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Aspects of bilateral relations between the European Union and Russia on the natural gas market

- Summary -

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1. Introduction

More than a simple chemical formula (*CH4*), natural gas is an energy resource of prime importance to the contemporary world and a notable presence not only on commercial markets or international stock exchanges, but also in the most important economic, social, geo-political, strategic and diplomatic contexts of today. We could say, without exaggerating, that this fuel, very little used until three quarters of a century ago, has come to be integrated into the very civilizational paradigm of the world we live in, whose physiognomy would look completely different in its absence. Undoubtedly, gas is not the only fuel with a spectacular evolution, but its presence in the forefront is a relatively recent one, with prospects to remain so for at least the next few decades.

In the concert of energy resources, more and more alertly in modern society, natural gas is among the last protagonists to step on the stage, and can be considered, according to the renowned economist Helyette Geman, "*la belle du bal*".[1] It is a clean and elegant resource, much less polluting than others, which will reassure environmentalists to some extent. The countries of the world have important natural gas reserves, but they are asymmetrically distributed, which, internationally, is likely to create friends and enemies, alliances and axes of cooperation, interstate conflicts and economic sanctions regimes, or many other situations and contexts. All of these have the ability to reverberate very quickly, sometimes producing chain effects on the international economic scene, being able to involve and bring to the negotiating table the top decision-makers of the great powers. It is, at the same time, a demanding and challenging resource in terms of its modes of operation and transport, requiring technological support and high-performance infrastructure, which implies a state-of-the-art level of research and technical expertise.

We consider that the relationship between the EU and Russia on the gas market is a special one, which we could thus characterize with a plastic expression of our language: *not of will, but of need*. Each side needs what the other can provide: energy resources, technology or money resources. When the equation of the energy game, combined with that of the geo-economic game, has several players, the *bilateral relationship* turns into a *trilateral* one, when the problem of transit through countries like Belarus, or especially Ukraine, arises or *multilateral* when the equation is completed by major global or regional powers, such as the

[1] Geman Helyette, *Commodities and Commodity Derivatives: Modeling and Pricing for Agriculturals, Metals and Energy,* Wiley Publishing, Chichester, 2005, p. 227

United States, China, Turkey and others. In fact, we can say that the gas trade relationship between the European Union and Russia, in the strict and sometimes rigid institutional and legislative framework, adopted by Brussels to carry out this process and the often blunt reaction of Moscow to it, through rebuffs and countermeasures, is the essentialized expression of two important vectors of confrontation:

1) *economic relations, including in the energy field, used as a tool for exercising power and as a means of geo-economic expansion;*

2) *the fierce fight for resources, which takes place today all over the world, but has specific accents in the mentioned context;*

The two sides that face each other in the first situation are, as instruments of economic and political power, on the one hand the *European single market*, supported by an active and very strong mechanism of institutional regulations, oriented towards economic expansion toward the East, and on the other hand the doctrine of *state capitalism*, promoted by Russia after 2000, also having a certain offensive purpose, based on a huge energy potential, used as appropriate, either as a pragmatic trade tool or as an effective economic weapon. The broad and strict *acquis communautaire* has tried - and still does - to force Russia to play the gas market under EU rules, and has largely succeeded in doing so, as in the case of the much-discussed *unbundling* procedure - respectively, the separation between the gas supplier and the gas carrier - provision within the *Third Energy Package* of the European Union.[2] In other cases, Russia is the one that has imposed its point of view, as happened in the case of non-ratification of the *Energy Charter*, due to the provision on *third party access to the gas transport network*. Particular is the positioning of the parties in the case of the **Nord Stream 2** pipeline, which we will analyse in detail in the paper, a situation in which Russia has an excellent direct collaboration with a large EU country, Germany, but at the same time tense relations with the Union as a whole, on the topic under discussion.

I believe that the whole bilateral relational context can be understood only if the *diachronic* perspective of the analysis of current economic and trade relations and sequentially on the gas market is combined with the *synchronous* perspective, that of a collaboration, if not historical, then at least traditional, between the two parties. It has become functional since the time of the USSR and the European Common Market, from the 70s-80s of the last century, a period of bilateral pragmatism, characterized by overcoming ideological

[2] The European Commission, Third energy package, 2019, available online at https://ec.europa.eu/energy/topics/markets-and-consumers/market-legislation/third-energy-package_en

barriers from the East and promotion from the West of what might be generically called *Ostpolitik*. We are dealing with a trade relationship which, in our field, was originally built on the model of the European gas market by the *Gröningen model* (the so-called Dutch model), consisting of the strong involvement of the state in regulating the gas market. Subsequently, the original *trade pattern* was abandoned in Europe, under the pressure of German-type *ordoliberalism* or *liberalism* that currently governs the Community market, and the relationship between the two sides continued with more friction, changing a lot. Sometimes the actions of the two major partners - but only to a certain extent - were antagonistic, pushing their differences only to the point where they would have had irreversible effects to the contrary. The European Union has tried and is trying to reduce its dependence on Russian gas, but not so much as to force Russia to shift its massive exports to other markets. Russia, in turn, is looking for alternative markets, namely China and the vast Asia-Pacific market, but maintains these relations only at a reasonable level, without encroaching on the privileged economic and partnership-type relationship with the EU as a whole, or with member countries or their large companies.

When the specific economic and political interests of the two parties nevertheless collide directly, a field of confrontation is reached, with immediate implications on the amplitude and structure of their economic relationship. This is the case of bilateral disputes over the situation in Ukraine, a transit country of great significance, with a large share of the network of gas pipelines heading West, inherited from the USSR. In the decade 2004-2014, Ukraine oscillated ideologically between Russia and the European Union, trying to reap economic benefits from both sides. Its position as a transit country provided it with significant revenues and privileges in the supply of energy resources, and its proximity to the EU and the gradual liberalization of its gas market, in line with Community standards, made it a beneficiary of significant investment from the West. The centuries-old historical and traditional relationship of Ukraine with Russia, and the fact that, according to bilateral agreements after the disintegration of the USSR, it had accepted the stationing of the Russian fleet on the Black Sea, at its traditional bases in the Crimean Peninsula, brought significant economic benefits, by delivering Russian gas at preferential rates, equal to or only slightly higher than those on the Russian domestic market. The economic exchange system was mainly based on the barter system, in which direct monetary payments were replaced by offsetting by other types of goods. The successive changes in power in Ukraine, which began in 2004, and the accentuated ideologisation of the country's policy, with increasing pro-European and anti-Russian accents, as well as the specific situation of the Ukrainian economy and resource market, of which the famous oligarchs and

economic entities with completely opaque shareholding structures were present, leading to the first two gas crises, in 2006 and 2009, which left traces of erosion in the relationship of trust and partnership between Russia and the European Union. The events in Kiev in 2014 and their dramatic aftermath (the war in the Donbass region and the annexation of the Crimean Peninsula by Russia) led to the quasi-freezing of Russian-Ukrainian economic and political relations and to the straining of relations between Brussels and Moscow to an all-time high (resulting in mutual sanctions, valid until today).

