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RECONFIGURATION OF THE ENERGY SYSTEM (ENERGY FLOWS) IN THE BLACK SEA - BALTIC SEA AREA AND ITS CONSEQUENCES ON THE REPUBLIC OF MOLDOVA. LEGAL-POLITICAL ASPECTS.

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Abstract of the doctoral thesis

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The Ph.D thesis and the abstract can be consulted at the Library of the University of European Studies of Moldova as well as on the website of the National Agency for Quality Assurance in Education and Research (http://www.cnaa.md/). The abstract was sent on November 16, 2021.

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1. CONCEPTUAL GUIDLINES OF RESEARCH

The actuality of the researched topic. Since the independence of the Republic of Moldova in 1991, when the Republic of Moldova became a subject of international law, one of the strategic objectives set has been and remains the diversification of energy sources and resources. Unfortunately, after almost 30 years, this goal remains unfulfilled. The issue is becoming even more important, especially since our country (but also other Eastern Partnership states) are in the process of European integration. Thus, one of the most comprehensive strategic documents at national level is the Energy Strategy of the Republic of Moldova until 2030, which was approved by Government Decision no. 102 from 05.02.2013. The strategy reflects the vision of the Republic of Moldova in the field of energy system developments, priority issues of the sector and the strategic objectives of the country, including: increasing the level of security of energy supply, creating competitive markets and their integration at both regional and European level.

The Government aims to interconnect the Republic of Moldova in a two-way regime with its neighbours, thus attributing to the state the quality of strategic transit actor at regional level. The gas transmission connection with Romania has become a priority for the Republic of Moldova since 2013, being a viable solution for increasing national energy security, due to the fact that the system of natural gas transmission lines in the European Union was completed, so our country can buy gas not only from neighboring Romania, but also from other EU Member State, as states are interconnected with each other and are regulated by the same European legislation.

The integration of the Republic of Moldova in the single energy market of the European Union has two distinct dimensions: the first is regulatory integration, this means the implementation of the energy acquis in national legislation and the second dimension aims to create the technical conditions that are necessary for integration, such as the consolidation of the interconnection system as well as the preparation of the national energy system.

The important scientific problem solved lies in assessing the degree of harmonization of national legislation with the acquis communautaire, identification of the main features and legal deficiencies of the energy sector of the Republic of Moldova and formulating recommendations and proposals aimed at improving the regulatory field of national energy legislation.

The research purpose and the objectives of the thesis.

The analysis of theoretical-methodological approaches on energy security and economic instability allowed the formulation of the thesis which consists in conducting a comprehensive

research of the normative framework of national energy security, identifying gaps and imperfections in energy legislation and diplomacy of Moldova, assessing the degree of energy regional cooperation, in order to develop effective measures to improve the legal and practical framework in the field of research that will increase the energy security of the Republic of Moldova.

In order to answer the research question, we propose the following **objectives**: Formulation of the notion of energy security, identification of the principles and sources of energy law; analysis of the legal framework of the energy sector of the European Union and of the Russian Federation, as well as the cooperation mechanisms based on the international law of these major regional actors with their neighbouring countries; studying the degree of harmonization of national legislation of the Republic of Moldova and Ukraine with the acquis communautaire. Implementation of the Energy Packages II and III and of the energy compartment of the Association Agreement; comparative analysis of the legal aspects of the Moldovan and Romanian energy system; researching the legal framework of cooperation in the energy field of the regional actors. Expansion of the ENTSO-E network in the region. Identification of the geopolitical interests of the regional actors based on international law; the formulation of the conclusions and recommendations of the present scientific research.

The scientific novelty of the obtained results.

This paper was researched in the frame of a very little explored topic in the Republic of Moldova, because the literature has not been investigated the political and the legal consequences of the reconfiguration of the energy flows in the Black Sea - Baltic Sea on the energy system of the Republic Moldova. However, the level of national energy security, as well as the level of energy interconnection of the Republic of Moldova with the neighboring countries was tangentially researched by other authors from the Republic of Moldova, but the studies focused mainly on the economic and political analysis.

The scientific novelty of this thesis consist in the performance of a comparative analysis of the degree of alignment of national energy legislation of the Republic of Moldova and Ukraine to the acquis communautaire and it highlight the lessons learned by Romania in the process of the European energy integration. The following international agreements were researched: the Association Agreements signed between the Republic of Moldova and Ukraine with the European Union and the Energy Community Treaty to which both the Republic of Moldova and Ukraine acceded. These agreements are binding and are bringing the obligation of implementation of the

European directives and regulations in the field of energy. We have identified that these two agreements are complementary, having a very good coordination between the two sets of commitments. Although the agreements signed between the Republic of Moldova - European Union and Ukraine - European Union are almost identical, there are still differences between the negotiated terms and their legal content.

The authors identified the readiness degree of the energy systems of the Republic of Moldova and Ukraine to integrate within the European energy market. This degree was analysed from the legal point of view, namely the adoption and implementation of the energy acquis, as well as from the point of view of the technical conditions, namely the degree of readiness of the national networks to connect with the European ones as well as the energy interconnection points with the European Union. Further, we analysed the normative framework, including international agreements signed by the biggest regional actors, which cause changes in the zonal energy flows, thus directly affecting the level of energy security of Moldova, Ukraine and Romania and of the Baltic States. The level of use of international law by the two major regional powers, the European Union and the Russian Federation, was studied and a comparative analysis of their foreign policy instruments, including those based on international law, was made.

The researchers highlighted an existing gap in the literature, which is the absence of a universally accepted definition of the energy security, so we propose our own definition of the energy security. Similarly, there is a strong debate between the experts in the field whether energy law is a branch of international law or not. For this reason, we have identified the sources of energy law and the principles of this branch of law, thus helping to resolve this debate, arguing that energy law should be considered as a branch of international law and it is necessary to introduce it in teaching matters within universities.

Theoretical significance and applicative value of the paper.

The theoretical importance of this paper consists in completing the theoretical basis of the object of study through theses, conclusions and recommendations on the legal energy framework, elaboration of strategies to increase energy security of the Republic of Moldova, including through international agreements, systematization of national and international scientific approaches of the notion of energy security and its formulation, as well as the identification and analysis of the functioning mechanism of energy markets, including from the point of view of international law.

Referring to the applicative value of the paper, we mention that it can serve as a reference work for other researchers in the field of energy security, it can be used as a scientific-didactic material in the educational process. As well, it can be used as a source of information for public authorities responsible for the adoption and implementation of public policies in this field.

Research methodology.

We aim to carry out a multi-sectorial research on the subject of the thesis, which would facilitate the solution of the scientific problem, the following scientific research methods were used:

- *the comparative-legal method* through which we highlighted the distinct characteristics of the European energy strategy and of the Russian energy strategy, including from the point of view of international law, compared to the neighbouring countries. We also used the comparison procedure in the section in which we analysed the legal framework of the Republic of Moldova, Romania and Ukraine;
- *the historical method* was used to analyze the evolution of the concept of national and regional energy security, as well as the development of forms of regional cooperation during the last decade;
- *the descriptive method* was applied in order to delimit a series of concepts, such as natural resources, sustainable development, energy or energy security that are widely used throughout the thesis;
- *the causal relationship* (including the conditioning relationship, respectively the interdependence relationship) was used to determine the effects of harmonizing European legislation, for example, changing the Baltic energy system following access to ENTSO-E and synchronizing the national energy system to the European one;
- *the logical method* through which we clearly formulated the conclusions of the study that will contribute to increasing national energy security.

2. The content of the thesis

In **Chapter 1**, entitled "Energy security in the context of scientific research and international regulations" we present the issues regarding the place and role of energy security and its legal framework. The chapter achieves the first objective - Research and formulation of the notion of energy security, identification of the principles and sources of energy law and develops research to achieve the other objectives.

This chapter reviews the following authors as the historiographical basis for this research: Robert Keohane, Michael Taylor, Wiley, Thomas Schelling, James Fearon, Helen Milner, Charles Kindleberg, Joseph Grieco, Arnold Wolfers, Richard Smoke, Barry Buzan, Sheehan , Michael, Malik. Shahin, Olga Dorul, Alexandru Burian, Vitalie Gamurari, Adrian Bradbook, etc.

In order to reach an extensive understanding of the configuration of the energy system in the Black Sea and Baltic Sea area, we worked to define the concept of cooperation and security, notions that underlie the beginning of our research.

As we know it today, the term cooperation has been defined since the early 1980s, through the research of scientists Robert Axelrod and Michael Taylor, according to which, cooperation is ,,a coordinated behaviour of independent actors and even individualists, which is advantageous for everyone".[1] We mention the fact that the principle of cooperation is a fundamental one of international law, in other words - jus cogens norm.

Regarding the *concept of security*, one of the most used definitions is given by the American scientist Barry Buzan who describes security as ,,the absence of threats that could affect the existence of the state as a sovereign and independent entity but also those that can affect the normal (accepted) standarts of living".[2] Thus, the general security of a country can be ensured by securing 5 sectors of the state: political, economic, societal, military and environmental.

