

The Role of Energy Directives in Ensuring EU Energy Security and the Problems of Implementation in Ukrainian Legislation

Ievgenii Shulga

Department of International Law and Comparative Law, National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, Ukraine

Email: evshulga2013@gmail.com | ORCID: <https://orcid.org/0000-0002-9343-8647>

Nataliia Shynkaruk

Department of International Relations and Social Sciences, National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, Ukraine

Email: nataliashynkaruk.11@gmail.com | ORCID: <https://orcid.org/0000-0002-4488-6240>

Stanislav Shytyi

Department of Theory and History of State and Law, National Pedagogical Dragomanov University, 02000, Kyiv, Ukraine, Email: moderator_fjsp@npu.edu.ua

ORCID: <https://orcid.org/0000-0002-0850-5236>

Ievgen Antypov

Department of Heat Power Engineering, National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, Ukraine

Email: ievgeniy_antypov@ukr.net | ORCID: <https://orcid.org/0000-0003-0509-4109>

ABSTRACT

This chapter aims to analyze the role of energy directives in ensuring energy security of the European Union, and to assess the current state of their implementation in the legislation of Ukraine in accordance with the Treaty establishing the Energy Community and the Association Agreement with the EU. The development of legal security of energy sphere in the EU from the Treaty of Paris on the European Coal and Steel Community to the fourth energy package, which allowed to provide the development of competition among producers and suppliers of energy resources, to provide equal access to the energy distribution and gas-distribution networks, to liberalize the energy sector and energy resources, to increase the use of green energy, to reduce emissions into the atmosphere, and to raise the level of energy security in Ukraine. In this chapter, the authors systematically analyze the implementation process of EU Energy Directives in the Ukrainian legislation using legal methods. They focus specifically on the Law "On Natural Gas Market", the Law "On Electricity Market", the Law "On Energy Efficiency",

the Law "On Energy Land and Legal Regime of Special Zones of Energy Facilities", and the Energy Strategy of Ukraine till 2035 "Security, Energy Efficiency, Competitiveness".

Keywords: Energy security; EU energy directives; Energy packages; Energy legislation; Environmental security

Recommended Citation

Shulga, I., Shynkaruk, N., Shytyi, S. and Antypov, I., 'The Role of Energy Directives in Ensuring EU Energy Security and the Problems of Implementation in Ukrainian Legislation' in Hasrat Arjjumend (ed), *Advances in Environmental Law* (TGI Books/ The Grassroots Institute, Montreal/Vancouver, Canada, 2024), pp. 399-424. ISBN: 978-1-7778455-2-0. <<https://doi.org/10.33002/enrlaw-333/c14>>



Open Access

Open Access. Copyright © 2024 the author(s), published by TGI Books/ The Grassroots Institute. This work is licensed under the Creative Commons Attribution- Non Commercial - No Derivatives 4.0 International License. This work was first published as an article in the JPG journal of the same publisher with Doi: <https://doi.org/10.33002/jpg020101>. This Chapter is the revised 2nd edition.

Edited by Dr. Hasrat Arjjumend

1. INTRODUCTION

Energy security of the State is a key factor in the development of the economy and the pledge to ensure favourable conditions for society. However, today the level of energy security in Ukraine is far from optimal, as evidenced by the constant growth of tariffs for energy resources compared to the falling level of incomes of citizens, monopolization of the energy sector and significant dependence on the imported energy resources¹. The energy sector has significantly weakened due to the Russian war in Ukraine, resulting in significant impediments to the functioning of the energy system. In addition, the global fuel and energy crisis is gaining momentum, which has caused a global shortage of natural gas and a fivefold increase in its price in the fall of 2021. The global energy crisis is deepening. At first, there was not enough gas, and now there was not enough oil. This situation determines the need to improve energy efficiency and the search for new mechanisms to ensure energy security of the State. To date, among the energy import-dependent countries, this is most effectively achieved by the EU members who adhere to a common energy policy and are governed by imperative and binding energy directives².

Ukraine, choosing the path of European integration, joined the Energy Community of Europe and signed the Association Agreement with the EU, undertook to implement a number of the EU Directives³, in particular energy directives designed to improve energy and environmental security, to bring energy legislation and the energy sector itself closer to European standards, to create common energy markets. To date, Ukraine has implemented the second, and is in the process of implementation of the third, energy package, but the situation in the energy sector is not changing for the better, making it necessary to study its implementation. To this end, it is necessary to analyze the experience of legal provision of EU energy security, the

¹ Hrabinsky, I., & Krychkovsky, T.O., 'Political and economic problems of Ukraine's energy independence' (2016) Bulletin of Lviv University Series "International Relations" 39.

² Khalova, G. O., Yordanov, S. G., & Polaeva, G. B., 'Evolution of EU Energy Policy' (2018) 5 Innovation and Investment 97-101.

³ Pavlyuk, S. & Khorolskyi, R., 'Cooperation between Ukraine and the European Union in the sphere of energy efficiency' (2015), <<https://parlament.org.ua/wp-content/uploads/2018/03/2.pdf>>.

energy directives⁴ and peculiarities of its implementation in the domestic legal framework.

The goal of this chapter is an attempt to analyze the role of energy directives in ensuring energy security of the European Union, as well as to analyze the current state of its implementation in the legislation of Ukraine in accordance with the Treaty establishing the Energy Community and the Association Agreement with the EU.

2. LITERATURE REVIEW

Various aspects of the energy security of European Union and its development in the European Union have been examined by several scholars. Scheepers et al. (2007)⁵ in their research “EU standards for energy security of supply” studied an instrument to assist the EU and its Member States in shaping and adapting their energy policies with a view to supply security. It could be particularly useful in the context of the Strategic EU Energy Review, as proposed by the European Commission in its 2006 Green Paper on EU energy policy⁶.

