, interconnecting European gas and electricity networks and increasing investments in research and innovations. All these goals for energy competitiveness are in agreement with the Lisbon Strategy. Market competitiveness should naturally provide energy efficiency of economy and create conditions for a better use of renewable resources, making possible the achievement of the objectives set in the Kyoto Protocol concerning the reduction of greenhouse effects.

⁹ Green Paper: Towards a European strategy for the security of energy supply, European Commission, November 29, 2000 (COM9(2000)769final);

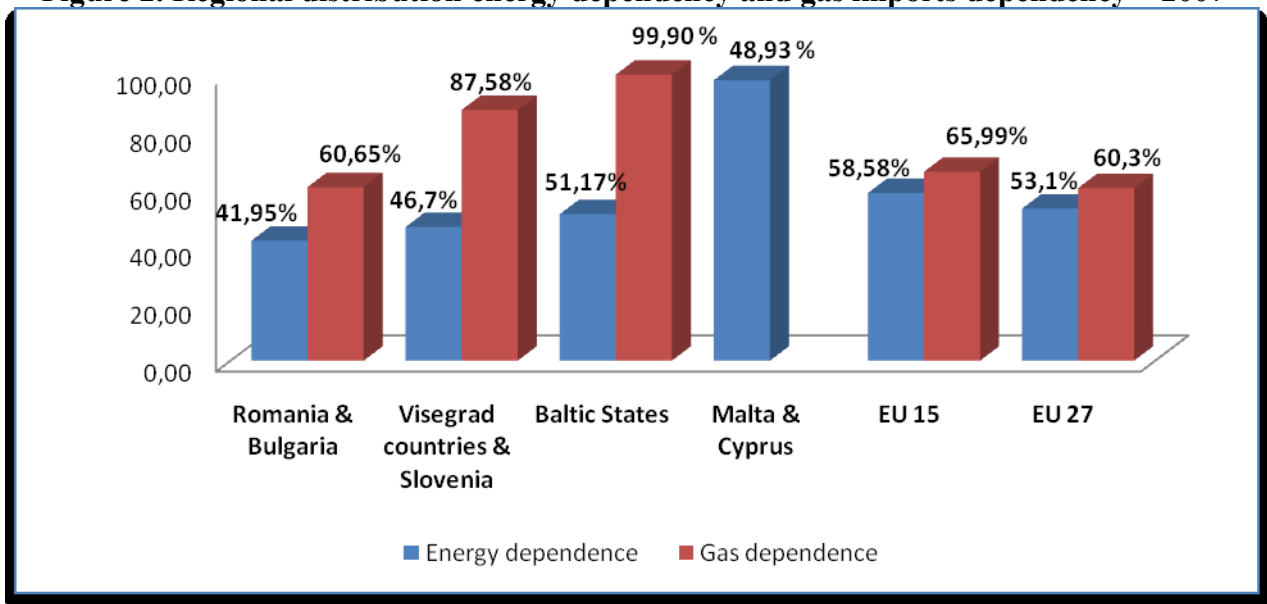
Figure 1. Objectives of the EU energy policy



Source: Green Paper on a European Strategy for Secure, Competitive & Sustainable Energy, What is at stake – Background Document, Presentation DGET;

One of the main problems concerning the creation of an external energy policy lies first of all in the different degrees of dependence of several EU groups of countries on the imports of natural gas (see the figure below).

Figure 2. Regional distribution energy dependency and gas imports dependency – 2007



Source: chart made by the author, on data from EU Energy and Transport in Figures. Statistical Pocketbook 2010, p. 30;

Eastern European markets are smaller and much more dependent on Russian supplies, while West-European ones are much larger, also having access to natural gas from other geographical areas than Russia. EU15 can purchase LNG gas, which moderates its position

towards Russia, mainly because due to these diverse suppliers, they can get a better price from Gazprom than EU10.

The last issue we discuss concerns the import infrastructure of natural gas towards the European Union from its neighbouring geographical areas, excluding those from the Russia Federation.

In section **3.2.** we analyzed Russia's energy policy using the documents *Energy Strategy of Russia for the period up to 2020*, adopted in 2003 and *Energy Strategy of Russia for the period up to 2030*, adopted in 2010. Generally, there is a strong convergence between the EU's and Russia's objectives in matters of energy policy:

- transition to a type of economic development based on innovation and energy efficiency;
- changing the structure and level of energy production;
- development of an competitive market environment;
- integration into the global energy system.

We analyzed the existing correlation between evolutions in the energy sector and the general situation of Russian economy. We concluded that there is a strong correlation between the evolutions on the world energy market and the performance of Russia's economy, a direct and strong link between Russian GDP and the world oil price.

Another important topic concerns Russia's energy transport infrastructure, which is organized as an integrated energy system, of extraction, processing and transportation. As for gas, Russia possesses the world's largest transport system of these resources, the average distance for domestic consumers being of 2504 km and for EU consumers of 3202 km¹⁰, and from Gazprom overall assets, the transport system holds a 51.6% share, more than half of the company's entire value¹¹.

Using Gazprom data, we know that the gas transport system counts 160 thousand kilometres, with numerous compressors. In 2009, through Russia's transport system, owned by Gazprom, 29 other companies that are not Gazprom's subsidiaries¹² were allowed to transport gas, mainly companies from Central Asia. However, the volume transported in 2009 was of only

¹⁰ Gazprom Annual Report 2009, p. 44;

¹¹ Idem, p. 44;

¹² Gazprom Annual Report 2009, p. 45;

589.7 bcm, much lower than in 2008, when it was 714.3 bcm, due to external and internal demand fall. The highest number of gas pipelines to the EU is crossing through Ukraine (144 bcm from 203 bcm total capacity). Through 9 pipelines that are crossing on Ukrainian territory, 143 bcm annually can be exported to the EU, the equivalent of 71% of Russia's export capacity. These figures explain why a gas conflict with Ukraine (like it was the case in 2005 and 2009) could seriously affect the supply of Russian gas to the EU, damaging also Russia's image as a reliable supplier.

Chapter 4. Energy cooperation in the EU gas market frameworks

In this chapter, following the peculiarities of the natural gas market by comparison with other goods markets, we provide an analysis of the way in which production-distribution relations are structured for the EU gas market, with the purpose to determine the mechanism for pricing gas imported by European companies from Russia.

The section **4.1.** presents the evolution and changes that took place on the European gas market, which also includes the Community market; three different levels are created: a national level, which relates to all domestic relations concerning production and distribution, the EU level which includes transnational relations established between producers and distributors/retailers from different EU member states and the extra-EU level that represents relations that emerged between EU producers and distributors and those from outside the Union.

This market is in its turn divided in two specific compartments: long-term indexed contracts market (dominant in Continental Europe) and spot contracts market (dominant in Great Britain and emergent on the continent). We also present the process of creating greater competitiveness on the market through the Energy Packages related to gas and electricity from 1998, 2003 and 2009, and the impact they had on existing market relations. The general tendency is that of reducing the term of the contracts signed with suppliers from outside the EU and of changing the pricing mechanism, more gas-to-gas competition being envisaged.

Another very important issue in this section concerns the interdependencies created by the transmission infrastructure and the importance of transit states. Thus, we discover that in Russia's relations with the European downstream, there is a double dependence in an inversed mirror. On the one hand, there is EU's dependence on Russia, a consumer-exporter dependency and on the other hand, there is the dependency of Central-Asian and Caucasus countries on Russia, a producer-re-exporter dependency. However, in Russia's relations with the EU, one should keep

in mind that it has the lowest percentage of direct supplies to that market¹³ (only 39.5%, compared to the Netherlands – 76.3%, Norway – 67.7% or Algeria – 44.9%), a situation that requests a special focus on economic and political relations with transit states, not only from Russia but also from the EU, both being interested in avoiding interruptions of supplies on their territory.