Symptomatic of the EU-Russia relationship is the fact that the tense atmosphere of the last two decades, materialized by the decrease in the volume of bilateral trade, has not affected in any way the market for energy resources, primarily that of natural gas, a field in which which, after a short setback in 2015-2016, the exchange resumed, and even intensified, to an amplitude close to the historical one, in 2012. We will try in our paper to capture the nuances, finalities and consequences of this geo-economic dispute, which Russia and the EU (and other politico-economic protagonists, such as the USA) have brought to the Ukrainian geo-strategic chessboard. We even consider that one of the factors that drove the conclusion of the *Minsk II Agreement*, in February 2015, signed by the presidents of Russia, Ukraine, Germany and France (with the consistent involvement of the strongest EU countries), was based, in addition to political and humanitarian grounds, on a certain economic motivation, in particular aiming at the unrestricted continuation of energy supplies from Russia to EU countries. We can consider natural gas as the first of these energy resources, on which the parties' attention was focused. The agreement in fact meant the re-positioning of the parties in mutually acceptable strategic positions, which made it possible for economic relations between them to continue at least on their vital arteries of trade flow. The peremptory proof of this assumption is provided by the statistics on the volumes of energy exchanges in the years 2015-2020, which we will comment on in detail in our paper.

In order to outline as accurately as possible, the bilateral economic landscape, Russia-EU, which inevitably becomes trilateral, by involving Ukraine as a transit country for Russian energy supplies to European Union countries, we will analyse the economic dynamics of the gas market of the three spaces, considering them separately or interconnected. Our approach will address the two moments of fundamental restructuring of these relations, the one from the beginning of the 1990s, after the collapse of the USSR, and the attempts to liberalize the Russian and Ukrainian gas markets, and the second will be the one after 2014, when the landscape changed radically through the conflict of Russian-Ukrainian relations and the strong congestion

of the EU-Russia relationship. We will note that this economic congestion has also led to a congestion of certain gas flows on the specific network to the EU, significantly reducing their volumes.

Russia's domestic gas market, which we will analyze in detail, is an eloquent expression of the Kremlin's domestic interventionist and protectionist economic policies, drastically regulating the behavior of major market players after 2000. The case of Gazprom and its overwhelming economic role in the Russian economy, doubled by large-scale, conditioned and state-supervised social involvement, is a good example in this regard. In exchange for this bivalent role, of an economically and socially determining factor, the company has long been guaranteed the monopoly on the domestic gas market. In the last decade, however, also due to the intervention of political factors, its monopolistic position has been called into question by the appearance on the market of so-called emerging companies, such as Novatek or Rosneft. In the conditions of market liberalization (process started in 2007) and later the creation of the gas exchange, it led to the appearance of the competitive economic game, with the direct consequence that Gazprom lost the position of sole supplier, however retaining a status of dominance and preponderance on the gas market, as well as the guaranteed one of sole exporter and administrator of the Russian gas transported by pipelines.

We will highlight the radical change of economic paradigm, after the year 2000, with the installation in the Kremlin of the new political power, represented by Vladimir Putin. The new leadership imposes a new style of political and economic approach, projecting the repositioning of Russia as a great geo-strategic power on the international stage, starting primarily from its *de facto* status, that of great energy power (one of the top three in the world). This meant the transition from the anarchy of chaotic liberalism and the economic turmoil of the transition of the 1990s, which culminated in the country's economic collapse in 1998, to regaining control and the power of state intervention in the field of energy, using this sector as a major economic factor, of great force on international markets, but also an instrument of political and diplomatic influence in the international arena, through negotiation or pressure. An eloquent example are Russia's actions when economic relations with the European Union are strained. This situation makes Moscow look for alternatives to its delivery policy and pivot to markets in the Asia-Pacific area (especially China) or the Black Sea, opening the offshore delivery route to the region's largest gas hub, Turkey, from where it can be redirected to EU countries.

The European gas market, which we will analyse simultaneously with the Russian one, capturing the close interconnections between the two, can also be seen in its synchronous evolution, in the process of remodelling its internal gas market which was completed around the year 2000, in terms of the concept of a sole energy market, based on liberal principles. In this regulatory and institutional field, Russia and the EU's interests on gas have sometimes coincided, but most of the time they have been in a relationship of adversity, being in need of harmonization - when possible, because in some situations their differences remained irreconcilable - , which means long rounds of negotiations, the drafting of documents, the creation of formats and frameworks for discussion between decision makers and specialists of the two parties. The result has been translated into a series of treaties, regulations, bilateral agreements, which are signed by both parties and which have made it possible to maintain high levels of energy relations, translated into high values of market exchanges. During this period, the European gas market, of which Russia has been and remains the main player, is undergoing several structural transformations, mainly due to the decrease in domestic gas production in the member countries, which brings the new concept of security of supply in the spotlight. The new reality implicitly entails an increase in the EU's dependence on Russian gas, a situation viewed with concern by the European Commission, which is constantly looking for alternatives to reduce it. This leads to two other direct consequences that we will detail in our paper:

1. The first consequence is the increase in LNG volumes on the European market (including the consistent penetration of American LNG), the construction of new terminals and storage facilities, including in the former Eastern Bloc countries (such as Lithuania or Poland) and the increase of the degree of interconnection and interoperability in European networks, including the introduction of the reverse flow system - which made it possible for Ukraine, which has completely stopped gas imports from Russia, to be supplied through this system by European partners via Slovakia or Poland.

2. The second consequence was the promotion by the European Union of the creation of the *Southern Gas Corridor*, by taking over the Caspian gas, especially the Azerbaijani one.

As an illustration of EU-Russia relations, we will analyse, based on the model of the case study, the particular relationship in the energy field, especially gas, between Russia and Germany, the contemporary expression of the older climate of relaxation between the two countries, as a result of the German initiative to move closer to the East. We will therefore analyse, from an economic point of view, the structure of the German gas market, by far the largest in Europe at the moment. Germany, in line with the *Energiewende* concept, its energy transition policy, is a supporter of natural gas consumption as a source of clean and less polluting energy. The Russian-German economic partnership materialized in particular relations in the field of energy, with the massive involvement of the political factor (let's not forget that the former chancellor Gerhard Schröder became chairman of the Board of Directors of the Nord Stream Project, immediately after leaving the official position). The immediate consequence was the construction of the two direct gas supply lines from Russia to Germany, on the Baltic Corridor, *Nord Stream 1* and *Nord Stream 2*. The latter project is rapidly approaching completion, despite official opposition from the European Commission, opposition from some Member States and growing threats from the United States. The way in which this project will influence the price of gas in Europe will result from the comparative analysis of two models for establishing prices, which we will detail in the last chapter.

Returning to the playful and metaphorical register in which I began to describe the winding path of gas from the distant territories of Russia to the European Union and its countries in the heart of the continent, we could say that the gas relationship between the European Union and Russia, with quarrels and reconciliations, turbulence and calm, with sanctions and negotiations, is more like a marriage of interest than one of love. The parties do not love each other (it's true, they don't hate each other either!) but they need each other and neither of them can exit the space of common economic interest by slamming the door. And as is well known, marriages of interest sometimes last much longer than those of love. Most of the time they are final.

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The second stake in the energy confrontation is taking place in the wider context of the global battle for energy resources, a competition in which natural gas is becoming a priority stake. Thus, notions such as development, growth, well-being, are key concepts of the contemporary world. Sustainable development means promoting sound social, economic and environmental policies as fundamental foundations of state policy. Economic, social and environmental policies must be synchronized in order to truly achieve sustainable social development.