Matsumoto et al. (2018)⁷ applied time-series clustering approaches and three energy security indicators based on the Shannon–Wiener Diversity Index (Shannon, 1948)⁸. The aim was to enhance understanding of how energy security of EU countries, in terms of energy supply, has evolved. An overall improvement in energy security in most EU countries between 1978 and 2014 was identified, with Denmark and the Czech Republic evidencing the greatest improvements. The main driver of improvement has been the diversification of primary energy sources.

⁴ Kuloesi, K., & Muñoz, M., 'Environmental integration and multi-faceted international dimensions of EU law: Unpacking the EU's 2009 climate and energy package' (2011) 48 (3) *Common Market Law Review*. <<https://kluwerlawonline.com/journalarticle/Common+Market+Law+Review/48.3/COLA2011034>> accessed 22 January 2024.

⁵ Scheepers, M., Seebregts, A., de Jong, J., & Maters, H., 'EU standards for energy security of supply' (2007) 52 *Gas* 86.

⁶ Commission of the European Communities, 'GREEN PAPER A European Strategy for Sustainable, Competitive and Secure Energy' (COM 2006) 105 final, Brussels, 8.3.2006 {SEC(2006) 317}.

⁷ Matsumoto, K. I., Doumpos, M., & Andriosopoulos, K., 'Historical energy security performance in EU countries' (2018) 82 *Renewable and Sustainable Energy Reviews* 1737–1748 <<https://doi.org/10.1016/j.rser.2017.06.058>>.

⁸ Shannon, C. E., 'A Mathematical Theory of Communication' (1948) 27 *The Bell System Technical Journal* 379–423, 623–656.

Gracceva and Zeniewski (2014)⁹ present a novel framework to assess energy security and applied it to develop a comprehensive approach to the interactions between climate change policies and energy security. The impact of a low-carbon scenario on one of these five properties (long-term robustness) will be assessed using a complex multi-regional energy system model. The results of their research demonstrate how this scenario induces structural changes along the whole energy supply chain, revealing dynamic vulnerabilities and trade-offs that are not adequately accounted for by existing indicator-based assessments.

Haas et al. (2011)¹⁰ attempted to elaborate historically implemented promotion strategies of renewable energy sources and the associated deployment within the European electricity market. Therefore, initially the historic development of renewable energy sources in the electricity (RES-E) sector is addressed on Member State and on sectoral level as well as consequently discussed based on available RES-E potentials and costs.

Talus (2017)¹¹ in his research illustrates the change in the EU's approach from markets and market mechanisms to increasingly intrusive public sector control. Not only is the public sector deciding what to invest in, but it is also increasingly involved in determining which commercial projects should proceed and which should not. Instead of markets being driven by commercial logic, the motivations behind cross-border natural gas projects are often political in nature. This is not in itself uncommon since energy and politics have always been closely connected at global level. However, it conflicts with the EU's policies in this area, which are based on liberal market thinking.

⁹ Gracceva, F., & Zeniewski, P., 'A systemic approach to assessing energy security in a low-carbon EU energy system' (2014) 123 *Applied Energy* 335-348 <<https://doi.org/10.1016/j.apenergy.2013.12.018>>.

¹⁰ Haas, R., Panzer, C., Resch, G., Ragwitz, M., Reece, G., & Held, A., 'A historical review of promotion strategies for electricity from renewable energy sources in EU countries' (2011) 15(2) *Renewable and Sustainable Energy Reviews* 1003-1034 <<https://doi.org/10.1016/j.rser.2010.11.015>>.

¹¹ Talus, K., 'Decades of EU energy policy: towards politically driven markets' (2017) 10(5) *The Journal of World Energy Law & Business* 380-388.

Jonsson et al. (2015)¹² examine and outline a comprehensive suite of energy security aspects to be considered when assessing low-carbon energy scenarios and apply it using the EU Energy Roadmap as an example. Availability and affordability issues as well as security of demand matters and geopolitical security aspects are identified and discussed. External factors, e.g., future international climate treaties and international relations, are important for some energy security outcomes. A broader framing of energy security together with structured assessments on the security implications of energy transitions would benefit future EU energy policy.

At the same time, issues related to the implementation of the legal regulation of EU energy security in the legislation of Ukraine, in accordance with the Association Agreement between Ukraine and the EU, have not been studied and presented in sufficient detail.

3. LEGAL PROVISION OF ENERGY SECURITY IN THE EU AND ENERGY PACKAGES

For the EU, ensuring energy security is particularly important factor in economic development, and the import dependence on energy resources¹³ pose the challenge of establishing a stable supply of hydrocarbons in sufficient quantity and quality. Although ensuring energy security is the task of each individual EU State, given the presence of State sovereignty¹⁴, in the context of the unification of European energy markets, certain geopolitical aspects (storage, transit and substitution), complicate the management of energy security at the local level and bring it to the super-state level of the EU.

The prototype of the European Union was the union of coal and steel, between France, Germany, Italy, Belgium, the Netherlands and Luxembourg from 1952 (European Parliament, 1951)¹⁵, which made it

¹² Jonsson, D. K., Johansson, B., Månsson, A., Nilsson, L. J., Nilsson, M., & Sonnsjö, H., 'Energy security matters in the EU Energy Roadmap' (2015) 6 Energy Strategy Reviews 48-56. <<https://doi.org/10.1016/j.esr.2015.03.002>>.

¹³ According to Eurostat data, the share of energy resources imported by the EU is more than 70% EU imports of energy products - recent developments. Statistics Explained – 2019.

¹⁴ Lipková, E., *Európska únia* (Sprint dva 2011) ISBN 978-80- 89393-33-6.

¹⁵ European Parliament, 'The Treaty establishing the European Coal and Steel Community (ECSC)' (1951). <<https://www.europarl.europa.eu/about-parliament/en/in-the-past/the-parliament-and-the-treaties/treaty-of-paris>> accessed 22 January 2024.

possible to unite these States into an energy and economic European interstate association. The basis of this union was to create conditions for the free production and movement of products of the coal and metallurgical industries, thanks to the implementation of which it was possible to create a stable and solid foundation in such important sectors of the economy as energy and metallurgy¹⁶.