The most important issue discussed in this section is represented by the gas pricing mechanism for imports from Russia, and the way those mechanisms changed in Europe. Nowadays, the gas arrives in Europe mostly through pipelines on the basis of multi-annual contracts (20-25 years) that create a situation of „bilateral monopoly”¹⁴ because it creates interdependence between the supplier and buyer of the gas. This kind of contracts have not been imposed to Europeans by the USSR, but represent a Dutch invention after the exploitation of Groningen field, that allowed them to extract the energy resources rent¹⁵, and to optimize the trade with natural gas in order to get a higher profit than for ordinary goods, because of its rarity.

The gas pricing mechanism for imports takes in consideration the market value of main fuels that can substitute gas, that compete with gas on the final consumer markets: gas oil and fuel oil, and sometimes also other fuels that are competing with gas – depending from one market to another. Thereby, the typical pricing formula used in this kind of contracts looks like below:

¹³ Andrei Konoplyanik, Russian Gas to Europe: From Long-Term Contracts, On-Border Trade and Destination Clauses to...?, *Journal of Energy & Natural Resources Law*, vol. 23, no. 3, 2005;

¹⁴ Christian von Hirschhausen, Anne Neumann, Long-term Contracts and Asset specificity revisited: An Empirical Analysis of Producer-Importer Relations in the Natural Gas Industry, *Review of Industrial Organization*, 2008, no. 32, p. 131-143;

¹⁵ Harold Hotelling, The Economics of Exhaustible Resources, in Chennat Gopalakrishnan (ed.), *Classic Papers in Natural Resource Economics*, Palgrave MacMillan, 2000, p. 221-256;

Figure 3. Pricing formula in Continental Europe

$$P = P_0 + \{0,6 \cdot f_1 \cdot k_1 \cdot (GO - GO_0)\} + \{0,4 \cdot f_2 \cdot k_2 \cdot (LSFO - LSFO_0)\} + \{\dots(\text{coal price})\} \\ + \{\dots(\text{electricity price})\} + \{\dots(\text{gas price on liquid markets})\} + \{\dots(\dots)\}, \text{ where:}$$

P_0 – base price, eurocents per kWh (€/kWh)
GO – gas oil price (GasOil) in €/ton minus taxes
LSFO – Low Sulphur Fuel Oil) de ≤ 1%, €/ton minus taxes
f – adjusting factors at „delivery point”
k – conversion energy factors

Source: After Bjørnson Rune, 2008, Andrei Konoplyanik, 2009, Morten Frisch, 2010;

This kind of price is also known as netback price, generally being higher than the price that is determined according to the method for ordinary goods – cost-plus method (based on gas production and delivery cost to the final consumer), which is still used by some states (Russia) in relation with their internal market in order to offer subsidies to their own citizens and companies, or to those of other states – expecting political advantages in exchange.

The differences in price size between EU15 and new EU member states from Eastern Europe are the result of a different indexing basket used in the pricing formula for the EU15, where there are more fuels that are competing with gas, and where there is also access to gas from other suppliers than Russia. Additionally, the price size is also dependent on the delivery point, as for EU15 there is another such point than for the new member states.

The emergence of an integrated EU transmission network for natural gas will eliminate much of the price differences existing nowadays between physical national EU markets, because it implies only one delivery point for Russian gas at the Eastern border of the Community.

In section 4.2. we analyze how Gazprom conducts its own activity on the EU's natural gas market. Even if Gazprom signed long-term contracts with several European distributors, during the last 10 years it has been directly engaged on the European downstream through its own subsidiaries, gradually accepting the EU's rules of energy. Meanwhile Gazprom refuses to change the pricing mechanism for European consumers, or to link the gas to the price of other fuels than oil, although recent developments in the market (liquefied gas and possibly shale gas in Europe) will put increasing pressure to give a greater share to market components in the indexation formulas.

In section 4.3. we have empirically tested with an econometrical tool the degree to which the requested prices of Gazprom for different EU markets are consistent with the economic theory on which the pricing mechanism is based. The results confirmed that Gazprom pricing mechanism is for about 60% built on pure market elements, which means that there are also other elements than the market that influence the price. The most significant influence on price for imported gas from Russia is represented by the oil world price, followed by gas price for industrial consumers and finally the gas price for households. However, there is no causality between the imported volume and price.

Chapter 5. Future developments of the Russia-EU energy cooperation

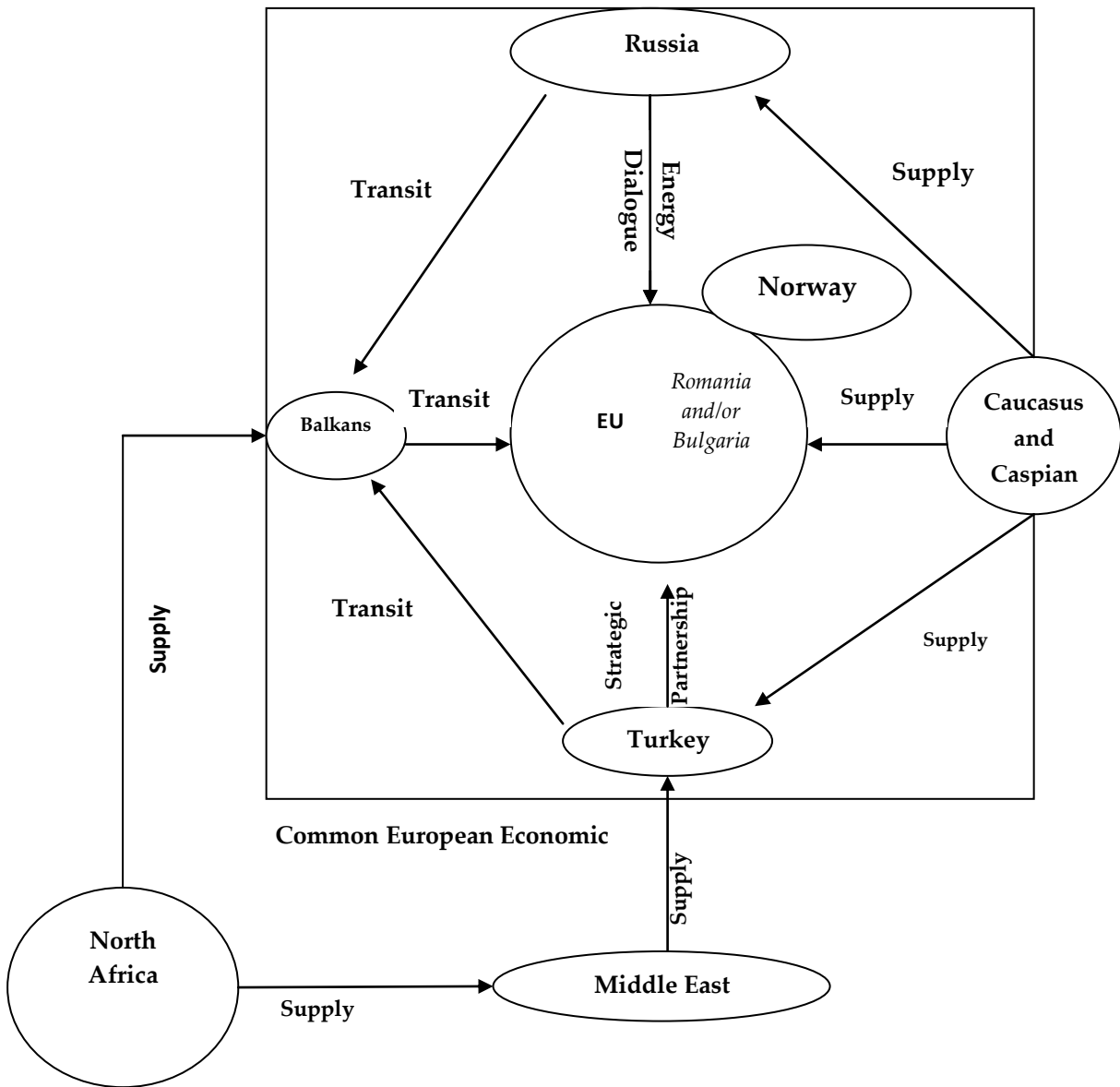
In this chapter we analyze the possibility of creating an economic integration form between Russia and the European Union, with the purpose of providing energy security in the sense of avoiding the interruption of supplies, both for Russia and the EU. For this purpose we begin the analysis of documents and of the fundamentals of economic and political cooperation after the USSR fall, the most interesting concept we decided to use in order to develop this integrative form is the *Common European Economic Space (CEES)*, that is to be built between Russia and the European Union.

