LEGAL REGULATION OF WIND ENERGY

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Abstract. The development of alternative energy sources in general and wind energy (including marine) in particular has become increasingly active in recent years. More and more countries around the world are seeking to incorporate the use of renewable energy into their daily lives to meet their international commitments and tasks. Among such tasks are global world policy to reduce greenhouse gas emissions, decarbonize the economy, production, and industry. The best and easiest way to achieve this goal has been the large-scale implementation of legal regulation of non-traditional energy sources at both the international and national levels. Such implementation has greatly facilitated and made it possible to achieve the ambitious climate goals that were named in Paris in 2015 and subsequently reflected in the Paris Agreement on Climate Change.

The article examines the main program of the European Union on the policy of decarbonization of the European Green Deal, its goals, and aspirations. Attention is paid to a derived regulation for a more detailed understanding of this policy, namely European Climate Law. The legal regulation of wind energy is studied on the example of the Republic of Ukraine, the Republic of Poland, the United States of America, the Republic of Colombia, and the Federal Republic of Brazil. The legal regulation of wind energy in each of the studied countries is unique. At one time, this was influenced by global crises and national ideas, plans and strategies.

Keywords: Green Deal, wind, wind energy, renewable resources, decarbonization.

INTRODUCTION

In today's world, the demand for energy consumption is growing. It is necessary to meet own needs of people, for the development of technology, the implementation of scientific and technological progress, the smooth operation of industry. As of today, more than half of the energy is produced from traditional energy sources, which have been used since the 19th century. Their use has many disadvantages. The biggest of which is the extremely large negative impact on the environment in the form of emissions and discharges that pollute both air and soil, groundwater, and water bodies, as well as limited, exhaustible, and non-renewable natural resources. Significant air pollution, in turn, accelerates the rate of global warming and, consequently, climate change on the planet. In order to reduce the rate of manifestation of this phenomenon, the direction of reducing CO₂ emissions in countries around the world is actively developing. More and more government programs and strategies are being introduced to decarbonize the economy and production capacity, replacing the share of traditional energy sources in the market of its production with alternative sources that significantly reduce the negative and harmful impact on the environment. Given that the world community is increasingly beginning to implement a policy of using green energy through decarbonization to preserve and restore climate and the environment, it is necessary to pay attention to the legal regulation of wind energy, as one of the most popular and leading renewable energy sources. the world.

The European Union is actively developing and implementing the Green Deal program, which aims to transform the EU into a just and prosperous society, improve the quality of life of present and future generations and modernize greenhouse gas emissions by 2050 through a competitive economy regardless of natural resources. The European Green Course reaffirms Europe's desire to become the first climate-neutral continent by 2050 (European Climate Law, 2018). Further decarbonization of the energy system is crucial to achieving the climate goals of 2030 and 2050. Energy production and use in all sectors of the economy account for more than 75% of EU greenhouse gas emissions. Priority must be given to energy efficiency. It is necessary to develop the energy sector, based mainly on renewable sources, which is complemented by the rapid phasing out of coal and decarbonizing gas. At the same time, the EU's energy supply must be secure and accessible to consumers and businesses.

The transition to clean energy must attract consumers and benefit them. Renewable energy sources have an important role to play. It will be important to increase wind production both on land and at sea, based on regional cooperation between Member States. Intelligent integration of renewable energy, energy efficiency and other sustainable solutions in different sectors will help achieve decarbonization at the lowest possible cost. At the same time, it is necessary to promote the decarbonization of the gas sector, including by strengthening support for the development of decarbonized gases, through the long-term design of a competitive market for decarbonized gas and solving the problem of methane emissions associated with energy.

The transition to climate neutrality also requires a sound infrastructure. Expanding cross-border and regional cooperation will help realize the benefits of the transition to clean energy at affordable prices. The European Commission has adopted a review of the regulatory framework for energy infrastructure, including the TEN-E Regulation (Regulation

(EU) No 347/2013), to ensure that the objective of climate neutrality is consistent. This structure should facilitate the deployment of innovative technologies and infrastructure, such as smart grids, hydrogen grids or carbon capture, storage and use, and energy storage, which will also facilitate the integration of sectors (COM, 2019).

Thus, the purpose of the study of this article is to determine the legal regulation of alternative energy and wind energy as a separate part in different countries, taking into account global trends. The task of the article is to analyze the legal acts of the legislation of the studied states.