Energy is a fundamental aspect of this triad (economic, social, and environmental) and plays a particularly important role, through its structural relations established with other sectors. Oil, natural gas, electricity or minerals are vital natural resources that meet the primary needs of society. Without access to these resources and without reasonable prices for their acquisition, modern civilization could hardly survive. Precisely because of this, oil, gas, minerals and other energy sources are considered "*strategic resources*", at national or global level, fundamental to the development and prosperity of contemporary society. The fact that, in general, there are functional markets for these resources, with transactions at affordable prices, implies the existence of cooperation between a multitude of "players" at local, regional and international level: states, companies or communities. Cooperation between all these entities, although necessary and permanent, is sometimes disrupted by various sources or foci of conflict arising either from unresolved historical disputes or from current disputes over prices, quantities or import/export arrangements. Both of these aspects, cooperation and conflict, are irreplaceable parts of the life cycle that global resources go through, from the extraction process to transportation and delivery to the consumer.[3]

Throughout history there are periods in which one or the other of the aspects predominates, the conflict or cooperation. Economic analysts generally believe that the 1980s were a period in which liberal ideology and a dynamic and efficient market economy (hence the limited role of the state in the economy) had a decisive influence on the energy market, in the form of the economic policies of Reaganism or Thatcherism, especially for oil and gas. However, the 2000s and the beginning of the new millennium brought other global challenges, and the financial crisis, which began in 2007 and continued in increasingly severe forms in the period that followed, undermined, in a way, the credibility of the neo-liberal financial model. As a consequence, during this period, state policy became more active and more interventionist,

[3] Dannreuther, Rolland - *The Diamics of Conflict and Cooperation* în: Dannreuther Roland, Ostrowski Wojciech (coord.): Global Resources – Conflict and Cooperation, Palgrave Macmilan UK, London, 2013, p.1

which was also felt in the energy market.[4] From this point of view, we could identify two types of states: those rich in energy resources and those dependent on these resources. This positioning can be an argument for a certain type of ideological, political and economic behavior. Thus, it is quite clear that "energy-dependent states tend to promote the ideals of energy market liberalization, while energy-rich states often pursue policies of state involvement and control in their natural resources sector."[5]

In general, the politico-economic relationship between importing and exporting countries can be seen as a key element, to understand the global energy market, respectively, in our case, the gas market. Relations between states can be regulated by several factors, but, at least in the last century, *energy* has been one of the most important factors. The relationship between producing and consuming countries is one of mutual interdependence. On the one hand, producers benefit from the revenues from gas supplies, on the other hand they remain dependent on the import of technology for research and exploitation of new gas perimeters, sometimes difficult to access. This type of interdependence is fundamental, at the same time, for the development of transport or storage infrastructure. Both the pipelines and the LNG terminals require close collaboration along the functional production-distribution chain. This calls for cooperation between all states and bodies involved, including those hosting smaller or larger segments of infrastructure. Strong reasons, especially financial, are the basis of this collaboration, and they are related to the desire for infrastructure investments to be recovered, and this can only happen if all risks related to security of supply are diminished or removed.[6]

The energy issue involves many facets and aspects of approach and at the same time requires a concerted international response on several levels. The need to ensure wide access to modern energy sources and services is the main one. The problem becomes all the more relevant - and at the same time pressing - as all studies have established an intrinsic relationship between the problem of poverty and lack of access to energy sources. It is recognized that the development of such services, decades ago, in today's developed countries, has been a major factor in boosting their economic growth and raising the general standard of development. We can say that this aspect becomes the key factor in ensuring sustainable development and an appropriate standard of living for most of the world's states.It is a reality that there are rich

[4] Dannreuther, Rolland - *The Diamics of Conflict and Cooperation* în: Dannreuther Roland, Ostrowski Wojciech (coord.): Global Resources – Conflict and Cooperation, Palgrave Macmilan UK, London, 2013, p.3
[5] Behn Daniel, Pogoretskyy Vitaliy - *Tensions between the Liberalist and Statist Approaches to Energy Trade Governance: The case of dual pricing,* in Kuzemko C. et al. (coord.): Dynamics of Energy Governance in Europe and Russia, Palgrave Macmilan, 2012, p. 45
[6] Gilardoni, Andrea - *The World Market for Natural Gas- Implications for Europe*, Springer Publishing, Berlin/Heidelberg, 2008, p.4

states and poor states. We live in a world of diversity where inequality sometimes manifests itself in a very aggressive way. We could say that, taking the opinion of the economist and political scientist David S. Landes, the perspective accepted for many decades, the antagonism between two power blocs, represented by East and West, was replaced by another, much more dramatic and more threatening to world stability, that between the North and the South, that is, between rich states and poor states. The separation is obviously not geographical, but economic and historical. The author considers that this dichotomy represents the main danger facing the world in the first decades of the millennium we have entered. It is a more worrying factor of instability than other global imbalances, such as environmental issues, although the two issues are not unrelated.[7]

The link between economic development and energy resources has been obvious since the beginning of mankind, and a competition for resources has existed since ancient times - from antiquity to the present day. However, the growing dependence of the world's economies on energy resources is an increasingly strong feature of the 21st century, and the struggle for resources unequivocally dominates the geopolitics and geoeconomics of this century. The issue of energy resources is current, their deficit having an important role in triggering or amplifying conflicts, being a factor of polarization and catalysis of forces, internationally. In fact, there is a law of scarcity of resources, which is that the volume, structure and quality of economic resources and goods change more slowly than the volume, structure and intensity of human needs.[8] The spectrum of depletion of energy resources in the coming years has made a significant part of economic policies, but also power strategies, be concerned about the accessibility of pipelines and terminals, future routes of energy routes, possible economic partnerships in the field, etc. On the other hand, the same economic strategies aim at identifying the most efficient ways to use these resources, as well as the possibilities to replace them, or to reduce the environmental imbalances, determined by the exploitation, conditioning, processing and use of resources. A country's position in the international economic and political system often depends on its ability to produce oil and natural gas, in a word, on its control over energy reserves.[9] Energy issues are becoming security issues, and security of energy supply has become a common concern of the major players in this dynamic competition.

[7] David S. Landes - *The wealth and poverty of nations. Why some countries are so rich and others so poor*; Polirom Publishing, 2013

[8] Emil Dinga, Diana Mihaela Apostol - *Microeconomics*, Pro Universitaria Publishing, 2009, p.15

[9] Nicolae Dolghin - *Geopolitics. Dependencies on energy resources*, U.N.Ap. Publishing, Bucharest, 2004, pp. 5-6

1.2 Objectives

Our paper has the following objectives in mind, in order to provide an accurate and comprehensive overview, as much as possible, of the relations between the European Union and Russia regarding the natural gas market:

a) First of all, we will analyze the Russian gas market, from the birth of the country's gas industry in the Soviet era, to the current developments that are manifested with moderate tendencies to liberalize it. In this context, we intend to analyze the interventionist and protectionist economic policies pursued by the Russian state, which directly regulate the behavior of energy companies in this market. Also in our paper we will follow the evolution of Gazprom, by analyzing its role of utmost importance in the Russian economy, doubled by its social involvement, conditioned and supervised by the state. We will analyze the direct and indirect effects of market liberalization and the creation of the gas exchange, which led to the loss of Gazprom's monopoly on the domestic market.

b) Secondly, we will analyze the European gas market, in the light of the processes of remodeling its internal structure, which were completed around 2000, based on the liberal principles of the European single energy market. We will follow the path of energy regulations, treaties and agreements, adopted by the EU, from the first Gas Directive adopted in the early 1990s, until the signing in 2019 of the Russia-Ukraine Transit Agreement, with major implications for energy policy and the gas market of the European Union. Throughout this period, the European gas market, of which Russia has been and remains the main player, is undergoing irreversible transformations, mainly due to the decline in domestic gas production in the member countries. Thus, the new concept of security of deliveries is born. We will analyze how the new reality that accentuates the increase of European dependence on Russian gas is viewed at the level of the European Commission and what are the alternatives and solutions found by European leaders to reduce it.