Moving on to energy security, a basic definition given by Jessica Jewell is ,,the availability of energy at any time in various forms, in sufficient quantities and at affordable prices".[3] And according to the latest definition, ensuring energy security is not only based on the "availability at all times" of resources, but especially on efficient management, reliable infrastructure and concerns about future demand. The need to provide affordable energy for the population is part of

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[1] Taylor, M. (1976). *Anarchy and cooperation*. London: Wiley., Axelrod, R. (1981). The emergence of cooperation among egoists. *American Political Science Review*, *75*, 306–318, Axelrod, R. (1984). *The evolution of cooperation*. New York: Basic Books., Schelling, T. C. (1980). *The strategy of conflict* (2d ed.). Cambridge, MA: Harvard University Press.

[2] Buzan B. Nations, states and fear. Chişinău: Cartier, 2000. p.13-21

[3] European Environment Agency (EEA) multilingual glossary, EEA, Brussels, Belgium, Available at: http://glossary.eea.europa.eu/ (consulted 20.03.2017).

the concept of "energy equity", while environmental sustainability encompasses energy efficiency and the development of renewable energy and other low carbon sources.

The authors identify the following dimensions relevant to the analysis of energy security: 1. Physical availability, the historical basis of energy security, which are responsible for security of supply; 2. Technology development: state and maturity of the infrastructure; 3. Economic accessibility, perhaps the second most important dimension of energy security from a historical point of view: accessibility of prices for electricity and oil resources; 4. Social accessibility, e.g., social administration that refers to dependency; 5. Governance that takes into account: quality of governance, as measured by World Bank indicators of global governance that indicate accountability, political stability, etc.; 6. Unconventional threats, including asymmetric, paramilitary or hybrid threats to energy infrastructure; 7. Environment: overexploitation of resources that are public goods, presence of abundant energy and natural resources in poor countries.

Subchapter II, **„Identification and analysis of the sources and principles regarding energy law"**, defines the fact that energy law is a distinct branch of international law whose body of international rules has reached maturity, having distinctive features from other branches of law. We insist that the energy sector is of common interest to the international community of states, rather than of national interest to each individual state, in the sense that it requires collective legislative action, and in case of non-compliance of these subjects, no state can manifest coercive force on its own.[4] The content and external forms of legal norms related to the energy sector are determined by states, international organizations or other subjects of international law, which formalize them in the framework of international treaties, agreements or conventions.

With economic development, the emergence of economic giants, as well as the urgent need for regional cooperation to increase energy security, energy law has become a topic of common interest to the international community and is progressively internationalized.

The specific sources of energy law can be classified into three main sources: 1) multilateral treaties, namely the Energy Charter Treaty and the Energy Community Treaty; 2) bilateral treaties concluded between two states; and 3) institutionalizing state cooperation in the field of energy. Regarding the principles of energy law, we mention that although there are no unilaterally agreed principles in the specialized doctrine, we observe a large number of scientists who demonstrate

[4] J. Brunnee, 'International Environmental Law and Community Interests: Procedural Aspects', in E. Benvenisti and G. Nolte (eds.), Community Obligations in International Law (2017, forthcoming), SSRN. Available at: https://ssrn.com/abstract=2784701 (for community interest); R. Wolfrum, 'Enforcing Community Interests Through International Dispute Settlement: Reality or Utopia?', inLiber Amicorum Simma, note 3, 113 (inherent community interests), (consulted 10.05.2020).

the existence of principles specific to this branch of law: a) the principle of national sovereignty over natural resources; b) the principle of access to modern energy services; c) the principle of energy equity; d) the principle of prudent, rational and sustainable use of natural resources; e) the principle of environmental protection, human health and the fight against climate change; f) the principle of energy security and reliability, as well as g) the principle of resilience.

We believe that by elucidating the sources and principles specific to energy law, we have shown that this branch of law, although very new, has the right to exist in international law and must become a discipline of study in higher education institutions.

In Chapter II entitled "European Energy Strategy and Russian Energy Strategy towards Neighbouring Countries" develops the following objective of this paper - the analysis of the energy sector of the European Union and the Russian Federation and the mechanisms of cooperation based on international law of these major regional actors with neighbouring countries.

Following the crisis of 2006 and 2009, the European Union reaffirmed its commitment to ensure energy security through a "market governance approach". During the 13-day Russian-Ukrainian gas crisis of 2009, the European Union found itself unable to find alternative sources of supply, endangering the security of European citizens. Thus, the implementation of energy diversification measures (diversification of the energy mix, supply of gas imports from new sources, construction of new infrastructure projects, energy efficiency measures, etc.) have allowed in the following years a considerable reduction of the Union's energy dependence from the Russian Federation gas sources. As a result, in 2012, for the first time, the EU-28 imported more gas from Norway than from Russia (however, Russia regained its dominant position the following year). Overall dependence has declined in the last two decades, from 61% in 1995 to 32% in 2012.[5] The most dependent are the states of Central and Eastern Europe. Following a series of threats made by Russian President Vladimir Putin to EU member states in April 2014, clearly indicating the possibility of stopping gas supplies, the European Union, as a defence measure, adopted the European Energy Security Strategy on 28 May 2014.[6] The strategy presents a series of decisions and actions in the short term (9 months), medium term (1 to 5 years) and long term (more than 5 years) as well as actions to be taken in case of a new energy supply crisis.

[5] Frank Umbach, 'Energy: EU can beat Russia's threat of new gas supply cuts', *GIS: Geopolitical information service,* 16 June 2014, p. 4.
[6] European Parliament, Report on European Energy Security Strategy *(2014/2153(INI)).* Available at: http://www.europarl.europa.eu/doceo/document/A-8-2015-0164_RO.html, (consulted 20.10.2020)

In order to achieve its own energy security, as well as of its neighbours, the European Union has created financial instruments that mainly facilitate infrastructure projects and help determine the overall balance of projects.

Another instrument of the European Union is to facilitate regional cooperation with the ultimate goal of creating a single energy market. Specifically, the European Union coordinates High Level Groups in the Energy Sector, which are composed of representatives of governing bodies, transmission system operators and regulators of European Union countries and aim to monitor progress and develop guidance in the areas of energy. In the extended version of the paper, we analyse in details two high-level groups relevant to our subject area, the Baltic Energy Market Interconnection Plan and the Central South-East Energy Connectivity. [7]

In order to identify key solutions and projects that would strengthen the energy system, the countries of Central and Eastern Europe have developed sustainable regional platforms, which have subsequently been supported by the European Union and other development partners. These platforms include: the Three Seas Initiative, the Visegrad Group, the Baltic Sea Single Market.
For the Eastern Partnership states, however, the European Union's most tangible instrument for promoting energy security is the Energy Community, which aims to establish a regional approach to persistent energy problems in Southern and Eastern Europe and to expand the European energy market beyond the territory of the European Union.[8]

The Republic of Moldova, as part of this Community, benefits from technical assistance and monitoring in the process of transposing the acquis communautaire. Another important benefit is that the Energy Community Treaty includes a solidarity clause in the event of a power outage.
Other forms of European Union instruments which have impact on energy security of its neighbours are the "Action Plans" and the "Association Agreements" under the European Neighbourhood Policy, which also include articles on the energy sector.

In the second subchapter we analysed the role and geostrategic importance of the Russian Federation as an energy-rich regional actor. Following the research, we note that the entire energy sector of Russia can be characterized as abundant in fossil fuel resources, and this results in economic inertia. The Russian Federation is the world's largest exporter of natural gas and, along with Saudi Arabia, the world's largest oil producer.

[7] European Commission, Connecting Europe Facility Energy. Available at: https://ec.europa.eu/energy/en/topics/infrastructure/high-level-groups, (consulted 20.03.2020).
[8] Rozeta Karova, 'Energy Community for South East Europe: Relations Behind and Implementation to Date' in: *EUI Working Papers*, nr. 12, Robert Schuman Center for Advanced Studies, Florence School of Regulation, Florence, Italy, 2009, p.8.

An instrument through which Russia influences its neighbours (ex-Soviet states and not only) are the routes through which it transports its gas to the European Union (90% of exports). The major trend that has been observed in recent years has been the decrease in the use of the Ukrainian route and to a lesser extent the Republic of Moldova. Thus, gas transit has steadily decreased from 137.1 billion/cm in 2004 to 62.4 billion/cm in 2014. The relatively small pipeline to Finland also operates with substantial spare capacity. Instead, Gazprom delivered natural gas at full capacity through the Yamal-Europe pipeline through Belarus. Another important export route, the Blue Stream pipeline to Turkey, has also come close to exporting at full capacity.[9] It is an instrument with financial repercussions as Ukraine had a significant annual income from the Russian gas transiting its territory.

Moreover, Russia has already built (and is still investing in) new gas transport routes to the European Union. Since 2016, four new pipelines have been included on Gazprom's agenda. Two of these are the Nord Stream 2 pipeline (which aims to double the capacity of the Nord Stream 1 route) and the Turkish Stream pipeline with a capacity of 31.5 which since 2020 transports gas to Southern Europe.

Another example of using commercial processes with geopolitical proposes by the Russian giant Gazprom is the so-called "market sharing", meaning the sale of natural gas to different countries at different prices. Take for example Ukraine and the Baltic States, which purchased gas from Gazprom at considerably higher prices than Germany and other Western European countries, despite longer transport distances to the latter.