MATERIALS AND RESULTS

Wind energy is also widely used and developed in countries such as Poland and Ukraine.

As of today, Ukraine, as a country that is actively involved in the global process of development and effective introduction of alternative energy sources into the economy and annually increases the pace of activity in this area, has created proper legislation on these issues through the adoption of relevant regulations.

The history of legislative regulation of the introduction and use of renewable energy began on July 1, 1994 with the adoption of the Law of Ukraine "On Energy Conservation". Despite the fact that it is difficult to call this law complex and perfect in terms of legal techniques in the context of regulating this issue, however, it was he who first established the legal definitions of alternative energy, non-traditional energy sources; identified the main areas of regulation of persons (both individuals and legal entities) engaged in the construction and / or reconstruction of non-traditional (alternative) energy facilities; provided for the right of economic entities engaged in the production of energy-saving equipment, machinery, measuring instruments, materials, etc. for additional benefits, in particular for taxation (Law of Ukraine "On energy saving", 2020).

A qualitatively new step in the legislative development of alternative energy sources was taken in 2003, when the Verkhovna Rada of Ukraine adopted and adopted a fundamental, pivotal legislative act in this area – the Law of Ukraine "On Alternative Energy Sources". This act of legislation lays the economic, legal, environmental, and organizational foundations, which determine the basics of activities related to the involvement of alternative energy sources in production or other economic activities. This source was the first to establish the definitions and components of the concept of alternative energy; a list of renewable energy sources is provided; the institutional bases of ensuring the use of alternative energy sources, the competence of the authorized bodies in this field, the principles of financing and incentives, etc. are determined (Law of Ukraine "On Alternative Energy Sources", 2020).

Law of Ukraine "On Alternative Energy Sources", which in Art. 1 defines them as renewable energy sources, which include solar, wind, geothermal, hydrothermal, aerothermal, wave and tidal energy, hydropower, biomass energy, gas from organic waste, gas from sewage treatment plants, biogas, and secondary energy resources, which include blast furnace and coke oven gases, methane gas, degassing of coal deposits, conversion of waste energy potential of technological processes. Moreover, the energy that can be produced from these sources includes electrical, mechanical, and thermal energy.

As renewable energy is one of the fundamental, most European-oriented vectors of Ukraine's economic development in general, Article 3 of this law defines the basic principles of state policy in this area. These include:

1. Increasing the production and consumption of energy produced from alternative sources, in order to economically spend traditional fuel and energy resources and reduce Ukraine's dependence on their imports by restructuring the production and rational consumption of energy by increasing the share of energy produced from alternative sources;
2. Observance of ecological safety by reducing the negative impact on the environment during the creation and operation of alternative energy facilities, as well as during the transmission, transportation, supply, storage and consumption of energy produced from alternative sources;
3. Maintaining safety for human health at alternative energy facilities at all stages of production, as well as during the transmission, transportation, supply, storage and consumption of energy produced from alternative sources;
4. Scientific and technical support for the development of alternative energy, popularization and implementation of scientific and technical achievements in this field, training of relevant specialists in higher and secondary educational institutions;
5. Observance of the legislation by all subjects of the relations connected with production, storage, transportation, supply, transfer and consumption of the energy made from alternative sources;
6. Adherence to the conditions of rational consumption and energy savings produced from alternative sources;
7. Attracting domestic and foreign investments and supporting entrepreneurship in the field of alternative energy sources, including through the development and implementation of national and local programs for the development of alternative energy (Law of Ukraine "On Alternative Energy Sources", 2020).

The Law also deals with standardization in the field of renewable energy, in particular, by establishing the appropriate level of compliance with environmental, sanitary and hygienic requirements, the use of equipment of appropriate quality and so on.

The central point of the Law is Article 9-1, which is reflected in the Law of Ukraine "On Electricity", which regulates the issue of economic incentives for the use of alternative energy sources, in particular, the "green" tariff. According to the provisions of this article, the "green" tariff is set for electricity generated at electricity facilities from alternative energy sources (except for blast furnace and coke oven gases, and with the use of hydropower – produced only by micro, mini and small hydropower plants) (Law of Ukraine "On energy saving", 2020).

A "green" tariff is set for each business entity that produces electricity from alternative energy sources, for each type of alternative energy and for each power facility or for each stage of construction of a power plant (start-up complex).