c) Thirdly, we will analyze the disputes between Russia and the EU over the transit of natural gas, with reference to the situation in Ukraine, a transit country of great importance, with a significant share of the gas pipeline network to the EU, inherited from the USSR. Thus, I followed the course of Ukraine after the collapse of the Soviet Union. We will follow the way in which the transit countries have obtained significant revenues and privileges in the supply of energy resources, negotiating and fully exploiting this status. We also intend to undertake a

detailed analysis of the two gas crises (2006 and 2009) and the context of EU-Russia relations, with profound economic implications, since the annexation of the Crimean peninsula (2014). At the same time, we will consider the consequences and repercussions that these major events have had on the Russia-Ukraine-EU relationship.

d) Last but not least, in our research we aim to analyze the bilateral relationship on the gas market between Germany and Russia. We will follow, with the help of economic markers, the structure of the German gas market, which in the last two decades has become the largest in Europe. We will also follow the trajectory of natural gas in the German energy mix, in relation to the policies and strategies of the *Energiewende* concept. Particular relations in the field of energy have made the Russian-German economic partnership work at high capacity even after the numerous tensions that have appeared between the European Union and Russia over the last three decades. In this context, we will also analyze the impact of the launch of the Nord Stream 2 pipeline on the prices and gas flows delivered by Russia to European countries.

1.3 Methodology

From the point of view of methodological aspects in our paper we will use descriptive analysis to explain a series of concepts such as state capitalism, gas as an "economic weapon" and power factor, security of supply, energy transit, gas market liberalization, monopoly deliveries, energy strategy, spot market imposition, etc. Thus, after reviewing and analyzing a vast literature, we will create an overview of the evolution of the relationship between the European Union and Russia on the gas market, both in terms of theories and economic indicators, and from the accredited perspective of scientific papers developed by reputable analysts and field observers on the subject. In this sense, the frames of reference of our scientific approach are the following:

a) *Conceptual*. In the analysis of the structural transformations of the European gas markets in their relationship with their main supplier, Russia, we will refer to actors directly involved in the energy markets: state policy, institutions and legislative frameworks, large companies and decision makers. Therefore, from the point of view of the conceptual framing in the major economic doctrines, we consider that the EU-Russia relations on the gas market are characterized by the liberal approach of Europe and Russia's conservative policy on energy resources. This comparison of

energy models and strategies is defining for a detailed understanding of the economic exchanges between the two blocs.

b) *Chronological*. In assessing the structural transformation of gas markets in Europe and Russia, we started our scientific approach since the formation of the gas industry in European countries (the Dutch model), as well as from the beginnings of large-scale gas exploitation in the former USSR. We will take into account the structural dynamics of these markets, shaped by the new reality that emerged after the collapse of the Soviet Union, namely the emergence of transit countries. We will also discuss the periods of tension and crisis in the EU-Russia relationship, especially due to the events in Ukraine. Our approach will also deal with the latest developments of these relations on the gas market, respectively the privileged Russian-German economic relations in the field of energy, as well as the last minute consequences arising from the completion of the Nord Stream 2 project.

c) *Geographical*: The focus of our scientific approach is largely on the Russian-European space, analyzing in particular Ukraine, as the hub of these relations on the gas market. We will also analyze the alternative supply routes of the two sides, namely the southern gas corridor, as an alternative supply for the European Union, with gas from the Caspian region or the Asian area (Chinese market, in particular), as an alternative to supply gas for Russia. Analyzing the globalization of the gas market, we discussed the exploitation of shale gas in the United States and its marketing in the form of LNG, a reality that has fundamentally changed the dynamics of international gas markets.

We will also use the tool of comparative analysis, through which we will highlight the dynamics and evolution regarding aspects of gas prices and volumes in different regions, analyzed in this paper. The historical method will be approached through the prism of the evolution of different sources in the energy mix. A number of indicators, such as the domestic gas production of Russia and the EU Member States, the dynamics of trade in gas markets, the share of revenues from energy transit taxes and, last but not least, the evolution of natural gas prices, will be used in order to analyze the evolution of the natural gas market or to present the energy situation at European level. Finally, our price analysis comparing the price of a long-

term contract with the spot market price will be used as a simulation method to explain the developments and trends in the natural gas market.

Our methodological approach to defining the terms and concepts used in the content of our paper cannot be concluded without mentioning in general terms the characteristics of the three types of gas: conventional natural gas, shale gas and liquefied natural gas. The chemical composition of a natural gas molecule consists of four methane and one carbon atom. The higher the share of methane in the molecule, the higher the caloric value of the gas. The deposit is formed at high temperatures and pressures, these conditions being often met at great depths, and for use it is not necessary to process it. Liquefied natural gas (LNG) is natural gas brought into liquid form by cooling to facilitate and ensure its storage or transport. Natural gas can also be mined from metamorphic rocks called clay shales, by different processes than conventional gas. Shale gases are included in the category of unconventional energy sources, but they do not differ from conventional gas fields, the difference consists only in the method of their exploitation.

II. Literature review and concepts

The literature on a sectoral economic field, that of natural gas, is, despite the niche segment it analyzes, rich in studies and analyzes. Even those who deepen their field or are professionally involved in it (such as the author of the doctoral thesis), naturally having a wider expectatios horizon, will undoubtedly be overwhelmed during a scientific research of the depth of the approaches related to this field. But he will be especially surprised by the richness of the contextual implications of gas use in today's world, as a fundamental energy resource: commercial, economic, geo-economic, political and geo-strategic, legal and diplomatic, technological or environmental implications. With such a wide range of meanings, openings and global implications, natural gas is treated by a whole literature, which considers it in all its facets and meanings: as an energy resource, economic resource, geo-political factor and a tool for negotiation, even an energy weapon or a link and a bridge between distinct economic and cultural spaces. In one form or another, conventional gas, liquefied natural gas or shale gas, it is one of the determining factors in increasing the interdependencies between the world's economies.

III. The structure and dynamics of the Russian natural gas market

We must consider the Russian energy complex as having two main pillars of resistance, each with its own morphology and peculiarities, *gas* and *oil*. The major difference is that while Moscow exports three-quarters of its oil production, making a significant foreign exchange contribution and only a quarter of its production is capitalized on the domestic market, its attitude towards natural gas is fundamentally different. Thus, gas production surprises us by the fact that two thirds of it remains on the domestic market (for economic and social reasons that we will explain in this chapter) and only one third is delivered to foreign consumers, especially Western ones. It is true that "only" this third brings really huge revenues.