In section 5.1. we analyzed the factors that could, in time, lead to the creation of an integrative form with a minimum of institutional character under the form of CEES, the conclusions being that EU's normative power gradually imposed through trade with neighbouring geographical areas and sustaining Russia in joining the WTO can finally provide a common code of laws and trading norms, which will have a positive impact in creating the CEES. In this section we also discuss the more complex relation that the EU should maintain not only with Russia but also with the CIS, partially engaged with Russia in different integrative forms.

In section 5.2. we analyzed the possibility of transforming the CEES in a framework for creating a pan-European energy space, as a European Energy Community. In order to create such a space, the EU has to abandon the *soft power* approach (Market and Institutions) for an intermediary approach towards *hard power* (Regions and Empires) as Regions-Markets-Institutions that would allow it to constrain its partners by imposing common rules and the

creation of compatible institutions. Such a pan-European space of energy could synthetically be represented like in the figure below:

Figure 4. European space of geo-energy



Source: author's conception;

Chapter 6. Case study: Natural gas supply relations between the Russian Federation and Romania

In this chapter we shall present a case study of gas supply from the Russian Federation to a EU member state, which is also an important piece on the transit map towards Balkan markets and Turkey.

In section **6.1.** are presented Romania's peculiarities, as one of Europe's pioneers in the gas industry, the first European country with entire cities connected to natural gas systems as well as the pioneer of numerous innovations related to transport on long distances under pressure through pipelines and gas separation from liquid fuels, techniques created by the Romanian gas industry and still used on the European gas market. In this section we shall also present how the gas industry and gas companies have been restructured in order to meet the demands of the *aquis communautaire*.

In section **6.2.** we provide an analysis related to the role of natural gas in Romania's economy. Thus, we discovered that Romania is very similar from this perspective to other countries that are covering a significant part of their domestic consumption needs from internal production, like the Netherlands. That is why gas represents 35% of Romania's primary energy consumption, well above the European average, being used consistently by industry (48% of the overall consumption).

Among the EU countries, Romania is on the second last place in the EU as far as volume of imported gas from Russia, the last of the ranking being represented by Greece, a much smaller economy than that of Romania. However, Romania is the second largest consumer of natural gas among the new EU member states, after Poland.

In relation to Romania's role as transit country (section **6.3.**) for gas delivered by Gazprom to the Balkans and Turkey, there are three gas transmission pipelines that are crossing Romania in the region of Dobrudja, that have been built since the 70's. In exchange for transit services, Gazprom delivers each year certain amounts of natural gas to Romania. In this context, we should also discuss the interconnection of Romania's transmission system with those of its neighbours that enhance Romania's role as a transit country in the Balkans with chances of being an intermediary in transmitting Caspian gas to Central European countries.

In section **6.4.** we found how the price for the gas delivered to Romania by Gazprom is calculated and we have calculated the absolute and relative value of fees that Romania pays to Gazprom agreed intermediaries on the Romanian market. **Pricing formula** for Romanian imports is based on **fuel oil and gas oil international quotations** and adjusted with a **discount** depending on the **imported volume and duration of the contract**¹⁶.

In relation to the Romanian market, Gazprom accepts two intermediaries, WIEE and Conef Energy¹⁷. Correlating Gazprom data with those of the ANRE¹⁸, we have found a fee of 56.1 USD/ thousand cubic meters in 2010 and 62.5 USD/ thousand cubic meters in 2009 received by intermediaries – mainly WIEE. Consequently, on each thousand cubic meters **Romania was paying a real fee of 18.45% in 2010 and of 21.25% in 2009** in addition to Gazprom's real price.

In section **6.5.** we discuss Romania's role as the EU main energy agent in the Black Sea region if Turkey is denied the membership. We emphasized Romania's transit role not only for Caspian or Russian hydrocarbons, but also from the perspective of a future emergence of an East European Gas Hub, similar to those of Western Europe or from Baumgarten, where a real competition could be ensured for gas from different suppliers: Caspian suppliers, Russia and Romania's internal production.

¹⁶ Statement of Romanian Ministry of Economy and Trade, 9th of January 2006;

¹⁷ Gazpromexport public data;

¹⁸ ANRE – Agenția Națională de Reglementare în domeniul Energiei, Romania's regulator of the energy sector;

Conclusions and proposals

The EU's relations with Russia in the field of energy should be integrated in a wider context of an increasing energy consumption, and a significant growth of emerging Asian economies.

In time, trade between Russia and EU countries followed the same pattern: supply of raw materials and energy resources in exchange for goods with high capital incorporation.

EU energy security can be ensured only by further relations with the Russian Federation, because at a concrete level, between the producing companies (Gazprom) and the buyers (different European distributors) there are long term contracts for 20/25 years – new contracts recently signed by Gazprom with its European partners will expire around the year 2030 – which creates mutual obligations, to buy and to deliver, both partners being interested in supply continuity, given that investments required by infrastructure – the case of new pipelines beneath the Baltic and the Black Sea – generated the need for taking loans, that could be paid back only when selling gas.

Regarding the EU's perspectives of cooperation with Russia in the field of energy, we have noticed that there are real opportunities for continuing the rapprochement between the EU's and Russia's economies, but the perspective of a Russia-EU Energy Community following the ECSC (European Coal and Steel Community) model is premature today, but possible in the future if the two partners are to deal with common challenges and growing interdependencies. In other words, there are real chances for creating a regional market for natural gas with common rules that will transcend current EU boundaries, and therefore relations with Russia to become closer than they are now – because of a greater mutual confidence given by a common set of rules in the energy sector.

As far as Romania's relations with Russia are concerned, even if Gazprom price for Romania is one of the lowest demanded to its European partners, through a system of agreed intermediaries, the Russian company is requiring a price of about 20% higher than the price of the delivery bills. As a solution to reduce the price for Romania, we propose the removal of those intermediaries from this relation, after a more consistent engagement of Romania in finding alternatives to Russian gas that will finally put pressure on Gazprom. As it was the case for Poland – where in 2010 the intermediary RusUkrEnergo has been removed – Romania, by a more

active policy within the European Union to support alternative supply from the Caspian region, can convince Gazprom to direct negotiations with Romanian companies.

Finally, we can conclude that even if Gazprom pricing mechanism is strongly economically based on market elements, it still offers the possibility to punish political opponents of Russia's interests in Europe.