Later, the energy sector further increased its role in the new international institution, so in 1957, as part of the signing of the Treaty of Rome, the Treaty on the Establishment of the European Atomic Energy Community was signed. It regulated the integration of European countries in the field of the peaceful use of nuclear energy, which was seen by all European countries as an important and promising tool for solving the energy problem in Western Europe. Thus, it was planned to relieve the severity of the energy crisis, which primarily affected small Western European countries. However, the most significant event was the adoption by the European Commission of Directive 96/92 (European Parliament, 1996)¹⁷ and Directive 98/30/EC (European Parliament, 1998)¹⁸. The first directive established the key principles of competition among producers and suppliers of electric power. The main goal of the directive was to ensure 35% of the annual electricity supply in the open market, the separation of electricity monopolies. The other established general rules for transportation, storage, distribution and consumption of natural gas, and particular aspects of the organization of the gas market. This marked the beginning of the creation of a single European liberalized electricity and gas markets, as well as the reform of the energy sector.

These directives formed the so-called First Energy Package. The EU Energy Package is a comprehensive set of legal acts aimed at responding to global and European climate change and energy challenges and integrating climate change considerations into a range of sectors and policies¹⁹.

¹⁶ Khalova, G. O., Yordanov, S. G., & Polaeva, G. B., 'Evolution of EU Energy Policy' (2018) 5 Innovation and Investment 97-101.

¹⁷ European Parliament, Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity, Official Journal of the European Communities, 50, 20-29.

¹⁸ European Parliament, Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas, Official Journal L 204, 21/07/1998, 0001 – 0012.

¹⁹ Kulovesi, K., & Muñoz, M., 'Environmental integration and multi-faceted international dimensions of EU law: Unpacking the EU's 2009 climate and energy

The next step was the adoption of the Second Energy Package. It consisted of electric (2003/54/EC) and gas (2003/55/EC) (European Parliament, 2003)^{20,21} directives, which were aimed at introducing equal access to the electricity and gas networks, developing competition, and liberalizing of the energy sector. The main goal was to create conditions for the development of fair competition in the European energy sector. In particular, this package formulated the requirements for the necessity of vertically integrated companies. In practice, this meant that, for example, in the natural gas sector the activities of companies transporting gas must be separated from the activities of gas production and distribution. At the same time, this approach did not include "ownership subsidy". The package established two different specific timeframes for liberalization of electricity and gas sales on the retail markets, namely the beginning of 2004 for industrial consumers and the beginning of 2007 for private households²².

However, scientists note that the implementation of the directives of the Second Energy Package has shown a lack of effectiveness, which was reflected in a high degree of monopolization in the energy sector by most of the EU member States. It was impossible to fulfill the requirement of a complete transfer of energy through the cordons of one EU member State to another. The energy markets of the member States were very weakly integrated, their functioning was not transparent, etc.²³

It should be noted that upon the adoption of the UN Framework Convention on Climate Change and the Kyoto Protocol, which aimed

package' (2011) 48(3) Common Market Law Review. Available at: <https://kluwerlawonline.com/journalarticle/Common+Market+Law+Review/48.3/COLA2011034>.

²⁰ European Parliament, Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC Statements made with regard to decommissioning and waste management activities, Official Journal L 176, 15.7.2003, 37–56.

²¹ European Parliament, Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC, Official Journal L 176, 15.7.2003, 57–78.

²² Pavlyuk, S. & Khorolskyi, R., 'Cooperation between Ukraine and the European Union in the sphere of energy efficiency' (2015). <<https://parlament.org.ua/wp-content/uploads/2018/03/2.pdf>> accessed 22 January 2024.

²³ Khalova, G. O., Yordanov, S. G., & Polaeva, G. B., 'Evolution of EU Energy Policy' (2018) 5 Innovation and Investment 97-101.

to limit the release of CO₂ into the atmosphere, certain considerations should be mentioned. The two Energy Packages did not focus on this issue, which weakened the EU's position in the fight against the release of carbon dioxide. That is why, the European Council adopted the so-called "20-20-20" program without regard to certain difficulties in the implementation of the Second Energy Package. It stipulated 20% reduction of carbon dioxide emissions, 20% reduction of energy consumption within the EU and 20% replacement of the existing energy sources with renewable sources.²⁴ The Third Energy Package was developed to implement this program. It should be noted that the last one had some promising ideas for the parties, including the possibility of choosing the method of distribution of production, production and transportation, namely a full or partial division of ownership in the form of independent transport operator, and independent system operator.²⁵ Therefore, a special feature of the Third Energy Package was the prohibition of companies to sell and transport gas and electricity. At the same time, monopoly companies were asked to sell the transport networks or give their management to an independent operator. In addition, the documents clearly provide for guarantees of third-party access to gas transportation capacity.

The EU approved the 'Clean Energy for All Europeans' energy package in 2019. It comprises eight international documents outlining requirements for both local and pan-European energy markets organization. These are documents such as: Renewable Energy Sources Directive updated (EU) 2018/2001; Directive on the Energy Efficiency of Buildings (EU) 2018/844; Energy Efficiency Directive updated (EU) 2018/2002; Regulation on the Management of the Energy Union and Climatic Measures (EU) 2018/1999; Directive on General Rules for the Internal Market of Electricity (EU) 2019/944; Regulation on the Internal Market of Electricity (EU) 2019/943; Regulation on Preparedness for Risks in the Electricity Sector (EU) 2019/941; Regulation on the Establishment of the European Union Agency for Cooperation between Energy Regulators (EU) 2019/942. It is expected that their implementation will help accelerate and facilitate the EU's transition to

²⁴ European Commission, '2020 climate & energy package' (2009). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2001_8.

²⁵ European Commission, 'Questions and Answers on the third legislative package for an internal EU gas and electricity market' (2011) MEMO/11/125 Brussels, 2 March 2011.

renewable energy sources by promoting investment in renewable energy infrastructure and fostering innovation in the energy sector.