The Russian Federation, through Gazprom, keeps vulnerable its Eastern European neighbours through "destination clauses" (a ban on reselling unused volumes of gas to third parties once the bill is paid) negotiated in long-term contracts with European Union countries. Gradually, however, through the effective integration of the internal energy market, the Member States of the European Union have managed to eliminate this clause. Thus, in few years, these provisions were directed against Gazprom and contributed to a significant decrease in Russia's "influence of natural gas" on its neighbours, especially Ukraine. Therefore, in the context of the economic crisis and industrial stagnation in several Member States of the European Union, the demand for Russian gas has decreased significantly, generating a surplus of gas, especially in Germany. A number of new compression stations built on EU portions of the gas pipelines have allowed flows to be reversed from west to east. The first billion cubic meters of "German" gas were sold by the German energy

[9] Pipeline and Gas Journal, 2012. Nord Stream Can't Restrict Other Suppliers, vol. 239(5). Available at: http://www.pipelineandgasjournal.com/nord-stream-can%E2%80%99trestrict- other-suppliers (consulted 21.05 2016).

giant RWE directly to Ukraine in November 2012, a year before the start of the Euromaidan in Kiev. Following Gazprom's persistent protests against these new practices, RWE claimed that, once the negotiated price had been paid to the supplier, it could decide unequivocally how to use the gas.[10]

Another tool of Gazprom is the possession of the network of Russian gas transmission pipelines in several politically and economically vulnerable neighbouring countries. "During the 1990s and 2000s, Gazprom gained control of several strategic export pipelines and storage facilities, either through their direct acquisition or the creation of joint ventures".[11]

Let's take an eloquent example from 2005, when Gazprom conditioned Georgia, either to pay a much higher price for Russian gas or to sell its energy networks, thus illustrating how energy is used as a pressure tool. Armenia is another state that has been indirectly forced to sell part of its energy infrastructure in exchange for maintaining the subsidized price for natural gas. Since then, Gazprom has owned the Iranian-Armenian pipeline, preventing Armenia from using the pipeline as an independent transit source, through which Russia could be bypassed. Regarding the structure of the natural gas market in the Republic of Moldova, Gazprom directly owns 51%, plus 13% indirectly (through the separatist authorities) shares in Moldovagaz, a vertically integrated monopolistic company that sabotages the implementation of the Gas Directive of the Third Energy Package and which challenges before the Court the most important decisions of the National Regulatory Authority.

In the third chapter entitled "Evolution of the energy system of the Republic of Moldova, Romania and Ukraine from a legal and technical point of view", we consider the following objectives: characteristics (including legal ones), which would ensure the reconfiguration of the energy system and energy security of the Republic of Moldova and of Ukraine from the perspective of the evolution of integrationist processes; studying the degree of harmonization of the national legislation with the acquis communautaire and the implementation of the Energy Packages II and III and the energy compartment of the Association Agreement. Also in Chapter III we make a comparative analysis of the legal aspects of the Moldovan and Romanian energy systems.

The energy sector of the Republic of Moldova is 100% dependent on imported energy in terms of natural gas and 75% -80% of electricity (right bank of the Dniester).[12] Since 2010, the

[10] Dorin Dusciac et al, *op. cit.*, pp. 251-268.
[11] Margarita M. Balmaceda, *The Politics of Energy Dependency, Ukraine, Belarus and Lithuania between domestic oligarchs and Russian pressure*, University of Toronto, Toronto, Canada, 2013, p.39.
[12] Energy Community Secretariat, Energy Sector overview, Energy Community Secretariat, Vienna, Austria. Available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Overview (consulted 03.04.2017).

diversification of energy sources has become the main concern of the government, with energy interconnections with the European Union at the forefront. As a result, the first Iași-Ungheni-Chisinau interconnection gas pipeline was completed in 2021 (second stage).

Researching the structure of the gas market in the Republic of Moldova, we want to emphasize that it is monopolized by the company MoldovaGaz, which performs the following functions: import, supply, transport and transit and which owns more than 98% of the distribution network. Due to the fact that MoldovaGaz is owned by Gazprom (50% + 1 share of the company plus about 14% of shares held by the "Transnistrian separatist region" and leased by Gazprom), the Republic of Moldova encountered difficulties in implementing the provisions of Energy Package III on business separation between production/supply and transport in the natural gas sector, thus restricting access to third parties. With great delay, MoldovaGaz presented a Plan of measures for the separation of the gas transmission activity at the end of 2019, a plan that was approved by ANRE in February 2020.[13]

Another vulnerability of the gas sector in the Republic of Moldova is the absence of underground gas deposits. Currently, specialists have identified two locations where underground natural gas deposits could be built.

Regarding the electricity sector, domestic sources of supply cover about 20-25% of national consumption (except for the Transnistrian region). The Republic of Moldova aims to connect synchronously or asynchronously to the continental European electricity transmission network and implicitly to the internal electricity market of the European Union through new interconnections to be built, while having the task to consolidate and modernize internal electricity networks. The first asynchronous interconnection was expected to be built (and completed in 2024) between the south-eastern region of Romania - the Isaccea power station and the southern region of Moldova - the Vulcănești power station. The other two possible asynchronous interconnections, Suceava - Bălți and Iaşi-Ungheni are only in the negotiation stage.

Investigating the energy system in Romania, we note that according to the global Energy Trilemma index, Romania ranks 26th out of 125 countries in 2019. The domestic mix of the neighboring country is also balanced: natural gas 29%, oil 26%, sources of renewable energy by 19%, coal by 16% and nuclear energy by 9%.[14] Romania has important geological resources and

[13] National Agency for Energy Regulation of the Republic of Moldova. Plan of measures for the separation of system operators. Available at: http://www.anre.md/anre-a-aprobat-planul-de-masuri-privind-separarea-operatorului-sistemului-de-transport-al-gazelor-naturale-srl-Republica Moldovatransgaz-3-98 (consulted 03.06.2017).

[14] Ministry of Energy of Romania. Romania's Energy Strategy 2016-2030, with a view to 2050. Preliminary version subject to public consultation, *op.cit.,* p.25 (consulted 03.04.2017).

oil and rock oil reserves. Their value is 60 million tons of confirmed reserves and 2020 million tons of estimated geological reserves to which are added the new reserves of approx. 70 billion m^3 of gas and 85 million barrels of oil recently discovered in the Black Sea. These resources could ensure domestic gas consumption for more than 30 years. At present, gas imports from Russia cover only winter peak consumption, along with gas from underground storage facilities, which have a capacity of about 3.5 billion cubic meters.

The liberalization of the natural gas sector in Romania was achieved in 7 years from 10% opening in 2001 to 100% until Romania's accession to the EU. As in the case of electricity, there is a clear separation of wholesale and retail gas markets. Regarding the expansion of natural gas transmission networks, there are several projects planned: completion of the interconnection with our country and the BRUA project, Bulgaria - Romania - Hungary - Austria.[15]

Regarding the electricity sector, we note that the national production in 2019 was 61.97 TWh, in excess of domestic consumption of 55.76 TWh. The daily intra-electricity market in Romania is connected from November 2019 to similar markets from 20 European countries, increasing liquidity and decreasing prices. In addition, Romania has rich and varied renewable energy sources, with a share of 42.03% in the electricity production in 2019.[16]

Researching the energy sector of Ukraine, we understand that if until 2009 Ukraine was 100% dependent on Russian gas, after the gas crisis of 2009 and subsequent reforms, in 2016 the overall ranking places Ukraine at 63rd (the World Energy Trilemma index), and in terms of energy security, on position 28.[17] Analyzing the structure of gas imports, we note that imports from Russia decreased by 80% in 2015 and became 0 in 2016, while imports from the West increased from 0 to 11 billion cubic meters in 2016, when Naftogaz bought gas from 15 different European suppliers, each accounting for less than 30% of total imported gas.[18] The International Energy Agency estimates reserves of 1.2 trillion shale gas on the territory in armed conflict with the Russian Federation, Dontesk-Prydniprovskyy and Lublinskyy. Ukraine is also the country with the largest underground gas storage capacity in Europe (32.5 billion cubic meters), much of which is unused. Following the conflict with Russia, the share of conventional (gas) power plants in electricity production has been reduced by 50% in recent years, being replaced by nuclear power

[15] Transgaz S.A., Development of communication networks. Available at: http://www.transgaz.ro/sites/default/files/uploads/users/admin/Plan%20dezvoltare%202019%20-%202028.pdf
[16] National Energy Regulatory Authority. Results of electricity market monitoring. ANRE, Bucharest, Romania. Available at: https://www.anre.ro/ro/energie-electrica/rapoarte/rezultate-monitorizare-piata-energie-electrica/20191556881773, (consulted 20.04.2020).
[17] Naftogaz, *Gas imports in Ukraine, 2015-2016*, Kiev, Ukraine, 03.02.2017. Available at: http://naftogaz-europe.com/article/en/gasimportsinukraine20152016 (consulted 03.04.2017).
[18] Ibid

plants that have reached a maximum of 53% in total electricity production. Thus, Ukraine is working on the possibility of exporting electricity to Poland.

In the **second sub-chapter**, we look at the transposition and implementation of EU energy legislation in the Republic of Moldova and Ukraine, the lessons learned from Romania. The adoption of the Energy Package III in 2009 aimed to increase energy security, improve service standards and keep energy prices as low as possible. The separation of the European Union's energy transmission networks was the basis for the new directives, being considered the best legal solution to achieve a competitive market for natural gas and electricity.