BIBLIOGRAPHY

Books

1. Aslund, Anders, *Gorbachev's struggle for economic reform*, Cornell University Press, 1991;
2. Bachman, Ronald D., ed. *Romania: A Country Study*. Washington: GPO for the Library of Congress, 1989;
3. Balassa, B., *The Theory of Economic Integration*, Routledge, London, 1962;
4. Bodio, Marcin, *Polityka energetyczna w stosunkach między Unią Europejską a Federacją Rosyjską w latach 2000-2008*, Oficyna Wydawnicza ASPRA-JR, Varşovia, 2009;
5. Bożyk, Paweł, Misala, Józef *Stosunki Gospodarcze Wschód-Zachód. Formy i mechanizmy*, Państwowe Wydawnictwo Ekonomiczne, Varşovia, 1988;
6. Bożyk, P. (red.), *Gospodarka światowa* (trad. *Economia mondială*), PWE, Varşovia, 1991;
7. Bożyk, P., Misala, J., *Integracja ekonomiczna*, Polskie Wydawnictwo Ekonomiczne, Varşovia, 2003;
8. Bryc, Agnieszka, *Rosja w XXI wieku. Gracz światowy czy koniec gry?* (trad. *Rusia în secolul XXI. Jucător mondial sau sfârşitul jocului?*), Wydawnictwa Akademickie i Profesjonalne, Varşovia, 2008;
9. Chalupiec, Igor, Filipowicz, Cezary, *Rosja, Ropa, Polityka*, Prószyński Media, Warszawa, 2009;
10. Cioroianu, Adrian, *Geopolitica matrioşkăi – Rusia postsovietică în noua ordine mondială*, Curtea Veche, Bucureşti, 2009;
11. Cliff, Tony, *Państwowy kapitalizm w Rosji od Stalina do Gorbaczowa* (trad. *Capitalismul de stat în Rusia de la Stalin la Gorbaciov*), Drukarnia Oświatowa w Łodzi, 1991;
12. Cooper Robert, *The Breaking of Nations: Order and Chaos in the Twenty-first Century*, Atlantic Books, Londra, 2003;
13. Dictionar de economie, ediția a II-a, Ed. Economică, Bucureşti, 2001;
14. Dictionar de Relații Economice Internaționale, Ed. Enciclopedică, Bucureşti, 1993;
15. Doliwa-Klepacki, Z. M., *Integracja europejska (po Amsterdamie i Nicei)* (trad. *Integrația europeană (după Amsterdam și Nisa)*), Temida 2, Białystok, 2001;
16. Gatrell, Peter, *Government, industry and rearmament in Russia, 1900-1914: the last argument of tsarism*, Cambridge University Press, 1994;
17. Gauthier, A., Reynaud, A., *Genese et économie de l'URSS*, 6ème édition, Bréal, Paris, 1989;
18. Geman, H., 2005. *Commodities and commodity derivatives : modelling and pricing for agriculturals, metals, and energy*. Chichester, England: John Wiley & Sons Ltd.;
19. Gilardoni, Andrea, *The world market for natural gas: Implication for Europe*, Springer, 2008;
20. Gregory, Paul, *Before command: an economic history of Russia from command to the first five-year plan*, Princeton University Press, New Jersey, 1994;
21. Hart, Oliver, „*Firms, Contracts and Financial Structure*“, Oxford University Press, Oxford, 1995;
22. Hewett, E.A., *Reforming the Soviet Economy*, Washington, Brookings Institution, 1988;
23. Holzman, Franklin D., *Foreign Trade under Central Planing*, Harvard University Press, Cambridge, Massachusetts, 1974;
24. Hosking, Geoffrey, *A history of the Soviet Union*, Fontana Press/Collins, Londra, 1985;
25. Iskra, Wiesław, *Polska-Rosja-UE. Relacje ekonomiczne*, Fundacja Inowacja, Varşovia, 2004;
26. Johnson, Debra, Robinson, Paul, *Perspectives On EU-Russia Relations Europe and the Nation State*, Taylor & Francis Routledge, 2005;
27. Кучинский Ю., *История положения рабочего класса при капитализме: Мировой обзор* (trad. *Istoria clasei muncitoare în vremea capitalismului: Situația mondială*), Moscova, 1970;
28. Lis, Stanisław, Miklaszewski, Stanisław, *Procesy międzynarodowej integracji regionalnej*, Pracownia Pomocy Naukowo-Dydaktycznych Akademii Ekonomicznej w Krakowie, Cracovia, 1990;
29. Luțaș, Mihaela, Călea, Sorin, *Economie europeană*, Ed. Imprimeria Ardealul, Cluj-Napoca, 2005;
30. Mackinder, H.J., *Democratic Ideals and Reality*. New York: W.W. Norton, 1962 [1919];
31. McCauley, Martin, *Bandiți, gangsteri și mafie – Rusia, Statele Baltice și CSI, după anul 1992*, Ed. All, Bucureşti, 2006;
32. McCarthy, Dennis M. P., *International Economic Integration in Historical Perspective*, Routledge, 2006;
33. Melling, Antony J., *Natural Gas Pricing and Its Future. Europe as the Battleground*, Carnegie Endowment for International Peace, 2010;

34. Michałowska-Gorywoda, Krystyna, *Dotychczasowy przebieg rokowań między RWPG i EWG*, publicat în *RWPG-EWG: realia i perspektywy*, Polski Instytut Spraw Międzynarodowych, Varşovia, 1980;
35. Nowak, Bartłomiej, *Energy Policy of the European Union. Chosen legal and political aspects and their implications for Poland*, Wydawnictwa akademickie i profesjonalne, Warsaw, 2009;
36. Nove, A., *An Economic History of the USSR*, The Penguin Press, Londra, 1969;
37. Paniușkin, Valeri, Zîgar, Mihail, *Gazprom. Noua armă a Rusiei*, Ed. Curtea Veche, București, 2008;
38. Plunkett, Jack W., *Plunkett's Energy Industry Almanac 2010*, Plunkett Research Ltd.;
39. Podraza, Andrzej, *Stosunki polityczne i gospodarcze Wspólnty Europejskiej z państwami Europy Środkowej i Wschodniej*, Redakcja Wydawnictw Katolickiego Uniwersytetu Lubelskiego, Lublin, 1996;
40. Popescu, Gheorghe, *Evoluția gândirii economice*, Ed. a 3-a, București, Editura Academiei Române, Cluj-Napoca, Cartimpex, 2004;
41. Prybyła, Jan S., *Market and plan under socialism: the bird in the cage*, Hoover Press, 1987;
42. Raboca, Nicolae, *Energetica mondială*, Sarmis, Cluj-Napoca, 1995;
43. Roman, Szul, *Język, naród, państwo. Język jako zjawisko polityczne* (trad. Limbă, popor, țară. *Limba ca fenomen politic*), Wydawnictwo Naukowe PWN, Varşovia, 2009;
44. Seurot, François, *Le système économique de l'URSS*, Presses Universitaires de France, Paris, 1989;
45. С. И. Солдатов, *Исторические эпохи России и принципы национальной экономики* (trad. *Erocile istorice ale Rusiei și principiile economiei naționale*), Русский Путь (trad. Calea rusă), Е.С. Троицкий, Moscova, 1993;
46. Соловьева, А. М., *Промышленная революция в России в XIX в* (trad. *Revoluția industrială în Rusia secolului XIX*), Наука. Moscova, 1990;
47. Smith, Alan, *Russia and the world economy. Problems of integration*, Routledge, Londra, 1993;
48. Smith, Graham, *Planned Development in the Socialist world*, Cambridge University Press, 1989;
49. Sutela, P., *Россия и Европа, некоторые аспекты экономических взаимоотношений* (trad. Rusia și Europa, câteva aspecte economice), Гендалф, Moscova, 2003;
50. Werth, Nicolas, *Histoire de l'Union Soviétique*, Presses Universitaires de France, Paris, 1990 ;
51. Williamson, O. E., *The Economic Institutions of Capitalism*, China Social Sciences Publishing House, 1985;
52. *** „History of the USSR. The Era of Socialism”, Progress Publishers Moscow, 1982