The formation of this legislative package represents a crucial stage in implementing the Energy Union Creation Strategy. The aim of the 4th Energy Package, 'Clean Energy for All Europeans,' is to facilitate the transition from conventional fuels to more environmentally friendly energy sources and to fulfill the EU's obligations under the Paris Agreement on Reducing Greenhouse Gas Emissions.

In conclusion, the development of legal frameworks in the EU's energy sector has progressed steadily over the past 70 years, transitioning from purely economic objectives to ensuring comprehensive energy security. Energy Directives that make up the energy packages allowed to maximize the level of energy security, ensured the development of competition among producers and suppliers of energy resources, provided equal access to energy and gas and water supply networks, liberalize the energy sector, introduce diversification of energy resources and their suppliers, increase the use of green energy, reduce the level of emissions into the atmosphere, improve energy efficiency, enhance the role of the consumer and energy security in general.

4. IMPLEMENTATION OF ENERGY PACKAGES IN THE UKRAINIAN LEGISLATION

Ukraine became a full member of the Energy Partnership on February 1, 2011 and has undertaken the obligation to implement into the national legislation the main acts of the EU energy legislation.²⁶ Ukraine's accession to the Energy Partnership offered opportunities and instruments for structural reforms in the energy sector. Implementation of European norms and standards - the Acquis Communautaire (the roadmap outlining the key elements of EU energy legislation) in the energy sector, as well as in the environmental protection sector, enables our country to progressively implement economic restructuring and pursue sustainable development.

²⁶ Parliament of Ukraine, Law of Ukraine "On Ukraine's Accession to the Treaty on the Establishment of the Energy Partnership", Verkhovna Rada of Ukraine, No. 2787-VI. <https://zakon.rada.gov.ua/laws/show/994_a27#Text> accessed 22 January 2024.

The process of implementation of energy packages in Ukraine is at its beginning. In recent years, Ukraine has shown a strong willingness to cooperate with the European Union on energy security issues, albeit within the economic and political spheres. The adaptation of legal regulations in the energy sector is currently fragmented and unsystematic, which, as a result, undermines the overall goals. This assertion is confirmed by a number of regulatory acts adopted by the Ukrainian Parliament aiming at reforming the energy sector. Thus, the adoption of the Law of Ukraine "On the Natural Gas Market"²⁷ declared implementation of the requirements of the EU Third Energy Package (Directive 2009/73/EC "On Compliance with the Internal Market of Natural Gas" and EU Regulation 715/2009 "On the Conditions of Access to the Natural Gas Transport") within the limits of the agreement signed by Ukraine on establishment of the Energy Partnership and envisages pursuit of liberalization and reform of the natural gas market and elimination of the single large-scale player of recent years, NAK Naftogaz of Ukraine PJSC, which produced oil and gas, their processing, transportation and storage, etc. on a single basis. The said law introduced the creation of a new model of the natural gas market aimed at ensuring fair competition and effective protection of rights and interests of all gas market participants, regardless of the form of ownership. However, to date, it cannot be said that its provisions have been fully implemented. Affiliated companies and partners, such as Ukrtransgas PJSC and Ukrgazvydobuvannya PJSC, continue to participate in tenders for production, processing, and other energy resource-related activities, alongside the aforementioned monopoly companies. Therefore, the expected result in the form of demopolization was not achieved.

Within the framework of the Third Energy Package of the EU, the Ukrainian Parliament adopted the Law "On Electricity Market".²⁸ This law introduced the possibility of selecting a supplier of energy services, promoting competition, and reducing prices for electricity buyers starting from 2019. However, the implementation of this law faces obstacles due to general and subjective reasons. These include irregularities in

²⁷ Parliament of Ukraine, Law of Ukraine "On the Natural Gas Market", Verkhovna Rada of Ukraine, No. 27. <<https://zakon.rada.gov.ua/laws/show/329-19>> accessed 22 January 2024.

²⁸ Parliament of Ukraine, Law of Ukraine "On the electricity market", Verkhovna Rada of Ukraine, No. 2019-VIII. <<https://zakon.rada.gov.ua/laws/show/2019-19#Text>> accessed 22 January 2024.

regulating parallel markets, generating capacities, and the accumulation of charges. Furthermore, there are challenges related to detailed regulatory and technical infrastructure. Considering these and other reasons, the Representation of the European Union and the European Bank for Reconstruction and Development recommended suspending the implementation of the new market of electric power in Ukraine.²⁹

Moreover, the New Energy Strategy of Ukraine for the period up to 2035, titled "Security, Energy Efficiency, Competitiveness," was developed in accordance with the aforementioned laws. This strategy aims to strengthen the development of renewable energy, particularly by increasing the use of "green energy" and promoting the adoption of a green tariff among the population and enterprises. With the purpose of stimulating the development of renewable energy, the Law of Ukraine "On Amendments to Some Laws of Ukraine on Ensuring Competitive Conditions for Production of Electricity from Alternative Energy Sources" was passed. "The "green" tariff is linked to the euro exchange rate; the "green" tariff for electricity from biomass and biogas was reduced by 10%; the requirements for local storage were lowered by 5% and 10% for the use of equipment of Ukrainian production at the level of 30% and 50%; introduction of "green" tariff for geothermal power plants, for solar and hydroelectric power plants of private households up to 30 kW of capacity.³⁰

Additionally, starting from June 1, 2019, the Law of Ukraine "On Amendments to the Tax Code of Ukraine and Certain Other Legislative Acts of Ukraine" came into effect. The Law of Ukraine "On Amendments to the Tax Code of Ukraine and Certain Other Legislative Acts of Ukraine for Improvement of Administration and Review of Rates of Certain Taxes and Levies" took legal effect on December 1, 2019, which contains the main provisions intended to contribute to the development of the renewed energy sector. The following contexts are worth mentioning:

- the Tax Code of Ukraine stipulates that up to March 31, 2022 operations with import to the customs territory of Ukraine of

²⁹ Parliament of Ukraine, Law of Ukraine "On the electricity market", Verkhovna Rada of Ukraine, No. 2019-VIII. <<https://zakon.rada.gov.ua/laws/show/2019-19#Text>> accessed 22 January 2024.