In the case of Romania, the emergence of independent suppliers has led to increased market liquidity. In the field of natural gas, until 2010, the delivery network in Romania was isolated by the one of the European Union, having only two connections used exclusively for imports from the Russian Federation (Isaccea and Medieșul Aurit). After 2010, new gas interconnections were built with Hungary and Bulgaria to integrate the natural gas sector into the European Union's energy market.[19]

By approving the laws on natural gas and electricity in May 2016, the Republic of Moldova transposed most of the provisions of the Energy Package III. However, given the fragile position of the Republic of Moldova in terms of dependence on Russian gas, the Energy Community agreed to postpone the implementation of the principle of "separation" of the natural gas transmission operator until January 1, 2020, as provided by art. Article 9 (1) of Directive 2009/73 / EC.[20]

Regarding the analysis of the implementation of Directive 2009/72/EC on the internal market on electricity, we can mention that the Republic of Moldova has properly transposed the model of legal and functional separation for TSOs. Regarding the possibility for consumers to choose their supplier, although theoretically the market is 100% open, so far only a small number of large consumers have changed their supplier, preferring to negotiate with it the price of energy. Thus, the real degree of market opening was 7.4% in 2019, registering a significant increase compared to 2018 when it was 3.24% and compared to a few years ago when only the LAFARGE cement factory chose itself the supplier, according to the best market offer.[21]

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[19] The Center for Eastern Studies, *Hungary and Romania connecting gas pipeline systems*. Warsaw, Poland,13.09.2010. Available at: https://www.osw.waw.pl/en/publikacje/analyses/2010-10-13/hungary-and-romania-connecting-gas-pipeline-systems (consulted19.03.2017)

[20] Ana-Otilia Nuțu, Denis Cenușă, 'Interconnecting Republica Moldova's gas market: the Iasi-Ungheni case', Expert Grup, Chisinau, Republic of Moldova, 2016, p.12. Available at: http://www.expert-grup.org/ro/biblioteca/item/download/1511_d3527cd3fb892d86a39ec496490692c0 (consulted 16.03.2017).

[21] Autoritatea Națională de Reglementare în Domeniul Energiei, *Rezultatele monitorizării pieţei energiei electrice,* ANRE, Bucureşti, Romania. Available at: https://www.anre.ro/download.php?f=fqaDgqA%3D&t=vdeyut7dlcecrLbbvbY%3D, (consulted 25.05.2020)

In what concerns the separation of gas pipelines, only in 2019 ANRE approved a plan prepared by MoldovaGaz, which was also agreed by the Secretariat of the Energy Community. We quote from the ANRE press release: ,,The plan approved by the ANRE Board of Directors provides for the implementation of the separation process in 12 distinct stages, during which 23 basic actions and 61 additional actions will be carried out until 01.10. 2020. Overall, although many provisions of the Energy Package III have already been transposed into national law, a large number of secondary regulations remain to be transposed.

In 2015, Ukraine adopted the law transposing the provisions of the Package on the natural gas market. Compared to the Republic of Moldova, which has yet to adopt secondary legislation, in 2015 Ukraine also voted the majority of secondary legislation that allows the functioning of the new law. However, the reform will be completed after Ukraine amends a number of previous laws, which also include the law on licensing of economic activities, as well as the law on natural monopolies.[22] Regarding the implementation of the separation principle, 42 authorized distribution operators meet the legal conditions and carry out their activity.[23]

However, the implementation of the law is only partial, so the report prepared by the Energy Community shows that 84% of the adopted laws are implemented.[24]Another deviation from the Energy Package III is that, due to the special regulation of the tariffs of district heating companies until April 2017, consumers did not have the de facto possibility to change their supplier.[25]

With regard to the electricity market, the Energy Community assessment shows that in 2020, Ukraine has transposed all the electricity directives provided in the Pakache, implementing about 49% of them. The reform of the Ukrainian electricity market is still ongoing, with a set of secondary legislation being prepared to be adopted in 2021, but consumers can already choose their electricity suppliers.[26] A lesson worth following is the example of the Antitrust Committee of Ukraine, which is assessed as the competitive authority that works best among all the states of the Energy Community.

In terms of energy efficiency, by 2020, Ukraine has implemented only 52% of the European regulatory framework on energy efficiency. Moreover, Ukraine is committed to increase

[22] Ibid.
[23] Energy Community Secretariat, *Annual Implementation Report*, *op.cit.*, p. 165.
[24] Dixi Group, op. cit., p.10.
[25] Dixi Group, op. cit., p.15
[26] Dixi Group, op. cit., p.15

the production of renewable energy sources to reach the target of 11% by 2020, and so far, the state has not developed any support scheme for RES, except for "green tariffs ".[27]

In **Chapter four**, entitled "Trends and developments in energy security sector in the Black Sea - Baltic Sea" we aim to elucidate the following objectives: determining the importance of negotiating and concluding agreements on regional cooperation to increase energy security and security in the supply of energy, the example of the Baltic States; research of the legal framework in the energy field of regional actors. Expansion of the ENTSO-E network in the region. The geopolitical interests of regional actors based on international law.

The European institutions provide several funding sourses for energy projects under the Projects of Common Interest (PCI) Programme. Projects of Common Interest (PCI type) are major cross-border infrastructure projects that contribute to the interconnection of European countries' energy systems.[28]

A central role in the horizontal approach to regional energy cooperation is played by European associations called the European Network of Transmission System Operators (ENTSO). In the field of natural gas, ENTSO-G facilitates and contributes to deepening cooperation between national TSOs to achieve the major objective of creating a pan-European natural gas transmission system. ENTSO-G contributes to the elaboration of Regional Investment Plans in the field of natural gas. In the field of electricity, ENTSO-E has created several Operator Groups (TSOs) based on regions with synchronized electricity networks, which allow compatibility between the operation of those systems on the one hand, and the development of market solutions, on the other.[29]

15 years after their accession to the European Union, the Baltic States now remain in an energy vulnerable situation. Only after 27 years the Soviet Union collapse, in 2018, the European Commission signed the action plan that provides for the disconnection of Estonia, Latvia and Lithuania from the BRELL network (coordinated from Moscow, and which also includes the electricity networks of the Russian Federation and Belarus) and the synchronization of these countries with the electricity networks of the other Member States of the European Union by 2025. Synchronous interconnection will still be problematic both technically (involving some major investments) and politically until a solution is identified on the supply of electricity to the Kaliningrad enclave. Until 2014, the Baltic States were interconnected with the rest of the

[27] Energy Community Secretariat, *Annual Implementation Report*, *op.cit.*, p. 167.
[28] European Commission. The third list of PCI projects. Available at: https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest, (consulted 02.04.2017).
[29] ENTSO-E, *Staying Informed.* Available at: https://www.entsog.eu/, (consulted 02.04.2017).

European Union through only one underwater connection. Only in 2016 firmer steps were taken when it was built a new 700 MW underwater interconnection between Lithuania and Sweden, as well as the first 500 MW onshore interconnection between Lithuania and Poland.[30] Another 700 MW underwater interconnection between Lithuania and Poland is also planned. Thus, the total estimated cost of the project to synchronize the networks of the Baltic States with the rest of the European Union will eventually augment to 770 - 960 million euros, of which about 75% will be provided from financial sources allocated by the European Union.

In 2015, the construction of a terminal for Liquefied Natural Gas (LNG) in Klaipeda (Lithuania) was completed and the construction of a gas pipeline with a length of about 500 km between Poland and Lithuania (GIPL), is currently underway.[31] Through the construction and commissioning of GIPL (scheduled for 2021) the Baltic States will be de-enclaved and will be able to fully integrate into the European natural gas market. In 2018, Estonia and Latvia signed a memorandum committing both countries to adopt a series of amendments to their national legislation, which allows the Baltic Single Natural Gas Market to become operational from 2020 onwards.

In the second subchapter, we review the normative framework underlying the process of creating the regional energy market between the Republic of Moldova, Ukraine and Romania.
While concerning the electricity interconnection between the Republic of Moldova and Ukraine, there is no need to build new networks or back-to-back stations (the two states being interconnected by seven lines of 330 kV and 11 of 110 kV), interconnection with Romania requires considerable effort, political will and investments.[32]

The only existing Isaccea - Vulcănești interconnection cannot be used now, due to the frequency differences of the electrical systems of the two states, after Romania's accession to ENTSO-E. In order for it to be used, it is necessary to build a back-to-back substation on the territory of the Republic of Moldova, with a capacity of 2 x 300 MW in Vulcanesti and a 400 kV line from Vulcanesti to Chisinau.[33] The Suceava - Bălți power line will be the second interconnection with the Republic of Moldova, conditioned by the construction on the Romanian territory of the Gădălin - Suceava power line, which has a deadline for 2027.

[30] NordBalt (SwedLit) Interconnector's Website. Available at: https://www.4coffshore.com/transmission/interconnector-nordbalt(swedlit)-icid17.html, (consulted 02.04.2017).
[31] Klaipeda-lng-terminal Website. Available at: https://www.kn.lt/en/our-activities/lng-terminals/klaipeda-lng-terminal/559, (consulted 02.04.2017).
[32]Liudmyla Vlasenko, *Power of System of Ukraine: today and tomorrow,* Ukraine, 2013. Available at: https://eneken.ieej.or.jp/data/5026.pdf p.15 (consulted 02.04.2017).
[33] Government of Romania. *Memorandum of Understanding.,op.cit.*

As the synchronous interconnection of the Republic of Moldova and Ukraine to ENTSO-E is the long-term goal of the Chisinau authorities, in 2017 Moldelectrica submitted the ENTSO-E formal accession request and signed a multiparty agreement with ENTSO-E members. A similar agreement was signed also by Ukrenergo. Despite this, so far there are only computer simulations, which do not accurately reflect the actual situation of the existing equipment and technical equipment for this important process. It is now up to ENTSO-E to prepare the list of technical requirements to be implemented, but this process could take years.[34] The most recent examples are Romania and Bulgaria, which sent the letter of request in 1991 and joined in 2004, and Turkey, which sent the letter of request in 2000 and joined as an observer member in 2015. The costs required for modernization are difficult to estimate without proper measurements, but they could range from 1 to 2 billion euros.