There are many differences between the two main energy sectors and they relate to areas such as foreign policy, privatization or involvement in foreign markets. All this makes the strategies of the two areas different, and the cooperation between them almost non-existent. Much more powerful as a political-economic tool and as a weapon to influence relations with external partners, gas has a feature that serves all these purposes: *its transport through pipelines.* An extensive network of gas pipelines offers certain peculiarities for the owner, and its key feature is the dependence that such a pipeline system creates between the seller and the buyer, often called ***a steel umbilical cord*** whose value cannot be quantified in terms of market price. Once a pipeline has been built between two countries, the parties become dependent on the created situation that will often lead to disputes, especially over pricing. This explains why the prices of Russian gas exports have become so heavily politicized.[10]

It is therefore easy to understand why, after the demise of the USSR, Russia was keen to take control of transit systems in the territories of the former Union countries. The country's leadership played in the case of the gas industry the same card of the Russian national cause, so that it preserved its *monolithic nature*, kept it *under state control* and protected it from the interference of large private economic stakeholders abroad, which did not happen with the oil industry. All this has made Gazprom retain a dominant role as a producer nationally, block the entry of foreign energy companies into the field, and even hinder the efforts of oil companies to exploit gas reserves when they are associated with oil fields.

[10] Hedlund Stefan - *Putin's Energy Agenda: The Contradictions of Russia's Resource Wealth*, Lynne Rienner, Colorado, 2014, p. 94

Looking back on 2020, in the whole architecture of its evolution, contexts, resettlement and dynamics after the fall of the Soviet Union, the Russian gas industry appears more and more to eloquently illustrate a relatively successful economic concept, active in recent decades, in the economic strategies of many parts of the world: ***state capitalism***. At the end of the first decade after 2000, when its effects were already visible in the economies of some important countries, the concept was defined as the process of state intervention in the activity of large national economic stakeholders (especially energy companies) and the support given to them in order to ensure their success in the free market. The concept is perfectly applicable to the Russian gas industry, strongly supported by direct state interventions. If we look at state capitalism as strongly antagonistic to the features of liberalism and free market capitalism, we can see the imposition of the model in Russia, especially in the energy resources industry, as a direct counter-reaction to chaotic liberalism and onerous privatizations in this field.[11]

Not only does Gazprom play a special role in Russia in terms of gas supply to the internal market or taking over state obligations, but in a sense it also plays a role in the current definition of Russian national identity. Despite negative connotations of the population's perception, related to the skeptical view of common people of the wealthy elites in the energy business, the energy giant is, in the opinion of many experts, a *national binder* for Russian society, which goes beyond its very economic stature.[12]

The fact that in a period when the germs of a very aggressive capitalism were flourishing, the gas sector continued the paternalistic behavior of the Soviet tradition, made in the collective consciousness an identification with a *national brand*. The state capitalism it illustrates reinforced this perception, so that one of the company's former leaders, Rem Viahirev, saw himself entitled to say that "we heat and feed the whole of Russia" or, even more, that "without Gazprom there is no Russia".[13] The fact that, at the level of public perception, but also at the level of its own public discourse, the state company is considered a factor of social cohesion, which manages to contribute to maintaining the unity of the country, is a proof of the major social role it undertakes as a stakeholder in the state capitalist system.

The company took over some of the obligations that in the Soviet Union traditionally belonged to successful Soviet enterprises, and in Western countries involves the responsibility

[11] Aligică Paul, Tarko Vlad: *State capitalism and the rent-seeking conjecture, Constitutional Political Economy* 23(4), 2012, p.376
[12] Freeland Chrystia - *Sale of the Century: Russia's Wild Ride from Communism,* Crown Business, New York, 2000, p.75
[13] Freeland Chrystia, op. cit., 2000, p.76

of large corporate corporations (*corporate social responsibility*). The tradition of the Soviet period required large industrial enterprises to assume responsibilities not only for production or trade activities, which were the main object of their work, but also to get involved in the social and community field, in the regions or localities where they operated, such as in education, health, construction of social buildings, etc. This model of mentality and perception from the former Soviet era, that naturally invested the economic factor with social responsibilities, was taken over and continued by Gazprom, responding to a horizon of expectations from the general public. The old established public perspective that saw natural resources as a public good was also reflected in the perspective on the relations that must exist between the state, society and the gas industry.[14]

The natural gas sector has undertaken this social role, which has made it not only a major economic branch, but also a *national identity brand* for Russia. "In the dark times of the 1990s, the role of natural gas was crucial in keeping light and heat in Russia's settlements and keeping its industry alive. In all these years, gas has been the main driver of Russia's virtual economy. Without it (a posthumous gift of the Brezhnev era), Russia would have been even more torn than it was by the shock of the collapse of the Soviet regime. Gas was the *bridge fuel* that allowed the Russian economy to survive a painful transition. [...] Gas played a key role in the last decade of the Soviet economy, but that role grew tremendously in the first post-Soviet decade, just as other energy industries were collapsing."[15]

At the level of Russian society, the role of Gazprom has been precisely defined by researchers Clifford Gaddy and Barry Ickes who analyze its activity, considering it as a key component of a vast system of general redistribution of profits. This is a practice that Moscow has used since the 1990s, but gave it clearer conclusions after 2000, when Putin came to power. The concept refers to a reality of the Russian economy with roots still existing in the Soviet era, that of *redistributing profits* from the exploitation of energy resources, in order to allow a centralized economy, or where political levers are still present, to develop, compensating for the losses and inefficiency of other areas and, at the same time, being able to address some pressing social needs.

The system of profit redistribution, which emerged in post-Soviet Russia in the 1990s as unviable industries in the Soviet era sought to protect themselves from the rigors of market

[14] Julia S. P. Loe - *"But it is our duty!" Exploring Gazprom's reluctance to Russian gas sector reform*, Post-Soviet Affairs 35:1, 2018, p.6
[15] Gustafson Thane, op. cit., 2020, p.241

economy discipline, was the basis of a reality conceptualized by the *virtual economy* formula. We can consider that the virtual economy has been maintained for so long, precisely because it has served the interests of many economic stakeholders. The employees of the industrial mammoths, left over from the Soviet era, managers and workers alike, all benefited from the fact that it postponed the final maturity for companies with losses and debts.

Controlled liberalization processes in the Russian energy market continued after 2000, with the aim of creating a more stimulating competitive framework and fairer relationship with price in the Western market. There have been several attempts to create such a market, but it did not arise until the end of the first decade of the 2000s (initially for oil and since 2014 for gas), when its opening was made possible by a whole complex of favorable factors: the emergence of several market stakeholders in the field of energy, respectively the desire to simplify the framework for contracting and trading energy volumes. SPIMEX was founded in 2008, initially operating as a commodity exchange for the trading of oil or petroleum products. Currently, spot contracts or a wide range of derivatives can be traded on it.

As in the 1990s or 2000s, the differences between Gazprom and its European Union partners remain, as they relate to different systems of rules and standards that come from different values and systems. Even if we are talking about market economy on both sides, the institutions that regulate and operate in this field belong to asymmetric contexts and visions. It is an obvious fact that the two sides have different organizational and institutional economic models and therefore "an approach based mainly on the use of state instruments inevitably clashes with multilateralism and the principles of competition, promoted by the European Union, which advocates market opening, separation and even privatization in the gas sector. The EU's regulatory power is therefore at odds with the institutional framework in Russia's energy sector, so it is unlikely that in this context, based on regulations and institutions, EU standards can be used exclusively in structuring its relations with Russia. Russia's withdrawal from the Energy Charter ratification process illustrates this."[16]

When we combine the notions of Russia and natural gas, we inevitably think of the long pipelines through which this country supplies energy to Europe and the continuous expansion of its transport lines to various commercial markets in the West and East, from different economic areas such as Germany, Turkey or China. Thousands of kilometers of pipelines cross Eurasia, from the Arctic Circle to the Aegean Sea and from the Baltic Sea to Vladivostok. At

[16] Boussena Sadek, Locatelli Catherine - *Energy institutional and organisational changes in EU and Russia: Revisiting gas relations*, Energy Policy 55, 2013, p.181

present, Russia's image can be associated with the production of LNG, i.e. another, newer form of gas transportation. Although, if we look at the statistics, we will see that in recent years Russia has acquired the status of a very important stakeholder on the world market for this type of fuel.