³⁰ Parliament of Ukraine, Law of Ukraine "On Amendments to Certain Laws of Ukraine on Ensuring Competitive Conditions for Production of Electricity from Alternative Energy Sources", Verkhovna Rada of Ukraine, No. 514-VIII. <<https://zakon.rada.gov.ua/laws/show/514-19?lang=en>> accessed 22 January 2024.

the following goods shall be exempt from taxation for value added tax: combined cycle power plants, photovoltaic panels, inverters and transformers of suitable capacities³¹;

- the Law of Ukraine "On Energy Land and the Legal Regime of Special Zones of Energy Facilities" contains a provision according to which industry, transport, communications, energy, defense and other purposes can be developed on the land by alternative energy facilities that use renewable energy sources regardless of the purpose of such land plots³². These measures have contributed to a rapid growth of green energy production, which has in turn affected overall energy production. Given the circumstances, the state, represented by the state company "Guaranteed Buyer," is obliged to purchase green energy at the fixed "green" tariff, which is one of the highest in Europe today.³³

Most producers of solar energy receive, according to the law, 4.25 hryvnia (UAH) per kilowatt, when they produce hydrogen energy at 3-3.5 hryvnia (UAH). These rates are significantly higher than those for 'thermal' (1.20 hryvnia per kW) and 'nuclear' (0.67 hryvnia per kW) energy. The consumers pay (without taking into account taxes and charges) only 0.25 hryvnia per kilowatt and industrial enterprises pay 1.25 hryvnias per kW. Low tariffs for the population were maintained for a long time through the sale of nuclear energy to industrial enterprises. However, due to the rapid development of renewable energy, this system ceased to work. There is a catastrophic lack of funds for subsidies. The State enterprise, "Guaranteed Buyer", is a *de facto* bankrupt³⁴ and, by the end of January 2021, the company had already collected over 25 billion hryvnias (UAH) from the "green" sector.³⁵

³¹ Parliament of Ukraine, Law of Ukraine "Tax Code of Ukraine", Verkhovna Rada of Ukraine, No. 2755-VI. <<https://zakon.rada.gov.ua/laws/show/2755-17>> accessed 22 January 2024.

³² Parliament of Ukraine, Law of Ukraine "On Energy Land and Legal Regime of Special Zones of Energy Objects", Verkhovna Rada of Ukraine, No. 2480-VI. <<https://zakon.rada.gov.ua/laws/show/2480-17#Text>> accessed 22 January 2024.

³³ Drapak, M. 'Current tariffs to support green energy are inadequately high' (2018). <<http://texty.org.ua/pg/article/editorial/read/84623/>> accessed 22 January 2024.

³⁴ Thaize, Y., 'A market that does not work: who in Ukraine will pay for "green" energy?' Deutsche Welle (2020). <<https://p.dw.com/p/3cBEx>> accessed 22 January 2024.

³⁵ Finbalance, "Green" tariff: debts of "Harpok" and "Ukrenergo" increased to UAH 25.1 billion, Prantmedia. <<https://finbalance.com.ua/news/zeleniy-tarif-borhi-harpoka-y-ukrenerho-zbilshilisy-a-do-187-mlrd-hrn>> accessed 22 January 2024.

Thus, we can conclude that the transition to green energy has been very rapid. This transition is affecting the State budget of Ukraine in the conditions of permanent economic instability. In the current situation, rapid transition to alternative and renewable sources of energy is only feasible for economically developed countries. The functioning of large power plants from renewable energy sources is characterized by sharply changed modes of operation in the structure of the United Energy System of Ukraine. This leads to additional costs for the dispatching of power plants and maintenance of reserve capacities to regulate the operation of wind and solar power plants.

We should also pay attention to the absence of an important State policy of deregulation in the energy sphere, i.e. reduction of the State influence on the energy sector of Ukraine. The adoption of the Law of Ukraine "On the National Commission, which carries out state regulation in the fields of energy and public services" (2016)³⁶ meant the continuation of the course on State management of the energy sector. However, in our opinion, this approach does not align with European standards. The declared aim of adoption of the mentioned act is elimination of monopolies and State regulation of activities of the Ukrainian energy market participants. But, obviously, in the opinion of the lawmakers the State should manage the energy sector without any intermediaries. The law determines the legal status of the State regulator in the field of energy and communal services, which performs regulation, monitoring and control over the activities of State actors in the field of energy and communal services. Thus, the State, using an imperative influence, regulates the energy sector by creating the same conditions for all entities of the energy sphere and reducing the impact on price formation. In our opinion, the State should create transparent conditions and the same rules for all players in the energy market, thus reducing its own influence on the market of energy resources.

Recently, the Law "On Energy Efficiency" was adopted, which is an important step towards the implementation of the third energy package, namely the European Union Directive 2012/27/EC "On Energy Efficiency". The law stipulates that the development of national and local plans for energy efficiency. In addition, monitoring of the

³⁶ Parliament of Ukraine, Law of Ukraine "On the National Commission, which carries out state regulation in the fields of energy and public services", Verkhovna Rada of Ukraine, No. 51. <<https://zakon.rada.gov.ua/laws/show/1540-19>> accessed 22 January 2024.

National Plan's implementation will be introduced. Anyone interested will have access to the official results of this monitoring. Establishment of an energy management system in cities and State authorities, i.e. special units and specialists to perform energy monitoring of buildings, detection and solution of energy efficiency problems, etc., purchase and lease at public expense of only energy efficient equipment and premises, require modernization of equipment and measures by energy supplying companies, and create an open online platform on energy efficiency. The law also establishes how much energy consumption is to be reduced in the short term.

The law emphasizes the importance of medium- and long-term planning for energy efficiency measures. Thus, the Ministry of Development of Communities and Territories of Ukraine has to develop a long-term strategy for thermal modernization of buildings, which can positively affect not only the preservation of costs, which are lost for a long time together with the lost heat, but also to improve the condition of the natural environment.