Articles

53. Asche, F., Osmundsen, P., Tveteras, R., *European market integration for gas? Volume flexibility and political risk*, Energy Economics, no. 24, 2002, p. 249-265;
54. Asche, Frank, Osmundsen, Petter, Tveteras, Ragnar, *Tax shifting in long-term gas sales contracts*, Samfunns- og Næringslivsforskning, Working Paper, 2002;
55. Altwater, Elmar, *The social and natural environment of fossil capitalism*, *Social Register*, 2007, no. 43, p. 39-59;
56. Anderson, J., Goodman, J., *Regions, states and the European Union: Modernist Reaction or Postmodern Adaptation*, *Review of International Political Economy*, 2/4, 1995, p. 600-631;
57. Ardy, Brian, Gower, Jackie *Relations between Russia and the EU*, Post-Soviet Business Forum, The Royal Institute of International Affairs, Russia and Eurasia Programme, No. 10, Noiembrie 1996;
58. Aslund, Anders, *Pourquoi la Russie n'est toujours pas à l'OMC?*, Telos, 6 septembrie 2006;
59. Barr, Nicholas, *Reforma państwa dobrobytu w krajach postkomunistycznych* (Reforma statului bunăstării în țările post-comuniste), vol. *Po dziesięć lat – Transformacja i rozwój w krajach postkomunistycznych* (După 10 ani – tranziție și dezvoltare în țările post-comuniste), Centrum Analiz Społeczno-Ekonomicznych, Varşovia, 2000;
60. Bar-Eli, Avi, Cohen Zemah, Yaron *Largest natural gas reserve discovered in Israel worth approximately \$95 billion*, Haaretz, 29 decembrie 2010;
61. Barysch, K., *Can Turkey combine EU accession and regional leadership?*. Centre for European Reform, Policy Brief, January 2010;
62. Baumann, F., *Europe's Way to Energy Security. The Outer Dimension of Energy Security: From Power Politics to Energy Governance*, *European Foreign Affairs Review*, 15, 2010, 77-95;
63. Benaroya, F., *European integration and competitiveness: Implications for Russia*, RECEP, Moscova, 2005;
64. Bordachev, T., *Think big, Russia and Europe, you both need an energy community*, Russia in Global Affairs, 16 iunie 2008;
65. Brown, S.P.A, Yücel, M., 2007. *What Drives Natural Gas Prices?*. Research Department Working Paper 0703, Federal Reserve Bank of Dallas;

66. Bielecki, J., Energy security: is the wolf at the door?. *The Quarterly Review of Economics and Finance*, 2002, 42, 235-250;
67. Bil, Ireneusz, Nyga-Lukaszewska, Honorata, *Polityka energetyczna UE w świetle kryzysu gazowego ze stycznia 2009 r.* (trad. Politica energetică a UE în lumina crizei gazului din ianuarie 2009) în Krzysztof Falkowski, Eufemia Teichman (ed.), *Państwa Bałtyckie i Europy Wschodniej. Reakcja na światowy kryzys gospodarczy i regionalny kryzys gazowy*, Szkoła Główna Handlowa w Warszawie, 2010, p. 155-184;
68. Bocian, Mariusz, *Europa Środkowa i Balkany koordynują politykę energetyczną?* BEST OSW, Tygodnik OSW, nr. 9 (127), 3 martie 2010;
69. Bousmena, S., Pauwels, J.P., Locatelli, C., Schwartenbroekx, C., *Le défi pétrolier*, Paris, 2006
70. Bradshaw, Michael, Global energy dilemmas: a geographical perspective, *The Geographical Journal*, vol. 176, no. 4, december 2010, p. 275–290;
71. Budică Șerban, Andreea, *Ministerul Economiei: Prețul corect la gaze l-am putea avea în 3 ani: 180-220 dolari/1000 mc*, 7 februarie 2011, Money.ro;
72. Carpenter, Paul R., Brown, Toby J.N., *Price Re-openers in Natural Gas Supply Contracts: Avoiding Costly Mistakes in Arbitration*. Energy. Current Topics in Energy Markets & Regulation, no. 1, 2010;
73. Cioacă, Florentina, *Oficial rus: ieftinirea gazelor trebuie făcută prin reducerea comisiunelor intermediarilor*, Adevărul, 20 mai 2010;
74. Cios, S., *Polityczne i biznesowe uwarunkowania planowanych gazociągów – Nord Stream, South Stream i Nabucco*, în Krzysztof Falkowski, Eufemia Teichman (ed.) *Państwa bałtyckie i Europy Wschodniej. Reakcja na światowy kryzys gospodarczy i regionalny kryzys gazowy*. Warsaw, Warsaw School of Economics, 2010, p. 239-255;
75. Cireașa, Doru, *Gazul va veni de la Viena. La ce preț?*, România Liberă, 27 septembrie 2010;
76. Clark, W., *Petrodollar Warfare: Dollars, Euros and the Upcoming Iranian Oil Bourse*, *Energy Bulletin*, 8 august 2005;
77. Codoban, Alin, *The Black Sea Geopolitics: Russian and European Energy Competition*, articol prezentat la 10th Annual Aleksanteri Conference “Fuelling the Future? Assessing Russia’s role in Eurasia’s Energy Complex”, 27-28 octombrie 2010;
78. Correljé, A., van der Linde, C., *Energy supply security and geopolitics: A European perspective*, *Energy Policy*, nr. 34, 2006, p. 552-543;
79. Davoust, Romain, *Gas Price Formation, Structure & Dynamics*, Note de l’IFRI, aprilie 2008;
80. Devarajan, Shantayanan, Fisher, Anthony C., Hotelling’s „Economics of Exhaustible Resources”: Fifty years later, *Journal of Economic Literature*, vol. XIX, martie 1981, p. 65-73;
81. Dirmoser, D., *Energy Security. New shortages, the Revival of Resource Nationalism and the Outlook for Multilateral Approaches*. Berlin: Friedrich Ebert Stiftung, 2007;
82. Doukas, H., Patlitzianas, K., Kagiannas, A.G., Psarras, J., *Energy Policy Making: An Old Concept or a Modern Challenge?*, *Energy Sources, Part B*, no. 3, 2008, p. 362-371;
83. Doukas, H., Patlitzianas, K., Kagiannas, A., Psarras J., *Renewable energy sources and rationale use of energy development in the GCC region: Myth or reality?*. *Renew. Energy* 31, 2006, p. 755–770;
84. Durnev, A., Guriev, S., *The Resource Curse: A Corporate Transparency Channel*. Centre for Economic and Financial Research, Working Papers w0108, 2007;
85. Eikeland, O., *Downstream natural gas in Europe - High hopes dashed for upstream oil and gas companies*, *Energy Policy*, vol. 35, no. 1, 2007, , p. 227-237;
86. Ericson, R.E., *Eurasian Natural Gas Pipelines: The political economy of Network Interdependence*, *Eurasian Geography and Economics*, 2009, vol. 50, no. 1, p. 28-57;
87. Frisch, Morten, *Current European Gas Pricing Problems: Solutions Based on Price Review and Price Re-Opener Provisions*, *International Energy Law and Policy Research Paper Series*, Working Research Paper Series No: 2010/03, Centre for Energy, Petroleum & Mineral Law & Policy;
88. Finon D., Locatelli C., *The liberalisation of the European gas market and its consequences for Russia*, Institut d’économie et de politique de l’énergie, Paris, 2002;
89. Finon, D., Locatelli, C., *Russian and European gas interdependence: Could contractual trade channel geopolitics?*, *Energy Policy* 36, 1, 2006;
90. Finon, D., Larsen, G., *The limits of the EU direct foreign gas policy. Autopsy of the stillborn Southern corridor Nabucco*, Working Paper, CIRED, 2009;
91. Forbes, Alex, *Turbulent times for European gas market*, *European Energy Review*, 19 oct. 2010;
92. Gavrilencov, Evgeny, *The Road to Spontaneous Diversification*, în Michael Ellman, *Russia’s Oil and Natural Gas: Bonanza or Course?* Anthem Press, 2006;