An interconnection that can be achieved faster, in just 2-3 years, is asynchronous interconnection. This involves back-to-back substations, which can interconnect electricity systems with different frequencies. There are three such possible interconnections between the Republic of Moldova and Romania: a) The Isaccea - Vulcănești - Chisinau interconnection, b) the Suceava - Bălți interconnection, with an estimate of 140 million euros; and the interconnection Romania - Ungheni - Straseni, with values of about 137 million euros in the Republic of Moldova and 120 million euros in Romania.[35] The EIB and the EBRD have already allocated € 80 million in loans and a € 40 million grant from the European Union for the Vulcanesti Back-to-Back station and a € 61 million loan from the World Bank for the Vulcanesti - Chisinau power line.

Analyzing the options for interconnection of the gas networks of the Republic of Moldova with other states than Ukraine, we identify 2 projects.

From a technical point of view, in the case of the Iasi-Ungheni-Chisinau gas pipeline there are two problems: during peak hours, the capacity of the Iasi-Ungheni gas pipeline cannot fully cover gas demand, therefore, the Republic of Moldova will have to sign an agreement with Ukraine, to be able to use the gas storage units; and poor gas transmission networks on both sides of the Prut River.

The other option for both, the Republic of Moldova and Ukraine, could be the use of reverse flow transit pipelines. There are three high-capacity pipelines, which are used to supply Moldova, Romania, Bulgaria, Greece and Turkey with gas, in whole or in part. Currently, these

[34] Daniela Bolborici, Oana Zachia, Gheorghe Lazaroiu, *op. cit.*, p.624.

[35] Expert-Grup, *Electricity interconnection with Romania - higher energy security for Republica Moldova*, Chișinău, Republica Moldova, 19.01.2017. Available at: http://www.expert-grup.org/en/activitate/comunicate-de-presa/item/1364-interconectarea-pe-electricitate-cu-romania-securitate-energetica-mai-mare-pentru-Republica Moldova (consulted 14.04.2017).

pipelines are used exclusively, by Gazprom to sell gas in the Balkans, but not at full capacity. If only one of these pipelines will be used with reverse flow, supplying gas from the Balkans to both the Republic of Moldova and Ukraine, then all the supply needs of these countries could be met. Technically, there is the possibility to ensure the reverse gas flow on the first wire of the Trans Balkan pipelines, T1, and to extract the gas in Causeni, a natural gas substation in the south of the Republic of Moldova.[36]

Moreover, investigating the Ukrainian natural gas interconnection, we can mention that the GTS (gas transit system) of Ukraine connects the networks of adjacent states Russia, the Republic of Belarus, Poland, Slovakia, Hungary, Romania and the Republic of Moldova, and is united with them within the vast European gas network. Ukraine imported gas from a European Union member state for the first time in 2012 by reverse flows through Poland.[37]

Ukraine has several possibilities and ongoing interconnection projects with EU countries. In 2014, a new gas pipeline was inaugurated to transport gas from Slovakia to Ukraine with a capacity of 15 billion cubic meters/year. This route could possibly provide about 90% of Ukraine's annual gas needs.[38] Also in 2014, Ukraine and Poland signed an agreement providing for the incorporation of gas transmission networks in the two states. In 2015, Ukrtransgaz and FGSZ, the Hungarian transmission system operator, authorized an uninterrupted interconnection agreement. Following the signing of an interconnection contract, which allows market players to transport gas (including from liquefied natural gas sources) between natural gas operators from Bulgaria and Greece.

[36] About 60% of the national gas consumption is concentrated in Chisinau.
[37] Margarita Balmaceda *op.cit.*, p. 149.
[38] Naftogaz din Ucraina, *Gas transmission*, *op.cit.*

3. GENERAL CONCLUSIONS AND RECOMMENDATIONS

Pursuing throughout the entire thesis **the purpose** of conducting a comprehensive research on the concept of energy security, scrutinizing the regulatory framework of national energy security, identifying gaps and imperfections in energy legislation and diplomacy of the Republic of Moldova, assessing the degree of regional energy cooperation, in order to develop effective measures for improving the legal and practical framework in the field of research that will lead to increased energy security of the Republic of Moldova, we reached the following **general conclusions:**

1. Carrying out a thorough research into the energy legislation, we conclude that the energy sector has been almost exclusively a matter of national interest, subject to the domestic legislation of each country. However, with economic development, the emergence of economic giants, and the urgent need for regional cooperation to increase energy security, energy law has become a topic of common interest to the international community and is progressively internationalized. A first conclusion regarding the theoretical aspect of the topic is that although very little researched and not systematized in the specialized doctrine, the specific sources of energy law can be classified into three main sources: multilateral treaties, namely: the Energy Charter Treaty and the Treaty of the Energy Community; bilateral treaties concluded between two states; and the institutionalization of state cooperation in the energy sector.

2. Although there are no unanimously accepted principles of energy law, in the specialized doctrine, a large number of scholars demonstrate the existence of principles specific to this branch of law. Thus, in order to remedy this omission, we propose the following seven guiding principles: the principle of national sovereignty over natural resources; the principle of access to modern energy services; the principle of Energy Equity; the principle of prudent, rational and sustainable use of natural resources; the principle of environmental protection, human health and the fight against climate change; the principle of energy security and reliability; the principle of resilience.
3. As no definition of energy security has been agreed in academia, this thesis has defined energy security as the *uninterrupted availability of affordable energy sources, improving energy efficiency, changing consumer attitudes and developing energy infrastructure, protecting the environment, of communities and future generations.*
4. Given the limited number of available supply routes and the small number of external suppliers of electricity and natural gas, the Republic of Moldova has a very low level of

the energy security of supply. In order to counter this high level of dependency and insecurity, the primary focus of the Government must be the diversification of external electricity and gas suppliers. This can be done by building synchronous or asynchronous interconnections with Romania on the electricity side and using the Iasi-Ungheni-Chisinau interconnector in what concerns the natural gas. Neighbouring country Romania, that is Member of the European Union, could become an important source of electricity and gas for the Republic of Moldova and Ukraine, taking into account the fact that this country is rich in energy resources, ranking high in the top of independent European countries in terms of energy. Moreover, Romania has an important natural reserve of gas and oil in the Black Sea that is still unexplored.

5. The interconnection with the Romanian energy market will ensure the diversification of energy sources, and the creation, consequently, of a competitive, stable market with a higher degree of energy security in the Republic of Moldova. On the one hand, the interconnection with Romania will lead to a significant reduction of electricity tariffs for end users in the Republic of Moldova, given the fact that the neighboring country produces electricity in excess at a lower price. On the other hand, this will help Romania to reach the European target of at least 10% electricity interconnection capacity.
6. An alternative gas supply option for the Republic of Moldova - reverse flow on trans-Balkan gas pipelines - was available at the end of 2019, after the works carried out in Turkey, Bulgaria and Romania. This route can be used to supply natural gas from the southern corridor, the Turkish stream or the Greek LNG terminal. It is estimated that about 15 million m of gas can be supplied per day to Moldova in this way. All the interoperability agreements are in force, including between MoldovaTransgaz and TSO in Ukraine. This route has not yet been tested. Another important alternative source is Iasi - Ungheni - Chisinau gas pipeline that could be used in emergency cases. In order to increase the national energy security, it is necessary for the Republic of Moldova to create a national gas reserve that can be stored in the deposits of Romania or Ukraine.
7. In what concerns Ukraine, it has a higher level of the energy security of supply than the Republic of Moldova, but is still dependent on imports in proportions of about 60% of national natural gas consumption. In terms of electricity, Ukraine is independent, but depends on external nuclear services, which are largely provided by the Russian Federation. Ukraine is in the process of strengthening its natural gas interconnections with the neighboring countries. The new gas pipeline between Ukraine and Poland, that is under construction, is of great importance for both states as Ukraine will diversify its gas

suppliers, and Poland will benefit from Ukraine's spacious gas depots, which are close to the border between this two countries. An important achievement for Ukraine is the concluded agreement between Romania and Ukraine, which is an essential element for the functionality of the Trans-Balkan pipeline network.