However, this law potentially has a number of shortcomings. A number of provisions of the law are declarative in nature, it is necessary to adopt a large number (nearly 50) of secondary legislation and regulations concerning strategies, national action plans, municipal energy plans, and reports on the potential of energy efficiency of energy supplying companies over a one-year period, without which the law will remain a declaration of positive intentions. The responsibility for the issues of energy efficiency, in general, and energy efficiency between the Ministry of Energy and the Ministry for Communities and Territories Development of Ukraine are rather abstractly divided, which will not contribute to achieving the goal of improving energy efficiency. Moreover, implementation of provisions of the law requires obtaining funds, in particular, for creation of the energy management system, implementation of energy plans of cities, energy audits, etc.

5. CONCLUSIONS

Over the past 70 years, the European Union has steadily developed its legal framework for ensuring energy security, transitioning from purely economic goals of energy self-sufficiency to encompassing energy and environmental security concerns. The adoption of energy packages has played a crucial role in this process, preventing

monopolization of the energy sector, fostering competition among producers and suppliers, ensuring equal access to energy networks, empowering consumers, liberalizing the sector, and promoting the use of renewable energy sources. However, the implementation of EU energy directives in Ukraine has been fragmented and unsystematic, lacking clear economic assessments and failing to achieve the overarching goal of enhancing Ukraine's energy security.

Legislation such as the Law of Ukraine "On the Natural Gas Market" and the Law "On the Electricity Market" have not effectively addressed issues of monopolization and regulatory irregularities, contributing to ongoing challenges in the energy sector. The rapid transition to green energy, coupled with its high cost and the country's economic crisis, has strained Ukraine's state budget and led to operational challenges in its energy infrastructure. The recent enactment of the Law of Ukraine "On Energy Efficiency" is a positive step towards improving energy security, but without sufficient funding and trained specialists, its impact may remain largely declarative.

Addressing these challenges will require comprehensive reforms, adequate funding, and investment in training programs to build capacity in energy efficiency and renewable energy technologies. By prioritizing these initiatives and aligning with European standards, Ukraine can enhance its energy security and contribute to a more sustainable energy future.

6. REFERENCES

- Commission of the European Communities, 'GREEN PAPER A European Strategy for Sustainable, Competitive and Secure Energy' (COM 2006) 105 final, Brussels, 8.3.2006) {SEC(2006) 317}
- Commission of the European Communities, 'GREEN PAPER A European Strategy for Sustainable, Competitive and Secure Energy' (COM 2006) 105 final, Brussels, 8.3.2006) {SEC(2006) 317}
- Drapak, M. 'Current tariffs to support green energy are inadequately high' (2018). <<http://texty.org.ua/pg/article/editorial/read/84623/>> accessed 6 February 2024
- European Commission, '2020 climate & energy package' (2009). <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=LEGISSUM:2001_8> accessed 6 February 2024

- European Commission, 'Questions and Answers on the third legislative package for an internal EU gas and electricity market' (2011) MEMO/11/125 Brussels, 2 March 2011
- European Parliament, Directive 2003/54/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in electricity and repealing Directive 96/92/EC Statements made with regard to decommissioning and waste management activities, Official Journal L 176, 15.7.2003, 37–56
- European Parliament, Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC, Official Journal L 176, 15.7.2003, 57–78
- European Parliament, Directive 96/92/EC of the European Parliament and of the Council of 19 December 1996 concerning common rules for the internal market in electricity, Official Journal of the European Communities, 50, 20-29
- European Parliament, Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas, Official Journal L 204, 21/07/1998, 0001 – 0012
- European Parliament, 'The Treaty establishing the European Coal and Steel Community (ECSC)' (1951). <<https://www.europarl.europa.eu/about-parliament/en/in-the-past/the-parliament-and-the-treaties/treaty-of-paris>> accessed 6 February 2024
- Finbalance, "Green" tariff: debts of "Harpok" and "Ukrenergo" increased to UAH 25.1 billion, Prantmedia. <<https://finbalance.com.ua/news/zeleniy-tarif-borhi-harpokay-ukrenerho-zbilshilisya-do-187-mlrd-hrn>> accessed on 6 February 2024
- Gracceva, F., & Zeniewski, P., 'A systemic approach to assessing energy security in a low-carbon EU energy system' (2014) 123 Applied Energy 335-348. <<https://doi.org/10.1016/j.apenergy.2013.12.018>>
- Haas, R., Panzer, C., Resch, G., Ragwitz, M., Reece, G., & Held, A., 'A historical review of promotion strategies for electricity from renewable energy sources in EU countries' (2011) 15(2)

- Renewable and Sustainable Energy Reviews 1003-1034
 <<https://doi.org/10.1016/j.rser.2010.11.015>>
- Hnydiuk, N. & Pavlyuk, S., 'Approximation of Ukrainian legislation to EU law in accordance with the Association Agreement: between legal obligations and policy analysis?' *Laboratoriia zakonodavchykh initsiatyv* (2016)
 <<https://infocenter.rada.gov.ua/uploads/documents/29067.pdf>>
 accessed on 6 February 2024
- Hrabinsky, I., & Krychkovsky, T.O., 'Political and economic problems of Ukraine's energy independence' (2016) *Bulletin of Lviv University. Series "International Relations"* 39
- Jonsson, D. K., Johansson, B., Månsson, A., Nilsson, L. J., Nilsson, M., & Sonnsjö, H., 'Energy security matters in the EU Energy Roadmap' (2015) 6 *Energy Strategy Reviews* 48-56
 <<https://doi.org/10.1016/j.esr.2015.03.002>>
- Khalova, G. O., Yordanov, S. G., & Polaeva, G. B., 'Evolution of EU Energy Policy' (2018) 5 *Innovation and Investment* 97-101
- Kulovesi, K., & Muñoz, M., 'Environmental integration and multi-faceted international dimensions of EU law: Unpacking the EU's 2009 climate and energy package' (2011) 48(3) *Common Market Law Review*.
 <<https://kluwerlawonline.com/journalarticle/Common+Market+Law+Review/48.3/COLA2011034>> accessed on 6 February 2024
- Lipková, Ľ., *Európska únia (Sprint dva 2011)* ISBN 978-80- 89393-33-6
- Matsumoto, K. I., Doumpou, M., & Andriosopoulos, K., 'Historical energy security performance in EU countries' (2018) 82 *Renewable and Sustainable Energy Reviews* 1737-1748
 <<https://doi.org/10.1016/j.rser.2017.06.058>>
- Parliament of Ukraine, Law of Ukraine "On Amendments to Certain Laws of Ukraine on Ensuring Competitive Conditions for Production of Electricity from Alternative Energy Sources", Verkhovna Rada of Ukraine, No. 514-VIII.
 <<https://zakon.rada.gov.ua/laws/show/514-19?lang=en>>
 accessed on 6 February 2024
- Parliament of Ukraine, Law of Ukraine "On Energy Land and Legal Regime of Special Zones of Energy Objects", Verkhovna Rada of Ukraine, No. 2480-VI.