93. Gershenkron, A., *The rate of growth in Russia*, Journal of Economic History, vol.7, p.156;
94. Gower, J., *Russian Foreign Policy Towards the European Union*, în C. Ross (red.), *Russian Politics under Putin*, Manchester University Press, 2004;
95. Grabska, Wirginia, *Wewnątrz europejska współpraca gospodarcza w latach siedemdziesiątych*, în *RWPG-EWG: realia i perspektywy*, Polski Instytut Międzynarodowy, Varşovia, 1980;
96. Grzybowski, Kazimierz, *The Council for Mutual Economic Assistance and the European Community*, The American Journal of International Law, vol. 84, no. 1, ianuarie 1990;
97. Hardt, John P., Tomlinson, Kate S., *Soviet Economic Policies in Western Europe*, în Robin F. Laird, Erik P. Hoffman, *Soviet Foreign Policy in a changing World*, Aldine Publishing Company, New York, 1986;
98. Hare, P., *Russia and the World Trade Organisation*, Kiel Working Paper, 2002;
99. de Hauteclocque, A., Glachant, J-M., Long-term energy supply contracts in European competition policy: Fuzzy not crazy, *Energy Policy*, vol 37, 2009, p. 5399-5407;
100. Heren, P., *Removing the government from European gas*, *Energy Policy*, no. 27, 1999, p. 3-8;
101. von Hirschhausen, Christian, Neumann, Anne, Long-term Contracts and Asset specificity revisited: An Empirical Analysis of Producer-Importer Relations in the Natural Gas Industry, *Review of Industrial Organization*, 2008, no. 32, p. 131-143;
102. Hoagland, Jim, *Europe's destiny*, Foreign Affairs, 1989/1990;
103. Hotelling, Harold, The Economics of Exhaustible Resources, în Chennat Gopalakrishnan (ed.), *Classic Papers in Natural Resource Economics*, Palgrave MacMillan, 2000, p. 221-256;
104. Itoh, S., Sino-Russian Energy Relations: True Friendship or Phony Partnership?, *Russian Analytical Digest*, February 73/10;
105. Johansson, Linda, *International business operations of companies with Russian involvement in southwestern Finland*, Electronic Publications of PanEuropean Institute, 2/2006, Turku, Finlanda;
106. de Jong, Jacques J., Weeda, Ed, *Europe, the EU and its 2050 Storylines*, CIEP 2007;
107. Karaganov, S., *Союз Европы: последний шанс?* (trad. *O Uniune a Europei: ultima șansă?*). Rossiyskaia Gazeta, 9 iulie 2010;
108. Kasčiūnas, L., Vaičiūnas, Ž., *Russia's policy towards the EU: the search for the best model*, Lithuanian Foreign Policy Review, Vilnius, nr. 19, 2007;
109. Kazantsev, Andrey, *The Crisis of Gazprom as the Crisis of Russia's "Energy Super-State" Policy towards Europe and the Former Soviet Union*, *Caucasian Review of International Affairs*, vol 4, no. 3, Summer 2010, p. 271-284;
110. Kavrakoglou, I. Energy models, *European Journal of Operational Research*, 28, 1987, p. 121-131;
111. Konoplianiuk, Andrei, Russian Gas to Europe: From Long-Term Contracts, On-Border Trade and Destination Clauses to...?, *Journal of Energy & Natural Resources Law*, vol. 23, no. 3, 2005;
112. Konoplianiuk, Andrei, Pricing gas: evolution not revolution, *Energy Economist*, no. 349, noiembrie 2010, p. 6-8;
113. Konoplianiuk, Andrei, The Evolution of gas pricing: Europe&CIS, *Energy Economist*, no. 347, septembrie 2010, p. 9-11;
114. Konoplianiuk, Andrei, *Эволюция ценообразования на газ в континентальной Европе*, *Gazovii biznes*, ianuarie-februarie 2009, p. 62-69;
115. Konoplianiuk, Andrei, Evolution of contractual structure of Russian gas supplies to Europe, *Perspectives in Energy*, 2006, vol. 10, p. 1-24;
116. Koukhartchouk, O., Maurel, M., *Accession to the WTO and EU enlargement: what potential for trade increase?*, RECEP, februarie 2003;
117. Kramer, A., *China's Hunger Fuels Exports in Remote Russia*, New York Times, 19 iunie 2010;
118. Kruyt, B., van Vuuren, de Vries, H.J.M., Groenenberg, H., Indicators for energy security, *Energy Policy*, no. 37, 2009, p. 2166-2181;
119. Kublik, Andrzej *Jakie rabaty daje Gazprom dla Europy Zachodniej*, wyborcza.biz, 5 martie 2011;
120. Kublik, A., *Gazprom szykuje ekspansję do Polski wraz z VNG*, *Gazeta Wyborcza*, 24.05.2010;
121. Kutlay, M., The Changing Policy of the European Union towards Free Trade Agreements and its Effects on Turkish Foreign Trade: A Political Economy Perspective. *USAK Yearbook of International Politics and Law*, 2, 2009, p. 117-132;
122. Kuznetsov, Victor, *The economic factors of the USSR disintegration*, în Anne de Tinguy, *The Fall of the Soviet Empire*, East European Monographs, 1997;