8. In order to be ready to integrate into the European single market, the energy sector of the Republic of Moldova urgently needs a series of structural reforms to be align with the European one. As well, the national legislation should be adapted to the III Energy Package and the new package "Clean energy for all Europeans". The functional separation of energy operators, the liberalization of the energy market and the subsequent integration into the European energy market will create an appropriate set of conditions that will attract considerable investments from abroad into the national economy. The modernization of the energy infrastructure will lead to a higher energy efficiency, a decrease in tariffs for the end user and will stimulate the development of green energy. The gradual change of the energy mix and the increase of the energy efficiency measures will contribute to the successful realization of the transition to clean energy and to the improvement of the environmental indicators of our country. Overall, a predictable business environment combined with harmonious legislation in line with European Union energy legislation will effectively ensure a high level of energy security and will contribute to a political stabilization of the Black Sea region.
9. Analyzing the transposition and implementation of the III Energy Package in the legislation of Moldova, we conclude that the Republic of Moldova managed to transpose it largely into national legislation through Law No. 107 from 27.05.2017 on electricity, Law No. 108 from 27.05. 2017 on natural gas, Law no. 139 from 19.07.2018 on energy efficiency, Law no. 174 from 21.09.2017 on energy, Law no. 10 from 26.02.2016 on the promotion of the use of energy produced from renewable sources as well as Decision no. 334 from 14.12.2018 regarding the approval of the Regulation on the organization and functioning of the National Agency for Energy Regulation as well as the Government Decisions and ANRE Decisions. Researching the implementation of the above legislation, we conclude that the provisions on the third party access, tariff methodologies, change of supply, consumer protection and the powers of regulators have been improved compared to previous legislation. However, ANRE did not adopt all the secondary legislation necessary for the implementation of the new laws. Also, with the adoption by the European Union of the Energy Package "Clean energy for all Europeans" it is necessary to revise the above-

mentioned laws, in order to align them with the new European rules. This review has been scheduled in the Government's Action Plan 2019-2020.

10. Provisions which are the cornerstone of the European acquis such as: the separation between transport and production companies, the establishment of market and tariff rules and, to a certain extent, third-party market access are at their initial implementation. The separation of the ownership of the gas transmission system operator (TSO) MoldovaTransgaz is still not fulfilled, the deadline being exceeded (January 2020 - derogation from the provisions of the third energy package). The process is currently underway, with the BTI model being selected by the company. At the same time, the second TSO for gas, VestMoldTransgaz, owns and operates the Moldovan section of the Ungheni - Chisinau gas interconnector. This natural gas transmission company is totally separated from any other activity in the Republic of Moldova, respecting the provisions of the III Energy Package. VestMoldTransgaz is owned by the Romanian company Transgaz.
11. In what concerns the electricity market, we can conclude that the Republic of Moldova meets the most important conditions for the functioning of a liberalized electricity market. However, the biggest problem is the absence of a larger number of distribution, supply and production operators, that would create a competitive market and would destroy the existing de facto monopoly. Despite the legal opening of the market, which is at it full potential, all gas consumers are still supplied at regulated rates. Further, in what concerns electricity, even if Law No. 107 of 27.05.2016 on electricity, as well as the secondary legislation, allows all consumers to choose their supplier competitively and there are 21 authorized gas suppliers on the energy market, there is no real difference for consumers because of the lack of a cheaper alternative supply.
12. The development of the wholesale electricity market is still in its initial phase. There is no market operator and, consequently, there are no short-term markets - DAM (Day Ahead Market) and IDM (Intra Day Market). Currently, the wholesale electricity market is based only on contracts, usually concluded annually. The real opening of the retail electricity market registered a significant evolution in 2019, but it must be further accelerated. In 2017 there were only two consumers who choose their supplier. In 2018 this number increased to 251, and their consumption accounted for 3.24% of the final consumption. In 2019, the market opening reached 7.4%. There are four suppliers that actively compete in the competitive retail market. It is expected that the interconnection with Romania will bring more competitors on the wholesale electricity market, the number of suppliers on the retail market will increase and more final consumers will change the supplier.

13. Currently, all the "imported" electricity for consumption on the right bank of the Dniester River is produced in the "Transnistrian" region by the MGRES Power Plant. There are allegations that MGRES does not pay for the gas consumed, increasing MoldovaGaz's gas debt to Gazprom. Thus, the company has accumulated by the end of 2019 a historical debt of 6819 million USD to Gazprom for past gas consumption, of which only 715 million USD is the debt of the right bank of the Dniester River. The "Transnistrian" region does not recognize the energy regulatory authority ANRE and does not apply the energy legislation issued by the Moldovan authorities.
14. Following the example of the Baltic States, we can conclude that these countries are very much involved in regional cooperation in the energy field, being in full process of synchronization with the European energy system. Currently, big infrastructure projects aimed at liberalizing and integrating national energy markets into the European Union's single energy market enjoy the support of European institutions and receive funding from European sources.

Following the general conclusions of the thesis, we consider it is necessary to submit some legal and technical recommendations that will lead to the enhancement of the national and regional energy security.

1. From the theoretical point of view, after we have identified the sources, the object of regulation and the principles of this branch of law, we have shown that energy law is a distinct branch of international law, even if a very new one. This branch has the right to existence and must become a discipline of study in national and international higher education institutions in order to train lawyers in resolving energy law disputes, to consult national and international investors who want to access the energy market of the Republic of Moldova and to support the state in transposition and implementation of the European regulatory framework.
2. From the legal perspective, for the Republic of Moldova to achieve its goal to integrate into the European energy market, the country must align its national legislation with the European legislation. Thus, we recommend that the Law no. 108 from 27.05.2016 on natural gas to be revised and amended, in order to transpose the European Union Regulation no. 1227/2011 on the integrity and transparency of the wholesale energy market (REMIT). As well it should be introduced a mechanism for inter - TSO compensation as well as elements of the new EU Directive 2019/692 from 17 April 2019 amending Directive 2009/73 / EC on common rules for the internal market in natural gas. It is also

necessary to adjust the Law on electricity no. 107 from 27.05.2016 by transposing the EU Regulation no. 1227/2011 on the integrity and transparency of the wholesale energy market (REMIT) and to introduce elements of the EU Directive 2019/944 from 5 June 2019 on common rules for the internal market in electricity.

3. Together with the revision of the primary energy legislation of the Republic of Moldova, the attributions of the bodies responsible for energy security of suply must be delimited. In this regard, we propose that the Government should be responsible for the long-term energy security, by promoting investment in infrastructure, and the national Regulator to be responsible for the short-term energy security of suply, supporting the proper functioning of the electricity and gas markets.
4. In what regards the technical aspects, we recommend that the three neighboring countries Republic of Moldova, Romania and Ukraine build/adapt their physical networks, through which electricity and natural gas can flow in both directions, in sufficient quantities to cover the needs of the regional market. For the Republic of Moldova, the new interconnection infrastructure will allow the direct competition between electricity and gas suppliers from East and West.
5. As the result of this research, in what concerns the electricity sector, we recommend both Ukraine and the Republic of Moldova to build, in the first phase, asynchronous electricity interconnections with the European Union. This interconnection will lead to an increase in the number of the electricity suppliers in a shorter time and the final consumers will benefit from an increased competition on the national market.
6. The National Energy Regulatory Agency of the Republic of Moldova and Ukraine should become more transparent and truly independent. It should be able to properly adopt and use its own budget. Both countries should implement the new laws on the National Energy Regulator and make it truly functional. There is a need for more transparency in the adoption of secondary legislation by this institution and appropriate public consultations, which are currently more formal.
7. The Energy Community must expand its responsibilities, including by providing relevant incentives to the Contracting Parties, such as direct financial assistance and technical support, as a reward for the progress made by the signatory countries to the Treaty (including the Republic of Moldova and Ukraine) in transposing and implementing European energy laws. If the contracting parties do not comply with their legal obligations, the Energy Community should have mechanisms to penalize this state.

8. We recommend that the European Union adopt and promote a common European vision that would give rise to national strategies to protect the critical energy infrastructure that must remain under the control of national authorities in each Member State or neighboring countries. It is of a crucial importance that the critical infrastructure stays under the national control, as if they go into the possession of other states this would create a dependence on that country.
9. We recommend that the Moldovan authorities request assistance from the European Union, primarily of a legal nature, through which to develop and implement the national strategy on critical energy infrastructure, which would ensure that energy (as a term that meets the respective segment), be placed under the control of the national authorities of this States. However, any change in the respective legal regime will have to be well argued and discussed in the context of the regional dialogue.
10. We consider necessary to establish a Scientific Board under the Presidency and the Government of the Republic of Moldova, composed of experts, from the energy area as well as from the related fields, which would aim to examine risks and challenges in the short, medium, but especially long term, related to ensuring energy security, but also security in the broadest sense. On the other hand, such a collaboration of experts will inevitably take into account, as an example, the provisions of the Paris Declaration (2015), Madrid (2019), Glasgow (2021). Such a practice exists in several countries, this type of Board being constituted depending on the challenges faced by the state.

3. BIBLIOGRAPHY

Scientifical sources:

Bibliographic sources in Romanian:

1. BUZAN B., *Popoarele, statele şi teama;* Chişinău: Cartier, 2000.
2. DUSCIAC D., POPESCU N., & PARLICOV, V. , *Russia and the energy dimension of the Eastern Partnership*, ESC Working Papers.