- <<https://zakon.rada.gov.ua/laws/show/2480-17#Text>>
accessed on 6 February 2024
- Parliament of Ukraine, Law of Ukraine "On the electricity market",
Verkhovna Rada of Ukraine, No. 2019-VIII.
<<https://zakon.rada.gov.ua/laws/show/2019-19#Text>>
accessed on 6 February 2024
- Parliament of Ukraine, Law of Ukraine "On the Market of Natural
Gas", Verkhovna Rada of Ukraine, No. 27.
<<https://zakon.rada.gov.ua/laws/show/329-19>> accessed on 6
February 2024
- Parliament of Ukraine, Law of Ukraine "On the National Commission,
which carries out state regulation in the fields of energy and
public services", Verkhovna Rada of Ukraine, No. 51.
<<https://zakon.rada.gov.ua/laws/show/1540-19>> accessed on
6 February 2024
- Parliament of Ukraine, Law of Ukraine "On Ukraine's Accession to the
Treaty on the Establishment of the Energy Partnership",
Verkhovna Rada of Ukraine, No. 2787-VI.
<https://zakon.rada.gov.ua/laws/show/994_a27#Text>
accessed on 6 February 2024
- Parliament of Ukraine, Law of Ukraine "Tax Code of Ukraine",
Verkhovna Rada of Ukraine, No. 2755-VI.
<<https://zakon.rada.gov.ua/laws/show/2755-17>> accessed on
6 February 2024
- Pavlyuk, S. & Khorolskyi, R., 'Cooperation between Ukraine and the
European Union in the sphere of energy efficiency' (2015).
<[https://parlament.org.ua/wp-
content/uploads/2018/03/2.pdf](https://parlament.org.ua/wp-content/uploads/2018/03/2.pdf)> accessed on 6 February 2024
- Scheepers, M., Seebregts, A., de Jong, J., & Maters, H., 'EU standards
for energy security of supply' (2007) 52 Gas 86.
- Shannon, C. E., 'A Mathematical Theory of Communication' (1948) 27
The Bell System Technical Journal 379–423, 623–656.
- Talus, K., 'Decades of EU energy policy: towards politically driven
markets' (2017) 10(5) The Journal of World Energy Law &
Business 380–388.
- Thaize, Y., "A market that does not work: who in Ukraine will pay for
'green' energy?" Deutsche Welle (2020).
<<https://p.dw.com/p/3cBEx>> accessed 6 February 2024

ABOUT THE AUTHORS

Shulga, Prof. Dr. Ievgenii



Prof. Dr. Ievgenii Shulga has a scientific degree of Doctor of Sciences and holds the academic title of Professor specializing in International Law and Comparative Law at the National University of Life and Environmental Sciences of Ukraine (NULES of UKRAINE). He was awarded the professor's title in December 2022 and previously held the position of Associate Professor since May 2020.

Dr. Shulga is a recipient of the Ukrainian government scholarship (Cabinet of Ministers of Ukraine) for the period from 2020 to 2022 and a laureate of the named scholarship of the Parliament of Ukraine (Verkhovna Rada of Ukraine) for young researchers with a doctoral degree in 2021. In 2022, he was awarded the President of Ukraine Award for Young Scientists.

In addition to his academic achievements, Dr. Shulga actively contributes to the academic community. He serves as a Member of the editorial board of the legal scientific and practical journal 'Scientific works of the Interregional Academy of Personnel Management (Law series)' (Ukraine) since 2020. He is also a Member of the editorial board of the international, scientific double-blind peer-reviewed open access journal 'Journal of Policy & Governance' (Canada) since 2021.

Currently, Dr. Shulga is the Head of a research project financed by the government of Ukraine titled 'Legal support of energy security of Ukraine in the conditions of the European and Euro-Atlantic course' since 2021. Additionally, he serves as an Expert and Member of the Expert Council of the Ministry of Education and Science of Ukraine for the evaluation of scientific projects funded from the state budget since 2021. Dr. Shulga is the author of over 90 scientific works dedicated to

international law, international environmental law, legal regulation of energy security, and energy law.