123. Лапина, С.П., Лелюхина, Н.Д., Е.С Федоровская, *Государственная собственность и рынок: опыт НЭПа* (trad. *Proprietatea și piața: experiența NEP*), în *НЭП: Приобретения и потери*, Nauka, Moscova, 1994;
124. Lin, C.Y. Cynthia, *Hotelling Revisited: Oil Prices and Endogenous Technological Progress*, Februarie 2004;
125. Locatelli, C., Gazprom's export strategies under the institutional constraint of the Russian gas market, *OPEC Energy Review* XXXII, no. 3, 2008, p. 246-264;
126. Locatelli, C., Les stratégies d'internationalisation de Gazprom, *Le Courrier des Pays de l'Est*, no. 1061, 2007, p. 32-46 ;
127. Łobaszewski, Marcin, *Cena polityczna gazu*, Rzeczpospolita, 8 iunie 2006;
128. Łoskot-Strachota, A., *Nabucco vs. South Stream – Rivalry over Balkan Gas Pipelines*, CES Commentary, Centre for Eastern Studies, Issue 3, March 19, 2008;
129. Mañé, A., *El nuevo mapa energético*, în *MED. 2003. Anuario del Mediterráneo*, IEMed/Fundación CIDOB, 2004. p. 192–193;
130. Mañé-Estrada, A., European Energy Security. Towards the creation of the geo-energy space, *Energy Policy*, 34/18, 2006, 3773-3786;
131. Matthews, O., Turcja między Zachodem a Wschodem, *Newsweek Polska*, 31 iulie 2010;
132. Mitchell, Timothy, Carbon democracy, *Economy and society*, vol. 38, no. 3, 2009, p. 399-432;
133. Monaghan, A., Russia's Energy Diplomacy: A Political Idea Lacking a Strategy?, *Southeast European and Black Sea Studies*, vol. 7, no. 2, June 2007, p. 275-288;
134. Morozov, V., *Energy Dialogue and the Future of Russia: Politics and Economics in the Struggle for Europe*, în Pami Aalto (red.), *The EU-Russian Energy Dialogue. Europe's Future Energy Security*, Ashgate Publishing Company, 2008;
135. Noël, P., *Beyond dependence: How to deal with Russian Gas*, ECFR Policy Brief, November 2008;
136. Nowak, B., *Forging the External Dimension of the Energy Policy of the European Union*, *The Electricity Journal*, nr. 23/1, 2010, p. 57-66;
137. O'Hara, S.L., 2004. Great game or grubby game? The struggle for control of the Caspian. *Geopolitics*, vol.9, no. 1, 138-160;
138. Oprescu, Gh., Papatulica, M., Vasile, D., *Impactul liberalizării piețelor de utilități publice. Concluzii pentru România privind preluarea aquis-ului comunitar*, Institutul European din România, București, 2000;
139. Pandey, R., Energy policy modelling: agenda for developing countries. *Energy Policy*, vol. 30, issue 2, 2002, 97-106;
140. Papava, Vladimer, *The Baku-Tbilisi-Ceyhan Pipeline: Oil Window to the West*, The Central Asia-Caucasus Institute, Silk Road Studies Program, 2005, 85–102;
141. Park, Y. M., Park, J. B., Won, J. R., A hybrid genetic algorithm/dynamic programming approach to optimal long-term generation expansion planning. *International Journal of Electrical Power and Energy Systems*, 20, 1998, p. 295–303;
142. Paszyc, E., Konończuk, W., Media rosyjskie o polsko-rosyjskiej umowie gazowej, *Tydzień na*
143. *Wschodzie*, nr. 37 (155);
144. Paszyński, M., *Perspektywy rozwoju stosunków gospodarczych między Wschodem a Zachodem*, în *Problemy Handlu Zagranicznego*, Varşovia, 1982, nr. 13, p.127-148;
145. Pârvoiu, Claudia, *Cum va putea România să exporte gaze în Moldova printr-un gazoduct ce va fi construit din acest an*, 26 aprilie 2010, Hotews;
146. Pełczyńska-Nałęcz, Katarzyna, *EPS w praktyce – Unia Europejska wobec Rosji, Ukrainy, Białorusi i Mołdawii rok po publikacji Dokumentu Strategicznego*, Ośrodek Studiów Wschodnich, Varşovia, iunie 2005;
147. Petrescu, Roxana, *Distrigaz Sud: România va importa gaze din Rusia prin intermediari până în 2030*, Ziarul Financiar, 22 februarie 2008;
148. Polterovich Victor, Popov, Vladimir, Tonis, Alexander, *Mechanisms of resource curse, economic policy and growth*, New Economic School Working Paper, Moscova, 2008;
149. Poussenkova, Nina, Rethinking Russia: The Global Expansion of Russia's Energy Giants, *Journal of International Affairs*, vol. 60, no. 2, Spring/Summer 2010, p. 103-124;
150. Radetzki, M., *European natural gas: market forces will bring about competition in any case*, *Energy Policy*, vol. 27, 1999, p. 19-25;
151. Rodrik, D., *Trade Policy Reform as Institutional Reform*, Harvard University, august 2000;
152. Rogner, H-H., Langlois, L. M., McDonald, A., Weisser, D., Howells, M., , *The cost of energy supply security*, International Atomic Energy Agency, Planning and Economic Studies Section, 2006;

153. Salmon, T., The European Security and Defence Policy: Built on Rocks or Sand?, *European Foreign Affairs Review*, no. 3, 2005, p. 359-379;
154. Scheib, P., Kalisch, F., Graeber, B., *Analysis of a liberalised German Gas Market. A medium-term gas trading model based on entry-exit network access*, CNI-Working Paper, No. 2006-11;
155. Schwabecher, Heinrich, *Russia – a reliable energy partner for Europe?*, International Reports, Konrad-Adenauer-Stiftung e.V., Sankt Augustin, Mar. 25, 2008;
156. Stent, Angela E., *The USSR and Western Europe*, publicat în Robin F. Laird, Erik P. Hoffman, *Soviet Foreign Policy in a changing World*, Aldine Publishing Company, New York, 1986;
157. Sutyryn, Serghey, Russia's International Economic Strategy: A General Assessment, *Review of Economies in Transition* 4/7:5–21, 1997;
158. Svoboda, Karel, *Gazprom's pricing Policy*, anticol prezentat la 10th Annual Aleksanteri Conference "Fuelling the Future? Assessing Russia's role in Eurasia's Energy Complex", 27-28 octombrie 2010;
159. Szekely, Gabriel, „*Racordul Europei. Influența statului turc pe piața regională a energiei crește galopant*”, Foreign Policy România, martie-aprilie 2011, p. 62-63;
160. Tangiashvili, N., *Russia, the European Union and the ESDP: An Essential Misfit?*, Working Papers - Programa CEI & Paises Bálticos, Argentine Center of International Studies;
161. Tonjes, C., De Jong, J., *Perspectives on security of supply in European natural gas markets*. CIEP, Clingendael Institute, Working Paper, August, 2007;
162. Umbach, F., Global Energy Security and the Implications for the EU, *Energy Policy*, 38, 2010, 1229-1240;
163. Youngs, R., Europe's External Energy Policy: Between Geopolitics and the Market. CEPS Working Document No. 278/November, 2007;
164. Włodek-Biernat, Ludwika, *Chiński kompleks Rosji* (trad. *Complexul chinez al. Rusiei*), Gazeta Wyborcza, 8 martie 2010;
165. Argus FSU Energy, 5 March 2010;
166. „*Bulgarian president keen on Azerbaijan's LNG*”, LNG World News, 8 februarie 2011;
167. *Chronology 1989: East-West Relations*, Foreign Affairs, Fall 1989/1990, p.230
168. Geopolitical Monitor, „*Turkmen may sue Russia for gas pipe blast*”, 29 mai 2009;
169. Eurasia Energy Observer, *The 3rd Energy Package and the concerns of non-EU gas producers: An interview with Dr. Andrey Konoplyanik*, 12 februarie 2011;
170. „*Europe bids to shake off foreign energy dependency*”, EU Business, 4 februarie 2011;
171. „*Gazprom starts to compete against its own long-term contracted supplies in the Czech downstream market*”, Gas Matters, Nov-Dec 2007, p. 24-25;
172. *Gazprom Will Keep Controversial Intermediaries as Strategic*, Novinite, 28 decembrie 2010;
173. „*Газпром поставлял газ в Британию вдвое дешевле, чем в Польшу*” (trad. *Gazprom livrează gaze Marii Britanii de două ori mai ieftin decât Poloniai*), Ukrudprom, 24 februarie 2011;
174. „*Газпром* продаёт газ Британии по самым низким ценам, *Novosti Ukrainy*, 25 februarie 2011,
175. „*Кому дешевле*”, *Vedomosti*, 25 februarie 2011;
176. „*LNG Project Azerbaijan, Georgia and Romania to beat Nabucco*”, LNG World News, 6 mai 2010;
177. *Premier Putin grozi Ucrainie* (trad. *Premierul Putin amenință Ucraina*), Tzdzień na Wschodzie, 16.03.2011;