Bibliographic sources in English and French:

3. National Agency for Energy Regulation of the Republic of Moldova. Plan of measures for the separation of system operators. Available at: http://www.anre.md/anre-a-aprobat-planul-de-masuri-privind-separarea-operatorului-sistemului-de-transport-al-gazelor-naturale-srl-Republica Moldovatransgaz-3-98 (consulted 03.06.2017).
4. ANA OTILIA NUTU, DENIS Cenușă, 'Interconnecting Republica Moldova's gas market: the Iasi-Ungheni case', Expert Grup, Chisinau, Republic of Moldova, 2016, p.12. Available at: http://www.expert-grup.org/ro/biblioteca/item/download/1511_d3527cd3fb892d86a39ec496490692c0 (consulted 16.03.2017).
5. National Energy Regulatory Authority. *Results of electricity market monitoring*. ANRE, Bucharest, Romania. Available at: https://www.anre.ro/ro/energie-electrica/rapoarte/rezultate-monitorizare-piata-energie-electrica/20191556881773, (consulted 20.04.2020).
6. European Commission, *The third list of PCI projects.* Available at: https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest, (consulted 02.04.2017).
7. DANIELA BOLBORICI, OANA ZACHIA, GHEORGHE LAZAROIU, *Synchronous interconnection of Ukrainian and Moldovan power systems to the European energy system ENTSO-E*, Polytechnic University of Bucharest, Romania, 2016, p.624. Available: http://www.ie.asm.md/assets/files/16A-100.pdf (consulted: 16.04.2017).
8. Expert-Grup, *Electricity interconnection with Romania - higher energy security for Republica Moldova, Chișinău, Republica Moldova*, 19.01.2017. Available at: http://www.expert-grup.org/en/activitate/comunicate-de-presa/item/1364-interconectarea-pe-electricitate-cu-romania-securitate-energetica-mai-mare-pentru-Republica Moldova (consulted 14.04.2017).

9. FRANK UMBACH, ‘Energy: EU can beat Russia’s threat of new gas supply cuts’, GIS: Geopolitical information service, 16 June 2014, p. 4.
10. European Environment Agency (EEA) multilingual glossary, EEA, Brussels, Belgium, Available at: http://glossary.eea.europa.eu/ (consulted 20.03.2017).
11. Dixi Group, *Energy reforms. Monitoring report on Ukraine's progress in implementing the Energy and Environment Association Agreement with the European Union*, 2016 p. 10; Available at: http://dixigroup.org/storage/files/2017-02-20/monthly_december_2016_eng_rs.pdf (consulted: 12.03.2017).
12. Romanian Government, *The Agreement between Romania and the Republic of Moldova on the interconnection of natural gas and electricity networks, approved by the Government,*, Bucharest, 26.08.2015. Available at: http://gov.ro/ro/guvernul/sedinte-guvern/intelegerea-dintre-romania-i-republica-Republica Moldova-privind-interconectarea-retelelor-de-gaze-naturale-i-energie-electrica-aprobata-de-guvern (consultat la data de: 22.04.2017).
13. Hydrocarbons Technology, Gas Interconnection Poland-Lithuania, Available on : https://www.hydrocarbons-technology.com/projects/gas-interconnection-polandlithuania/.
14. J. Brunnee, ‘International Environmental Law and Community Interests: Procedural Aspects’, in E. Benvenisti and G. Nolte (eds.), Community Obligations in International Law (2017, forthcoming), SSRN. Available at: https://ssrn.com/abstract=2784701 (for community interest); R. Wolfrum, ‘Enforcing Community Interests Through International Dispute Settlement: Reality or Utopia?’, inLiber Amicorum Simma, note 3, 113 (inherent community interests), (consulted 10.05.2020).
15. LIUDMYLA VLASENKO , *The power of the Ukrainian system: today and tomorrow*, Ucraine, 2013 ; Available at: https://eneken.ieej.or.jp/data/5026.pdf p.15 (consulted 02.04.2017).
16. MARGARITA M. BALMACEDA, *The Politics of Energy Dependency, Ukraine, Belarus and Lithuania between domestic oligarchs and Russian pressure*, University of Toronto, Toronto, Canada, 2013, p.39.
17. Naftogaz, Gas imports in Ukraine, 2015-2016, Kiev, Ukraine, 03.02.2017. Available at: http://naftogaz-europe.com/article/en/gasimportsinukraine20152016 (consulted 03.04.2017).

18. European Parliament, Report on European Energy Security Strategy (2014/2153(INI)). Available at: http://www.europarl.europa.eu/doceo/document/A-8-2015-0164_RO.html, (consulted 20.10.2020)
19. European Commission, *Connecting Europe Facility Energy*. Available at: https://ec.europa.eu/energy/en/topics/infrastructure/high-level-groups, (consulted 20.03.2020).

Bibliographic references from electronic sources:

20. ROZETA KAROVA, *'Energy Community for South East Europe: Relations Behind and Implementation to Date'* in: EUI Working Papers, nr. 12, Robert Schuman Center for Advanced Studies, Florence School of Regulation, Florence, Italy, 2009, p.8.
21. Energy Community Secretariat, *Energy Sector overview*, Energy Community Secretariat, Vienna, Austria. Available at: https://www.energy-community.org/portal/page/portal/ENC_HOME/ENERGY_COMMUNITY/Overview (consulted 03.04.2017).
22. SNTGN TRANSGAZ SA MEDIAS , *Development of communication networks.* Available at:*f*http://www.transgaz.ro/sites/default/files/uploads/users/admin/Plan%20dezvoltare%202019%20-%202028.pdf.
23. TAYLOR, M. (1976). *Anarchy and cooperation*. London: WILEY., AXELROD, R. (1981). The emergence of cooperation among egoists. *American Political Science Review*, *75*, 306–318, AXELROD, R. (1984). *The evolution of cooperation*. New York: Basic Books., Schelling, T. C. (1980). *The strategy of conflict* (2d ed.). Cambridge, MA: Harvard University Press.
24. Energy Community Treaty, Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM:l27074

4. List of author`s publications on the topic of the thesis

1. Robu-Cepoi A., *Transposition of EU energy legislation into Moldovan and Ukrainian national legislation,* In the: Moldavian Journal of International Law and International Relations, N.3 from 2017, p. 411- 426. CZU: 341.29.009(100).
2. Robu-Cepoi A., *Creation of the regional energy market between Moldova, Romania and Ukraine,* In the: Moldavian Journal of International Law and International Relations N.4 from 2017, p. 573-584. CZU: 341.29.009(100)+327.009+339.9.
3. Robu-Cepoi A., *The general characteristics of the energy systems of the Republic of Moldova, Romania and Ukraine*, In the: Moldavian Journal of International Law and International Relations N.3-4 from 2018, p. 141-157, CZU: 327.39+341.01.
4. Robu-Cepoi A., *Moldova and Ukraine from East to West: Increased implementation of European norms for a more secure eastern energy market.* În: Revista franceză Nouvelle Europe, Dosar special - Energy in the EU , 9.12.2017 https://issuu.com/nouvelleeurope/docs/edited_draft_dossier_energy_v2.0Nouvelle – Europe, Paris, Franța.
5. Robu-Cepoi A., Duşceac D., *Economic Diplomacy in the Energy Sector in EU's Eastern Vicinity* În: POLITICKE VEDY/POLITICAL SCIENCES journal for political science, modern history, international relations, security studies, law, Matej Bel University Press, Slovak Republic, p. 42-61
6. Robu-Cepoi A., Săndulescu A., *Financing investments for interconnections of electrical energy and gases between Romania and Republic of Moldova,* Within the International Conference "Energy of Moldova - 2016", Republic of Moldova, Chișinău, p. 59-63, CZU: 330.322.1:620.9(478+498).
7. Robu-Cepoi A., *Enhancing the level of energy security of supply in Eastern Europe. Moldova and Ukraine between East and West.* In: International Scientific-Practical Conference "European Integration: Economic and Legal Aspects" from 21 December 2018. Chișinău, 2018.

ADNOTARE

Robu-Cepoi Alexandrina, „Reconfigurarea sistemului energetic (fluxurilor energetice) zona marea Neagră – marea Baltică, consecinţele asupra Republicii Moldova. Aspecte juridico-politice". Teză de doctor în drept la specialitatea 552.08 – drept internațional și european public. Şcoala doctorală Ştiinţe Juridice a Universităţii de Studii Europene din Moldova. Chişinău, 2021.

Structura tezei: Introducere, 4 capitole, concluzii generale şi recomandări, bibliografia din 310 titluri, 167 pagini text de bază. Rezultatele obţinute sunt publicate în 7 lucrări.

Cuvinte cheie: securitate energetică, pachetul energetic III, principiile dreptului energetic, piaţa energetică, cooperarea regională, geopolitică, Republica Moldova, Ucraina, România, Uniunea Europeană, Federaţia Rusă, independenţă energetică, aquisul comunitar.

Domeniul de studiu: Lucrarea elaborată ţine de domeniul dreptului internațional și european public, de dreptul energetic precum şi de ştiinţele politice şi relaţiile internaţionale.

Scopul şi obiectivele lucrării: *Scopul* prezentei teze de doctorat constă în realizarea unei cercetări ample a securităţii energetice naţionale, identificarea lacunelor şi imperfecţiunilor existente în legislaţia şi diplomaţia energetică a Republicii Moldova, evaluarea gradului de cooperare energetică regională, în vederea elaborării unor măsuri eficiente pentru perfecţionarea cadrului legal şi practic în domeniul de cercetare. Pentru a realiza scopul lucrării, propunem următoarele *obiective*: definirea noţiunii de securitate energetică, identificarea principiilor şi izvoarelor dreptului energetic; analiza sectoarelor energetice a Uniunii Europene şi a Federaţiei Ruse și mecanismelor de cooperare a acestor mari actori regionali cu ţările din vecinătate; identificarea caracteristicilor reconfigurării sistemului energetic şi al securităţii energetice a Republicii Moldova şi a Ucrainei din perspectiva evoluţiei proceselor integraţioniste; studierea gradului de armonizare a legislaţiei naţionale la aquis-ul comunitar. Implimentarea Pachetelui Energetice III şi al compartimentului energetic din Acordului de Asociere; propunerea argumentată a remediilor legislative care vor contribui la îmbunătăţirea legislaţiei energetice naţionale.