Education:

- Doctor of Law, October 2018 – Dnipropetrovsk State University of Internal Affairs, Dnipro, Ukraine
- PhD in Law, April 2012 – National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine
- MA in Law, June 2008 – Yaroslav Mudryi National Law University, Kharkiv, Ukraine

Research / Research Project Experience:

- Legal Regulation of Ukraine's Energy Safety in The Context of the European and Euro-Atlantic Course, Research Project Funded by The Government of Ukraine, 2022-2024. Head of The Project
- Implementation of American Standards of Agricultural Education in Ukraine: Quality Enhancement and Democratic Development, Research Project Funded by the US Embassy in Ukraine, 2021-2022. Co-Head of the Project
- Establishment of an Educational Laboratory for Energy Management and Energy Efficiency, Education Project Funded by the Bulgarian Embassy in Ukraine, 2022-2023. Head of the Project
- Development of A System for Formation and Implementation of Leadership the Potential of the Youth of United Territorial Societies of Ukraine, Research Project Funded by the Government of Ukraine, 2018-2020. Project Executor
- Legal Regulation of Forest Protection and Forest Renewal in Ukraine, Research Project Funded by The Government of Ukraine, 2014-2017. Project Executor

Professional Experience:

- Advocate of the Kyiv City Bar Council, May 2021 – Now

Affiliation

Department of International Law and Comparative Law, National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, Ukraine

Email: evshulga2013@gmail.com

ORCID: <https://orcid.org/0000-0002-9343-8647>

Shynkaruk, Dr. Nataliia



Dr. Nataliia Shynkaruk is the head of the expert group on energy issues at the Government Office for Coordination of European and Euro-Atlantic Integration of the Secretariat of the Cabinet of Ministers of Ukraine. She has been awarded the Prime Minister of Ukraine D. Shmyhal's Commendation for significant personal contribution to ensuring the work of the Secretariat of the Cabinet of Ministers of Ukraine, conscientious work, and high professionalism. Dr. Nataliia Shynkaruk's contribution to implementing reforms and aligning with European standards for the expedited full membership of Ukraine in the European Union has been recognized.

Dr. Nataliia Shynkaruk holds a degree in candidate of legal sciences (Doctor of Philosophy in Law) with a focus on administrative law and procedure; financial law; information law; a master's degree in law; a master's degree in finance; and a master's degree in philology (English and German languages). She graduated from Taras Shevchenko National University of Kyiv with a specialization in law; National University of State Tax Service of Ukraine with a specialization in finance; and National University of Bioresources and Nature Management of Ukraine with a specialization in philology.

To obtain the academic degree of Doctor of Philosophy in Law (candidate of legal sciences) with a focus on administrative law and procedure, financial law, and information law, Dr. Nataliia Shynkaruk defended her research on the topic "Administrative-Legal Regulation of Relations in the Power Industry" in 2015.

Her current areas of scientific and practical interests include a comprehensive analysis of the organizational principles of implementing state policy in the energy sector amidst the European and Euro-Atlantic course, highlighting the prerequisites for Eurointegration processes in

the energy sector in Ukraine and Ukraine's international commitments to the EU regarding energy security. This also involves justifying the current state of Ukraine's compliance with international obligations in the energy sector and their impact on Ukraine's energy security, as well as the institutional and legal support for implementing commitments under the Association Agreement with the EU in the energy sector.

By the decree of the President of Ukraine Volodymyr Zelensky dated November 30, 2022, No. 809/2022, Nataliia Shynkaruk was awarded the President of Ukraine's Prize for Young Scientists in 2022 for outstanding scientific research. The Committee for State Prizes of Ukraine in Science and Technology acknowledged the scientific work on the topic "Legal Support for Ukraine's Energy Security" (2022).

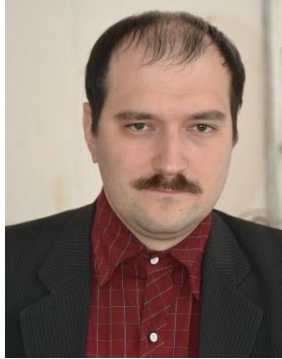
Dr. Nataliia Shynkaruk is a highly professional expert with over 70 scientific and educational-methodical works, two scientific monographs, and five textbooks. Widely recognized in the scientific community, her works are actively referred to by young researchers, and her educational materials are used by masters and teachers in the educational process.

In September 2019, she was invited to work part-time at the National University of Life and Environmental Sciences of Ukraine as an Associate Professor at the Department of International Relations and Social Sciences. In a short time, she implemented numerous scientific and educational projects, delivered problem-oriented presentations to students, masters, and teachers, providing significant assistance to the university. Dr. Nataliia Shynkaruk is an experienced practitioner, an exceptionally goal-oriented and industrious person who always sets and achieves her goals, undeterred by challenges.

Affiliation

Expert Group on Energy, Government Office for Coordination of European and Euro-Atlantic Integration, Secretariat of the Cabinet of Ministers of Ukraine, Kyiv, Ukraine, Email: natalisch1003@gmail.com
ORCID: <https://orcid.org/0000-0002-4488-6240>

Shytyi, Dr. Stanislav



Dr. Stanislav Shytyi is Associate Professor at the Department of Theory and History of State and Law, National Pedagogical Dragomanov University, Kyiv, Ukraine. His research interests encompass law, jurisprudence, civil society, human rights, as well as the history of Ukrainian state formation and legal education. He explores topics such as issues of legal nihilism, human rights violations, taxation of religious organizations, corruption, institutional independence, legal education and science in Ukraine, as well as the role and place of historical figures in Ukrainian national statehood, and more.

Affiliation

Department of Theory and History of State and Law, National Pedagogical Dragomanov University, 02000, Kyiv, Ukraine
Email: moderator_fpsp@npu.edu.ua
ORCID: <https://orcid.org/0000-0002-0850-5236>

Antypov, Dr. Ievgen



Dr. Ievgen Antypov is Associate Professor of the Department of Thermal Power Engineering, National University of Life and Environmental Sciences of Ukraine, Kyiv, Ukraine. His research field relates to numerical modelling and experimental investigation of energy conversion and accumulation processes in comprehensive energy supply systems for residential, industrial, and agricultural purposes, including the utilization of alternative and renewable energy sources.

Affiliation

Department of Heat Power Engineering, National University of Life and Environmental Sciences of Ukraine, 03041, Kyiv, Ukraine

Email: ievgeniy_antypov@ukr.net

ORCID: <https://orcid.org/0000-0003-0509-4109>

In North America and Western
Europe, ten percent of the
population of the world consumes
fifty percent of its energy.

— *Yehuda Levi* —