The export of a country's energy resources can be seen and often used as a real economic weapon in the hands of natural wealth holders. It can create dependencies, conditionalities, alliances or - not at all rare in history - blackmail or conflicts, often bloody. It can sweep governments from power, overthrow regimes, and ultimately change the geopolitical situation in a particular region of the world. Tightening or switching off the energy tap was considered, especially in the modern era, true *casus belli*. Present for over three centuries on the European and world stage as a great power, Russia knows this weapon, and has even refined the procedures for using it with maximum efficiency. Through it Russia asserted not only its status of geo-economic domination, using it as a symbol of sovereignty and greatness, but it managed to create dependencies and vassals, to impose it as an argument in political agreements and negotiations, and even to substantiate axes of economic cooperation valid to date, as in the case of Germany. "Gas pipelines from Russia to Europe have a double meaning, marking Russia's status as an energy superpower and at the same time Europe's dependence on Russian gas supplies."[17]

Even in 2014-2015, years of crisis relations between the two sides, the percentage of Russian gas imports did not fall below 37% of the total. Since 2016 it has consistently been over 39%, and since 2018 it has exceeded the level of 40.2%, a level that was maintained in 2019. The volumes imported in the last 2 years were 202 billion m³ in 2018, respectively 199 billion m³ in 2019. A medium-term forecast indicates that Russian producers will maintain their share of the European market in the next decade at a level approximately equal to today, i.e. around 200 billion m³ for 2030.[18]

The two gas crises related to Ukraine did not go unnoticed, not so much in the volume of trade or balance of payments but especially in the mutual trust in the seriousness and predictability between the two sides. The shock of gas supply disruptions was felt to a greater or lesser extent in most areas of the EU and, although they did not have a dramatic effect on the functioning of industry or the consumption of the population in the countries concerned, it

[17] Connolly Daniel, Lee Jae-Seung - Pipeline Politics between Europe and Russia: A Historical Review from the Cold War to the Post-Cold War, The Korean Journal of International Studies 14(1), 2016, p. 105
[18] Gazprom - Investor Day, 2020, available online, p.13

seriously eroded Gazprom's reputation and by extension Russia's. Having a historical tradition of gas supplies to the West for over four decades, Gazpom had managed to build an image of a predictable and serious partner. The decision to suspend deliveries taken by Russia's top political leadership in the context I have described, even if it had its political-economic reasons, has caused partnership and even financial damage, which will require further efforts in the future, with the participation of both parties.

During the last Ukrainian crisis and the EU sanctions against Russia, it was rightly stated that these sanctions would not have an univocal purpose, and that European states would feel their boomerang effect and that, in a very short time, the obsessive attempt to reduce the EU's dependence on Russian gas will be followed by Russia's attempt to reduce its supply dependence on the European market, as a counter-reaction. This has already happened and it meant that after 2014 Russia turned its attention to the Asian gas market, especially the vast Chinese market, expressing interest in becoming part of the Asian energy supply chain.

IV. The EU-Russia relationship on the gas market from the perspective of the energy transit

The former Soviet republics, united by the so-called supranational solidarity of the communist ideology, become today's independent neighbors, with their own aspirations and interests that they understand to defend, sometimes aggressively. For Russia's energy supplies to Western European markets, which needed such foreign exchange resources, a new context is created, dominated by a concept with certain economic and geo-strategic connotations: ***transit***.

In the direction of exporting its gas to Europe, Russia was forced to manage a relationship that was not always comfortable, with two former close partners, who became in the post-Soviet era two ambitious neighbors who agreed to take full advantage of the status quo as countries of transit for energy supplies: Ukraine and Belarus. The most common and pressing problem, especially in terms of Ukraine, was the delay or refusal of payment by the transit country for gas transported or received from the exporting country. Thus, as we will show in this chapter, it resulted in dissensions that affected not only bilateral relations, but even the European gas market in general. Post-Soviet relations between Russia as an energy-exporting

country to Europe and Ukraine as the main transit country for transport pipelines were constantly marked by tensions and misunderstandings stemming from divergent economic and political interests. It was a struggle of interests between the two countries over the sharing of benefits and goods of the Soviet-era gas industry, which had its origins in the new state realities that emerged after the demise of the USSR, when one of the two countries - Russia - became the *owner of the gas reserves*, and the other - Ukraine - was in the position of *transit country*.[19]

The decisive political and economic moment that shook Ukraine took place in 2014 and had such an intensity that it placed it in a new geo-economic and geo-political reality. The country changed both its traditional pro-Eastern orientation to the west and the architecture of the economy, including the structure of the energy market. In the period 2005-2013, depending on the contextual interests and political orientation of the Kiev government, Ukraine oscillated between maintaining close relations with Moscow, including close interdependence on energy, and making pro-European commitments, as an associated state since 2007, which included legislating and implementing measures to liberalize its internal market, as required by Western partners. The political crisis and the differences of opinion between Russia and the European Union weaken the political and economic relationship between them. *Both saw Ukraine as a maneuvering and buffer zone between East and West*. Both linked their military and regional stability to their control or influence over Ukraine, which thus gained *turntable* status in the Russia-EU relationship. Closely correlated to the volumes and prices of gas supplies is the aspect of Ukrainian receipts of transit fees. Ukraine's transit status, by which three-quarters of Russia's gas volume passed, brought substantial benefits that helped keep its economy afloat. The benefits ranged from 1.8 to 4% of GDP and from 6 to 16% of the country's entire budget. Looking at the table below, we can see some peaks of increase in transit fees, reflected both in GDP and in the share of revenues to the state budget.

The extension of the Gas Transit Agreement means, from an economic point of view, substantial financial benefits for all parties involved: Ukraine will continue to collect substantial transit fees and remain connected to the European gas network. Russia maintains its transport routes for partners with old traditions, but at the same time has the possibility to choose and optimize transit routes. At the same time, once its gas is present on the territory of Ukraine, the influence of Russia remains present in this country. As for the European Union, it manages to defuse a conflict-ridden outbreak on its eastern border, strengthen its security of supply and include Ukraine in the EU gas market, establishing policies to make the Ukrainian gas sector

[19] Gustafson Thane, op. cit., 2020, p.317

compatible with European legislation. A possible failure of the negotiations and the failure to sign the document would have meant a "total break" between Russia and Ukraine and the beginning of an "ice age" in their bilateral relationship, which is dangerous for European security itself. At the same time, the failure would have meant a total *bypassing* of Ukraine, respectively a drastic reduction of this country's role on the European gas market. For the EU, which has made sustained efforts to ensure the success of the political-economic approach, the failure would have meant creating an area of instability on its eastern border and the sudden strain of economic relations with Russia, at a time when the EU gas market is heavily dependent of Russian deliveries.

V. The status of natural gas on the European Union energy market

We can speak of an European gas industry and market only after 1960, following the discovery and commissioning of the huge *gas perimeter at Gröningen* in the Netherlands. In the Common Market, which later became the European Community and the European Union, the pioneering position in the exploitation and use of gas on an industrial scale belonged to the Netherlands, a country that imposed a pattern of economic, social and political reporting, which specialized literature calls *the Dutch model*.[20] It soon became a matrix for European countries, making a decisive contribution to the formation of the Community gas market.