Noutatea și originalitatea științifică a rezultatelor obținute se concretizează în: 1. Efectuarea unei analize comparative a gradului de racordare a legislaţiei energetice naţionale la acqui-ul comunitar al Republicii Moldova şi al Ucrainei şi sublinierea lecţiilor învăţate din parcursul României în procesul de integrare energetică europeană; 2. Studierea gradului de pregătire a sistemului energetic al Republicii Moldova şi al Ucrainei de a se integra pe piaţa energetică europeană. Acest grad a fost analizat din punct de vedere legal şi anume adoptarea şi implementarea acqui-ului energetic, precum şi din punct de vedere a condiţiilor tehnice şi anume a gradului de pregătire a reţelelor naţionale să se cupleze cu cele europene; 3. Analiza marilor subiecţi regionali care provoacă modificări ale fluxurilor energetice zonale, astfel, afectând direct, nivelul securităţii energetice al Republicii Moldova, Ucrainei, al României şi al Ţărilor Baltice; 4. Definirea noţiunii de securitate energetică, definitivarea izvoarelor şi a principiilor specifice dreptului energetic.

Semnificaţia teoretică a lucrării: constă în completarea bazei teoretice a obiectului de studiu prin intermediul concluziilor şi recomandărilor privind cadrul legal energetic, elaborarea strategiilor de sporire a securităţii energetice a Republicii Moldova, sistematizarea abordărilor ştiinţifice naţionale şi internaţionale ale noţiunii de securitate energetică şi concretizarea a acesteia, precum şi identificarea şi analiza mecanismului de funcţionare al pieţelor energetice.

Valoarea aplicativă a cercetării: Prezenta lucrare poate fi utilizată ca şi material ştiinţifico-didactic în instituţiile superioare de învăţământ, poate servi drept lucrare de referinţă pentru alţi cercetători din domeniul securităţii energetice şi poate fi folosită ca şi sursă de informare pentru autorităţile publice responsabile de adoptarea şi implementarea politicilor publice din acest domeniu.

АННОТАЦИЯ

Робу-Чепой Александрина, «Реконфигурация энергосистемы (энергетические потоки) Черное море - Балтийское море, последствия для Республики Молдова. Политико-правовые аспекты ». Докторская диссертация по специальности 552.08 - Международное публичное и европейское право.Университет Европейских Знаний Молдовы. Кишинёв, 2021.

Структура диссертации: введение, четыре главы, выводы и рекомендации, библиография из 310 названий; 167 страниц составляют основную часть диссертации. Достигнутые результаты опубликованы в 7 научных работах.

Ключевые слова: энергетическая безопасность, энергетический пакет III, принципы энергетического права, энергетический рынок, региональное сотрудничество, Республика Молдова, Украина, Румыния, Европейский Союз, Российская Федерация, энергетическое право.

Предмет исследования: Данная работа относится к области международного публичного и европейского права, энергетического права, а также международных отношений.

Цель и задачи исследования: Целью данной докторской диссертации является проведение комплексного исследования национальной энергетической безопасности, выявление пробелов и недостатков в энергетическом законодательстве и дипломатии Республики Молдова, оценка степени регионального энергетического сотрудничества, разработка эффективных мер по совершенствованию правовой и практической базы в области исследований, которая приведет к повышению энергетической безопасности Республики Молдова. Для достижения цели диссертации, автором были предложены следующие задачи: определение понятия энергетической безопасности, определение принципов и источников энергетического права; анализ энергетических секторов Европейского Союза и Российской Федерации и механизмов сотрудничества этих основных региональных игроков с соседними странами; определение характеристик реконфигурации энергетической системы и энергетической безопасности Молдовы и Украины с точки зрения эволюции интеграционных процессов; изучение степени гармонизации национального законодательства с acquis communautaire. Реализация Энергопакета III и энергетической части Соглашения об Ассоциации;

Научная новизна и оригинальность исследования выражается в следующих: 1. Проведение сравнительного анализа степени адаптации национального энергетического законодательства Республики Молдова и Украины к acquis communautaire и выделение уроков, извлеченных Румынией в процессе европейской энергетической интеграции; 2. Изучение степени готовности энергосистем Республики Молдова и Украины к интеграции на европейский энергетический рынок. Эта степень была проанализирована с юридической точки зрения, а именно с точки зрения принятия и внедрения законодательных норм в области энергетики, а также с точки зрения технических условий, а именно степени готовности национальных сетей к соединению с европейскими, а также точек энергетического соединения с ЕС; 3. Анализ крупных региональных субъектов, которые вызывают изменения в зональных энергетических потоках, тем самым напрямую влияя на уровень энергетической безопасности Республики Молдова, Украины. 4. Формулировка определения энергетической безопасности, определение источников и принципов, специфичных для энергетического права.

Теоретическая значимость и прикладная ценность работы заключается в завершении теоретической основы объекта исследования посредством тезисов, выводов и рекомендаций по правовой энергетической базе, разработке стратегий повышения энергетической безопасности в Молдове, систематизации национальных и международных научных подходов к понятию энергетической безопасности.

Прикладное значение: Эта диссертация может использоваться в качестве научно-дидактического материала в высших учебных заведениях, может служить справочным документом для других исследователей в области энергетической безопасности и может использоваться в качестве источника информации для государственных органов, ответственных за принятие и реализацию государственной политики в этои области.

ANNOTATION

Robu-Cepoi Alexandrina, "Reconfiguration of the energy system (energy flows) in the Black Sea - Baltic Sea area and its consequences on the Republic of Moldova. Political-legal aspects". Doctoral thesis in law in specialty 552.08 - public international and European law. Doctoral School of Legal Sciences of the University of European Studies of Moldova. Chisinau, 2021.

Thesis structure: Introduction, 4 chapters, general conclusions and recommendations, bibliography of 310 titles, 167 pages basic text. The fundamental ideas and scientific results are exposed and published in six scientific papers.

Key-words: energy security, Third Energy Package, principles of energy law, energy market, regional cooperation, geopolitics, Republic of Moldova, Ukraine, Romania, European Union, Russian Federation, energy independence, acquis communautaire, energy law.

The domain of study of this thesis is related to the field of public international and European law, energy law as well as political science and international relations.

The purpose and objectives of the thesis: *the purpose* of this doctoral thesis is to conduct a comprehensive research on national energy security, identifying gaps and imperfections in the energy legislation and diplomacy of the Republic of Moldova, assessment of the degree of regional energy cooperation, the development of effective measures for improvement of the legal and practical framework in the field of research that will lead to increasing the energy security of the Republic of Moldova. In order to achieve the purpose of the thesis, the author proposed the following *objectives*: defining the notion of energy security, identification of the principles and sources of energy law; a deep analysis of the energy sectors of the European Union and the Russian Federation and identification of the mechanisms of cooperation of these major regional actors with their neighbouring countries; identifying the characteristics of the reconfiguration of the energy system and energy security of Moldova and Ukraine from the perspective of the evolution of integration processes; studying the degree of harmonization of national legislation with the acquis communautaire. Implementation of the Energy Package III and of the energy compartment of the Association Agreement;

Scientific novelty and originality of the obtained results are materialized in: 1. Carrying out a comparative analysis of the degree of connection of national energy legislation to the acquis communautaire of the Republic of Moldova and Ukraine and highlighting the lessons learned by Romania on its pathway to the European energy integration; 2. Studying the degree of readiness of the energy system of the Republic of Moldova and Ukraine to integrate on the European energy market. This degree of readiness was analyzed from the legal point of view, namely the adoption and implementation of the energy acquis, as well as from the point of view of the technical conditions, namely the degree of readiness of the national networks to connect with the European ones; 3. Analysis of the big regional subjects that may cause changes in zonal energy flows, thus directly affecting the level of energy security of the Republic of Moldova, Ukraine and Romania; 4. Defining the notion of energy security, identifying the sources and principles specific to the energy law.

The theoretical importance: consists in completing the theoretical basis of the object of study through theses, conclusions and recommendations on the legal energy framework, developing strategies to increase the energy security of the Republic of Moldova, systematizing national and international scientific approaches to the notion of energy security and concretizing and analysing the functioning of energy markets as well as arguing the need of using the energy triangle in assessing the level of energy security.

Implementation of scientific results: This thesis can be used as a scientific-didactic material in the higher education institutions, can serve as a reference paper for other researchers in the field of energy security and can be used as a source of information for the public authorities responsible for adoption and the implementation of public policies in this field.

ROBU-CEPOI ALEXANDRINA

RECONFIGURATION OF THE ENERGY SYSTEM (ENERGY FLOWS) IN THE BLACK SEA - BALTIC SEA AREA AND ITS CONSEQUENCES ON THE REPUBLIC OF MOLDOVA. LEGAL-POLITICAL ASPECTS.

SPECIALITY: 552.08 –INTERNATIONAL AND EUROPEAN PUBLIC LAW

Abstract of the doctoral thesis

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