Presentations, reports, communicates

178. Bjørnson, R., Well positioned to create value, Natural Gas seminar, Londra, 3 noiembrie 2008;
179. Konoplianiuk, Andrei, „*Эволюции рыночных моделей ценообразования на газ*”, Conferința economico-financiară ruso-ucraineană, Kiev, 29.04.2010;
180. Konoplianiuk, Andrei, *How market hubs and traded gas in European gas market dynamics will influence European gas prices and pricing*, prezentare la European Gas Markets Summit, Londra, 15-16 februarie 2011;
181. Rosen Simitchiev, Bulgarian Energy Holding EAD, la a 3-a și a 4-a ediție a South East Europe Energy Dialoge, din 18-19 iunie 2009, respectiv 3-4 iunie 2010, Salonic.
182. Stern, J.P., *The Urengoy Pipeline in the 1980s and the North European Pipeline in the 2010s: Parallels and Differences over 30 years*, prezentare la Harriman Institute Pipelines Colloquium, 1 decembrie 2006;
183. Vercueil, J., *Politique Commerciale Et Selection Adverse En Russie. Une Evaluation Des Politiques Menées Depuis 1992*. Document de travail CEMI, mai 2001;
184. *A Secure Europe in a Better World. European Security Strategy*, Brussels, December 12, 2003;
185. *Study on Energy Supply Security and Geopolitics*, Raport final pregătit pentru DG TREN. TREN C1/06 2002. Programul ETAP, CIEP, 2004;

186. EIA, *Who are the major players supplying the world oil market?* Energy Information Agency, Washington, 2009;
187. BP Statistical Review of World Energy 2009;
188. BP Statistical Review of World Energy 2010;
189. BGR, Reserves, Resources and availability of energy resources 2002;
190. BGR, Energy Resources 2009;
191. Commissariat à l'énergie atomique, *Mémento sur l'énergie*, 2009;
192. Comisia Europeană, *EU energy trends to 2030*, 2009 ;
193. Commission of the European Communities, Commission Staff Working Document accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, SEC (2008) 2871, Volume 1;
194. Commission Staff Working Document, EU Energy Policy Data, Commission of the European Communities, Brussels, 10.10.2007, SEC(2007)12, p. 11-13,
195. *Third Benchmarking report on the implementation of the internal electricity and gas market*, Commission Staff Working Paper, Brussels, 01.03.2004;
196. DG COMPETITION REPORT on Energy Sector Inquiry, 10 ianuarie 2007, SEC(2006) 1724;
197. DG Trade, *Russia. EU bilateral trade and trade with the World*, 15 september 2010;
198. DG Trade, *Turkey. EU Bilateral trade and trade with the world*, 15 september 2010;
199. Energy Charter Secretariat, *Putting a Price on Energy: International Pricing Mechanism for Oil and Gas*, 2007;
200. Energy Charter Secretariat, *The Energy Charter Treaty, A reader's guide*;
201. European Commission, Energy Infrastructure: Commission proposes EU priority corridors for power grids and gas pipelines, IP/10/1512, Brussels, 17 November 2010;
202. European Commission, *Green Paper: An External Policy to serve Europe's Energy Interests*, Paper from Commission/SG/HR for the European Council, S160/06, 2006;
203. European Commission, *EU Energy Security and Solidarity Action Plan: 2nd Strategic Energy Review*, MEMO/08/703, 2008;
204. EU Energy and Transport in Figures. Statistical Pocketbook 2010;
205. *Europe's growing energy vulnerability*, Report of the Committee on Economic Affairs and Development, Parliamentary Assembly, February 22, 2005;
206. European Commission, *Green Paper: Towards a secure, sustainable and competitive European energy network*, COM (2008) 782 final;
207. European Commission, *EU Energy Security and Solidarity Action Plan: 2nd Strategic Energy Review*. MEMO/08/703, 2008;
208. European Commission, *Green Paper. Towards a European Strategy for the Security of Energy Supply*, COM 769 final, 2000;
209. *The Energy Dialogue between the European Union and the Russian Federation between 2000 and 2004*, Comisia Europeană, 2004., COM (2004) 777;
210. Eurogas Statistical Report 2010;
211. Eurogas, Natural Gas Demand and Supply, Long Term Outlook to 2030;
212. Eurogas, *Long Term Outlook for Gas Demand and Supply 2007-2030*;
213. Eurostat, *EU-27 Foreign Direct Investment in BRIC countries. Data in Focus*. Economy and Finance (29/2010);
214. EU–Russia Energy Dialogue, 2001, *Synthesis Report*, http://europa.eu.int/comm/energy/russia/overview/index_en.htm;
215. Energy Dialogue EU-Russia, *10th Progress Report*, Moscova, Noiembrie, 2009;
216. Gazprom Annual Report 2009;
217. Gazprom Annual Report 2007;
218. Gazprom in figures 2003-2007;
219. Gazprom in figures 2001-2005;
220. Gazprom in figures 2000-2004;
221. Green Paper on a European Strategy for Secure, Competitive & Sustainable Energy, What is at stake – Background Document, Presentation DGET;
222. Green Paper: Towards a European strategy for the security of energy supply, European Commission, November 29, 2000 (COM9(2000)769final);
223. IEA, Key World Energy Statistics 2010;

224. IEA, Russia Energy Survey 2002;
225. IEA, Natural Gas Pricing, 1998;
226. Ministerul Energiei Federației Ruse, *The Summary of the Energy Strategy of Russia for the Period of up to 2020*, Moscova, 2003;
227. Ministerul Energiei Federației Ruse, *Energy Strategy of Russia for the period up to 2030*, Moscova, 2010;
228. PFC Energy, *Global Gas Supply Forecast*, Washington DC, 2007;
229. Pozzo di Borgo, Y., Rapport d'information n° 307 (2006-2007), 10 mai 2007;
230. World Coal Institute, Coal facts 2008 Edition;
231. World Bank, Russian Economic Report, no. 16, June 2008;
232. World Bank, Russian Economic Report no. 18, March 2009;
233. World Bank, *Russian Economic Report*, No. 13, Moscova, Rusia, 2004;
234. World Bank, *Russian Economic Report*, No. 16, Moscova, Rusia, 2008;
235. World Bank, *Petroleum Sector Briefing Note*, no. 1, martie 2007;

Laws, regulations

236. Directiva 98/30/EC a Parlamentului și Consiliului European din 22 iunie 1998;
237. „Strategia de interconectare a Sistemului National de Transport Gaze Naturale cu sistemele de transport gaze naturale din țările vecine” a Transgaz S.A;
238. Codul bugetar al Federației Ruse;
239. Regulation (EC) No 139/2004 Merger Procedure, Case No COMP/M.5740 - GAZPROM/ A2A/ JV;
240. Tratatul de la Lisabona, Official Journal of the European Union, C 306/1, 17 decembrie 2007;

Internet resources

241. BBC News;
242. Ovchinski, V. S., Война миров. "Независимость" Косово и исламский мир (исламистский проект). Centrasia, no. 11, 12 martie 2008. <http://www.centrasia.ru/newsA.php?st=1205372160>;
243. *Oil price history and analysis*, WTRG Economics, <http://www.wtrg.com/prices.htm>;
244. Acordul de Parteneriat și Cooperare http://europa.eu.int/comm/external_relations/ceeca/pca/pca_russia.pdf;
245. The Common European Economic Space (CEES) Concept Paper (Annex I), Rome, Italy, 2003, <http://www.mid.ru/ns-dos.nsf/162979df2beb9880432569e70041fd1e/4f74ca1b4b22afec43256de1003966e0?OpenDocument>;
246. Tratatul Comunității Energetice, http://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Legal/Treaty;
247. *Road Map for the Common Economic Space*, http://ec.europa.eu/environment/enlarg/pdf/road_map_ces.pdf;
248. Index Mundi;
249. The Economist Intelligence Unit;
250. Gazpromexport;
251. ICIS HEREN;
252. Interfax;
253. hydrocarbons-technology.com;
254. East European Gas Analysis;
255. Platts; www.eni.com; www.gazprom.ru/production/projects/pipelines/altai; www.nord-stream.com; www.osw.waw.pl; www.south-stream.info; www.transgaz.ro; www.transneft.ru; www.vedomosti.ru; www.wintershall.com; www.wiece.ch;