It was *the Dutch model* that created the European gas industry, making it compete with coal. The main feature of the Dutch model, with long-term economic consequences, was the inter-relationship of the state with the private sector, in a commercial node that involved producers, distributors, investors and consumers, in a value-generating economic chain in which each link offers its contribution in supporting the stability of the chain, afterwards collecting the related benefits. Consequently, this model came with structural and commercial regulations that formed the basis of the construction of the entire European gas industry.

Analyzing the dynamics of the European gas market between 1970-2020 we can draw some relevant conclusions:

[20] Gustafson Thane, op. cit., 2020, pp. 21-24, 83-87, passim

1. The domestic production of the ECA, i.e. the EU, starts from a volume of almost 100 billion m^3 in 1970, doubles its production until 1980, then keeps it constant for a decade. After 1995 it follows a continuous growth curve, with a peak production in 2005, when it almost tripled from the original value. The following years, however, especially after 2013, were marked by a downward curve whose trend continues to this day.
2. Russian gas imports, which were almost insignificant in 1970, became significant a decade later, and after 1990 they have seen sharp upward trends to date.
3. Opening up the European market for liquefied gas, with increasing volumes after 2005.
4. Presence of area suppliers for certain European regions, such as Algeria and Libya for France, Italy and Spain, respectively Azerbaijan and Iran for the countries of Southern Europe.

As a generally valid conclusion on the EU gas market, we can note that since the 2000s, the share of natural gas in the total European energy mix is relatively high, remaining constant at over 20%, being surpassed only by oil market share (over 30%). The growing attractiveness of gas on the European market is also due to the fact that it is a clean fossil fuel, a viable alternative in the production of electricity, but also a raw material in many industrial processes.

The confrontation of economic ideas and models was filtered by the social-democratic philosophy of Jacques Delors, President of the European Commission between 1985-1995, and synthesized in the concept of the *European Single Market*. The concept adopted by the European Community in 1985 provided for the free movement of persons, capital, goods and services throughout the European Community. The document that represented a strategy for the liberalization of the European economic market was followed by the ratification of the Internal Energy Market in 1988.[21] The real process of liberalizing the European energy market (including gas) began in the late 1980s and ended in the second half of the 1990s with the adoption of European Commission Directives on Electricity (96/92/EC) and Gas (98/30/EC).[22] The directives were necessary because the gas market also put strong pressure on other industrial sectors and had a large commercial influence on energy consumers. Since the early 1990s, the energy market has been in the spotlight of the European Commission, which has focused its efforts on creating a single market and an integrated system in which security of supply and environmental protection have been a priority. The Third Energy Package has had

[21] Correljé Aad - *The European Natural Gas Market*, Curr Sustainable Renewable Energy Report 3, 2016, p.30
[22] Correljé Aad, Van der Linde Coby, Westerwoudt Theo, op. cit., 2003, p.116

many implications for gas trade with Russia, targeting some key aspects of Gazprom's activity in the European market, in particular delivery and transport. Some of these provisions were considered by the Russian side to be too intrusive at times and heated negotiations were held to harmonize views. The normative act also had some concrete consequences on some ongoing infrastructure projects, especially on the construction of the South Stream highway.

The years of the last decade, marked at European and global level by great geopolitical tensions, especially after the deepening of the Russian-Ukrainian conflict in 2014, have turned the European Union's attention again towards the gas resources of the Caspian Region. The EU energy market is in constant need of access to such new resources - other than Russian gas - both due to political and geostrategic turmoil and due to its massive dependence on energy supplies, especially gas. As a result, a major concern of the Union over the last decade has been to reduce its dependence on Russian gas supplies, and this desire, born of an urgent need, has been the decisive factor in the decision to create a supply line with gas from the Caspian region, through several pipelines, generically called the Southern Gas Corridor. The creation of this gas supply corridor is considered to be one of the EU's energy security priorities.

Looking at the economic relations between Russia (respectively, the USSR) and the European Union in their diachrony, we see that until 1989 there was no official relationship between the parties enshrined in treaties or documents. From a formal point of view, the logic of political pragmatism was replaced by the dogmatism of ideological bloc adversity, antagonism illustrated by adversarial (or conflicting) binaries such as: East-West, Warsaw Pact - NATO, Mutual Economic Aid Council - Common Market (and later the European Economic Community).

The freeze in bilateral trade relations between Russia and the EU actually lasted 3 years (2014-2016). Starting with 2017, the volume of trade began to increase again, with a peak at the end of 2018, when the total trade between the two parties reached the level of € 243.2 billion. Compared to 2012, the peak of bilateral EU-Russia economic relations, when a total of € 321.5 billion was registered, the volume achieved in 2018 is significantly lower, by about 25%, but marks a return of the desire for cooperation between the two. Of the total volume of trade (table above), EU imports from Russia represent € 160 billion, and those from Russia to the EU, € 82.3 billion, with a significant trade surplus of € 78.6 billion in favor of Russia. In 2019, the total economic trade experienced a decrease reaching the value of € 231.2 billion, of which Russia's exports represented € 143.4 billion, and imports € 87.8 billion. This, in the conditions in which the prices for energy resources from 2019 until now have known important decreases

on the world market. This is due to the decrease by about 30% of Russia's trade surplus (€ 55.6 billion). Moreover, if we take into account the statistical data from the first six months of 2020, when the fall in oil prices was devastating for suppliers, we can predict that the value of Russian exports in volumes relatively equal to previous years will decline appreciably, with major implications for the trade balance.

VI. The German gas market - another side of the EU-Russia energy relationship

Russia's economic relations, including those of the Tsarist Empire or the USSR, with Germany have always been privileged, even if the two sides found themselves on opposite ends during the two world conflagrations. Traditionally, however, the economies of the two major continental countries are complementary: Germany needs huge amounts of raw materials, especially energy resources, that Russia has, as well as its vast market, and Russia is in dire need of German technology and industrial products, as well as a secure export market for its energy and agricultural products or raw material. This complex system of interdependencies resulted in a traditional historical relationship of trade, which functioned even during the Cold War or during fierce ideological confrontations between the Eastern and Western political-military blocs. After the war, controlling the eastern part of Germany, the former GDR, Russia's involvement in the German market and economy became very consistent.