The "green" tariff for electricity generated by generating installations of private households is set unique for each type of alternative energy source. Moreover, for each type of alternative

energy source (wind, solar energy, biomass energy, etc.) is set its own rate and its own coefficient (Law of Ukraine “About the electricity market”, 2021).

Returning to the characteristics of national law, it should be noted that it has a fairly high legal technique, as it provides for measures of accident and environmental protection during the operation of alternative energy sources, the basic principles of their operation and principles of international cooperation in this field (Law of Ukraine “On Alternative Energy Sources”, 2020). However, despite the legislative regulation of this issue, for the full development of such an important area as alternative energy, it is also necessary to define at the secondary level the main strategic goals and directions of its development and further improvement. These tasks were implemented in the Energy Strategy of Ukraine until 2035. As noted, Ukraine’s energy strategy entitled “Security, Energy Efficiency, Competitiveness” is a basic document of state energy policy, which defines the goals of the energy sector in accordance with the needs of economic and social development until 2035 and formulates the tasks of executive authorities. in the field of energy sector management. The name in the Strategy is defined as its slogan and generalization of the ultimate goals: “Security, energy efficiency, competitiveness”.

However, the lack of separate normative legal acts that would regulate certain types of alternative energy sources, as is the case in some foreign countries, remains a significant shortcoming.

Consider such legal regulation on the example of Poland as a member of the European Union. On the territory of the Republic of Poland there are both European Regulations, Directives, which establish the external model of behavior and policy of the state, and the norms of national legislation in the field of legal regulation of wind energy and renewable energy sources in general, as well as government documents. The main legal act is the Energy Law, which contains blanket rules and regulations on the application and use of alternative energy sources, including wind energy (Energy Law, 1997). In particular, the Law on Stimulation of Electricity Production at Offshore Wind Power Plants states:

1. conditions for providing support for electricity generated by offshore wind farms;
2. rules and conditions of preparation and implementation of investments in the construction of offshore wind farms;
3. rules for disposal of a set of devices for evacuation of energy and offshore wind farms;
4. requirements for the construction, operation and decommissioning of offshore wind farms (Ustawa, 2020).

Despite the significant and detailed legal regulation of wind energy in the country, there are shortcomings that delay the development of this area. As a result, the efficiency of this type of alternative energy is reduced. Thus, according to Rabe M., Streimikiene D., Bilan Yu. their research and introduction of an original, optimizing multi-criteria model of wind energy development in the region states that after the adoption of the Law of 20 May 2016 on investments in wind power plants (Ustawa, 2016), the cost of kWh of electricity will increase by 160% by 2030 (Rabe M, Streimikiene D, Bilan Y, 2020). Such disappointing forecasts may indicate an inefficient state energy policy and the use of a renewable energy model, which contradicts the pan-European strategy to reduce greenhouse gases and decarbonize production and the economy (European Green Deal).

In addition, Poland, like most countries in the world that have their own marine waters, is interested in the possibility of locating offshore wind farms within its economic zone, taking into account its potential (Anna Sobotka, Marcin Rowicki, Krzysztof Badyda, Piotr Sobotka, 2021).

Similar situations exist in other maritime areas and in other countries (R.C. Spijkerboer, C.Zuidema, T. Busscher, J., 2020). Such a state is, for example, the United States of America. There is a significant revival of the development of offshore wind energy by attracting investment and developing wind farm projects (X. Costoya, M. deCastro, D. Carvalho, M. Gómez-Gesteira, 2020). In the United States, jurisdiction over the relationship between energy and electricity is divided into two different levels of government: federal and state. At the national level, the Federal Energy Regulatory Commission has authority over all interstate and wholesale electricity trade. States have jurisdiction over intra-state relationships but have limited authority over facilities that provide services through government lines or participate in interstate wholesale electricity markets (I. Chernyakhovskiy, T. Tian, J. McLaren, M. Miller, 2016). In general, the legal regulation of alternative energy and wind energy in the United States originates from the Public Utilities Regulatory Policy Act (PURPA) of 1978 (which is still in force today, with amendments) (PURPA, 2002). The adoption of this law was due to the need to overcome the crisis caused by the oil embargo. The law was intended to allow small non-municipal energy producers, including renewable energy developers, to enter the market. But the most effective legal regulation is reflected in Orders 888 and 889 of the Federal Energy Regulatory Commission. The provisions of Order 888 on open access have significantly lowered the threshold for renewable energy producers to enter the market. Remotely located renewable energy generators, such as wind farms, could now use transmission networks to transport electricity to the most favorable markets instead of selling it to the nearest utility. On the other hand, open access to the energy transmission tariff has meant increased competition with a large number of buyers and sellers pushing for electricity tariffs by setting prices for renewable energy production outside many markets. However, the downside was that Order 888 allowed electricity suppliers to impose fines on producers that deviated by 1.5% from the planned electricity output. Given the unstable nature of renewable energy sources, especially wind energy, the volatility threshold of 1.5% did not allow wind energy to avoid fines. Because fines often exceeded the cost of commercial wind energy, wind project developers typically had to sell an unstable product to a company that could combine it with heat generation and resell it to the wholesale market.