In 2019 Germany remained by far Russia's main trading partner among EU countries. The volume of German exports to Russia in 2019 was € 26.66 billion, representing approximately 3.5 times the exports of Italy, Poland or the Netherlands and more than 5 times France's exports to this country. In terms of imports, Germany also remains the largest importer of goods from Russia, with a value of € 27.89 billion in 2019. It is followed by the Netherlands, with about 20% less, and Italy or Poland, with about 45 % -47% less. The trade balance in Russian-German relations indicates a surplus of € 1.23 billion in favor of Russia. It can be stated without reservation that Germany is the main buyer of Russian gas on the international market. The history of bilateral trade relations on the gas market is almost half a century old and has developed rapidly on the principles of economic pragmatism and mutuality, despite ideological and economic system differences, until the fall of the Berlin Wall. These relations date back to

1973, when Verbund Netz Gaz from the GDR and Ruhrgas from the FRG began trading Russian gas volumes on the markets of the two Germanys.[23]

In the two market regions, gas is traded using *virtual trading points (VTPs).* Thus, the regional market operator permanently ensures the balance between the demand and the actual supply of gas quantities. The division of the German market into two different regional segments led to the existence of two different gas price indices - NCG and Gaspool. However, the price of gas on the German market is not only determined by transactions through the virtual trading point, but also by the conclusion of traditional contracts, based on direct negotiations between supplier and buyer, which specify whether the price is fixed or indexable. Gas transactions can also be concluded on the stock exchange (the dedicated exchange for these transactions is *EEX in Leipzig*) or through brokers, for predefined volumes. Volumes can be traded on the stock exchange at spot prices for tomorrow's deliveries or at futures prices for futures. Once gas quotes have become public, transactions benefit from a greater degree of transparency.[24]

The German gas industry plays a key role at European level, in line with the leading role of the German economy in the EU. Germany is not only the largest consumer of gas in the European Union, but it is also a central gas hub at the continental level, as a significant part of the country's imports are re-exported to its neighbors through a very well-organized pipeline network. . Due to the growth of the integrated European gas transmission and trading system, the trade and legislative issues governing this area in Germany have major effects on all major stakeholders in the European gas market, especially suppliers. That is why we can consider that Germany has become the zero perimeter of the battle for the imposition of the European single market, a middle ground between supporters of unconditional liberalization and those who wish to mentain the national sovereignty of the Member States. The drama of this clash was strongly reflected in the German gas market.[25]

With the onset of the *Energiewende* strategy, energy markets began to readjust, and gas competed with renewable energy sources, which came to the attention of consumers, and coal, whose price was constantly falling. In Germany, the share of renewable energy has increased dramatically in the energy mix, from 5% in 1999 to 17% in 2010, reaching 35.2% in 2018.[26]

[23] Gazprom – Germany, 2020, disponibil online https://www.gazprom.com/projects/germany/
[24] Ströbele Wolfgang, Pfaffenberger Wolfgang, Heuterkes Michael, Hensing Ingo, op. cit., 2012, pp.176 -179
[25] Gustafson Thane, op. cit., 2020, p.215
[26] Destatis - Bruttostromerzeugung in Deutschland, 2019, available online https://www.destatis.de/DE/Themen/Branchen-Unternehmen/Energie/Erzeugung/Tabellen/bruttostromerzeugung.html#fussnote-1-103884

From this competition, natural gas has not always come out victorious. The low prices of coal, combined with relatively high natural gas prices, over the decade 2010-2020, was to the detriment of natural gas-fired power plants, and some of them needed to be shut down. As for green energies, their expansion was favored by guaranteeing fixed, subsidized tariffs for a period of 20 years, which reduced the risks of investments in this field.[27]

"From Yamburg to Hamburg" was the expressive slogan under which high-ranking officials from the two countries celebrated in 2007 the beginning of joint Russian-German actions to exploit natural gas from the vast Siberian perimeter of the Yamal region, with the idea to then transport it to Western consumers.[28] Nord Stream 1 is a 1224 km long pipeline system, with the main road being the most direct connection between Russia's large gas reserves and the European Union's energy market, through the German market. Together, the two pipelines have a transport capacity of 55 billion m^3/year.

In shaping the economic paradigm of cooperation between Germany and Russia, several constituents contribute, the most important of which are environmental factors, competition with renewable energy sources and fluctuations in the price of natural gas. In general, taking into account these modeling factors, LNG will lose a price competition over piped gas.

Against the backdrop of very heated disputes between the supporters and contestants of the project, Nord Stream 2 was categorized by the latter as par excellence a geo-political project, as a result of a German-Russian axis in formation. In fact, it is a project of great economic openness, to bring Siberian gas to Europe at the lowest possible costs and on the shortest possible route. Unlike its southern counterpart, the not-so-controversial TurkStream project, which has already been launched, the Nord Stream 2 project faces strong opposition, including sanctions from the US, which somewhat delay its completion. There has been a lot of talk about the consequences of bypassing Ukraine through these two new gas pipelines from Russia. In fact, the entire European gas system is currently "so interconnected and marketed" that gas from the two pipelines can be traded almost anywhere in Europe.[29] Including, we can add, in Ukraine, through the reverse-flow system.

Although Russia's relations with the European Union are often strained and marked by tensions and disputes, both political and economic, the functioning of the Russian-German binomial and the strategic partnership established between the two countries make Russia's presence on the European Union's economic scene gain the consistency and finality desired by

[27] Bros Aurélie, Mitrova Tatiana, Westphal Kirsten, op. cit., 2017, pp.24-25
[28] Sturmer Michael - *Putin and the new Russia,* Second edition, Litera Publishing, Bucharest, 2014, pp. 203-204
[29] Gustafson Thane, op. cit., 2020, pp. 378-379

Moscow. Germany is attached to EU values, but also to its privileged economic relationship with its eastern partner. Beyond geo-political contexts and possible crises, economic interests remain a priority, and this pragmatism is evident today in the German gas market. "For the Russians, the creation of the partnership with the Germans, materialized by the creation of Wingas, was crucial. Thanks to its participation in Wingas, Gazprom sat down at the table and was able to observe from the inside how the *German gas club* works. More than anything, Gazprom's long-standing partnership with Wintershall marked Russia's conception of how a partnership with the West should work. Equally important is that, working side by side with German partners, first Wingas and then the Ruhrgas, following a quick reconciliation, they have mastered all the important views on the traditional German gas industry. It has used them in their relations with the European Union."[30]

VII. Modeling factors of the European Union-Russia relationship on the natural gas market

One of the biggest transformations that the gas market has recently undergone (especially after 2010) has been the rapid increase in the export of liquefied natural gas, LNG. There has been much discussion in the market whether the emergence of this mode of gas transport is a threat to the pipeline transport system or whether it offers an alternative that makes the gas market more flexible and international. The distribution arc between supplier and consumer not only did not weaken with the advent of LNG, but also proved its robustness. In essence, the LNG system has a distribution infrastructure very similar to the pipeline and mains transportation system, because in fact it is an additional way to power the gas system. Also, LNG has brought an extraordinary diversification to the European natural gas transmission infrastructure.If we consider the landscape created in the two decades of our millennium, marked by the emergence of superior technologies in gas exploitation and supply, as well as the reconfiguration of markets, the flexibility of long-term supply contracts and fluctuating price dynamics, it becomes clear that the global gas industry currently relies on three pillars of resistance which show an increasingly obvious tendency to equalize their importance: conventional natural gas, liquefied natural gas (LNG) and shale gas. Speaking of the latter, we

[30] Gustafson Thane, op. cit., 2020, p. 223

can consider its emergence as a radical change, considered by economic analysts as a real gas revolution. It appeared in the USA, around 2000, and involved the widespread imposition of a new technology, capable of extracting gas from fields other than conventional ones.

Although the technological process of fracturing brings indisputable economic benefits, it has been subjected to vehement criticism due to the damage it can cause to the environment. The impact and effects of shale gas on the global gas market have been so significant that they have decisively changed this market, both in terms of production volumes and the price or methods of gas delivery. Therefore, we can speak, if not of a revolution, then of a major shock on the gas market towards the end of the first decade of our century. A shock that made some become gas exporting importers (the case of the USA), which brutally interrupted the deliveries and expansion strategy of others (Russia) and which favored the massive penetration of LNG quantities on the international markets. All these consequences have in turn become prerequisites for another chain of major market interconditions: the massive increase in gas volumes delivered to the markets in the Asia-Pacific basin and the fall in the price of Russian gas supplies to European markets.

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