Analyzing foreign legislation on the legal regulation of wind energy, we can conclude that there are countries that, despite all the necessary natural conditions, are not able to use the full potential of its geographical location. Each case may be individual, but something in common still exists. During a study of national legislation on the existence of legal regulation and administrative mechanisms for the introduction and use of offshore wind energy, which is considered an unconventional source of energy in Colombia, Juan Gabriel Rueda-Bayona, Andres Guzman, etc., concluded that in regulations, by-laws and state programs do not have a clear legal context for regulating the sustainable and safe use of offshore wind energy. In addition, the analysis of scientific research on this topic indicated the need to expand knowledge about wind energy (including marine) (Juan Gabriel Rueda-Bayona, Andres

Guzmán, 2019). Therefore, despite the significant potential of the country, due to the lack of legally regulated methods and mechanisms – the use of efficient offshore wind energy is simply impossible.

A similar problem is inherent in another country in South America, namely Brazil. According to Max Mauro Loser dos Reis, Bruno Mitsuo Mazetto and others. marine wind energy remains an undisclosed topic in the country. In their view, despite the significant potential, gaps in national legislation are still being highlighted. The result is a lack of legal regulation in this area and the possibility of introducing and using offshore wind energy in Brazilian waters. Although its potential is 450 times greater than onshore wind farms. Realizing the significant prospects for the national economy from the introduction of this type of alternative energy sources, Brazilian scientists have conducted and continue to conduct research to deepen knowledge and expand the scientific database, which will be useful for the implementation of international instruments or experience of other countries (Max Mauro Loser dos Reis, Bruno Mitsuo Mazetto, 2021).

CONCLUSION

Thus, the global policy that the last two decades has increasingly focused on the decarbonization of the world economy, industry, and electricity production with its desire to reduce greenhouse gas emissions, CO₂ emissions, etc. has created various programs and agreements on climate protection, restoration and implementation ensuring sustainable development to preserve the natural environment for future generations.

Also, this article conducted a study of the legal regulation of alternative energy sources and wind energy in the Republic of Ukraine, the Republic of Poland, the United States, the Republic of Colombia, the Federative Republic of Brazil. The analysis of normative legal acts of the studied national legislations made it possible to assess the extent and levels of compliance and fulfillment of international obligations of states. Namely, commitments regarding the transition from traditional means of energy production, which are major polluters of the environment to alternative energy sources, the use of which will have a positive impact on the condition and quality of air and climate conditions on the planet.

According to the legislation of Ukraine, alternative energy is of great importance for economic development. The existence of a comprehensive legal regulation of non-traditional energy in the country indicates that it is on track to implement long-term goals in accordance with its energy strategies and international obligations. However, the lack of a resource mechanism in the legislation to regulate alternative energy industries reduces the effectiveness of its application in practice.

Analyzing the legal regulation of wind energy in the Republic of Poland, we can conclude that a member state of the European Union has managed to develop all the necessary aspects of alternative energy. However, some legislation slows down and enables inefficient wind energy management, which can further negatively affect the implementation of international obligations.

Wind energy in the United States is developed, but not abandoned features. The two-level division causes the division of legal regulation of wind energy depending on the jurisdiction

into one that is national and one that is only at the state level. The scope of rights of electricity producers from alternative energy sources, including wind energy, depends on this.

Analyzing the availability and status of legal regulation of offshore wind energy in some South American countries, it becomes clear that despite the significant natural and geographical potential of states, safe and efficient use of such energy becomes impossible due to lack of a clear legal mechanism. In the Republic of Colombia and the Federative Republic of Brazil, there are no clearly defined national legislation that could regulate the safe and efficient use of wind energy.

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