

Energy security of the European Union – opportunities and challenges

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Abstract

For many years, the future of energy has been one of the most important problems and challenges for both national and global policy making. It is related to the high responsibility of the energy sector for climate change on Earth, but also for caring about ensuring sufficient energy for the future generations. Thus, energy policy is an important pillar of maintaining, broadly understood as internal security of the country. The biggest challenge related to ensuring energy security of the European Union is the diversification of energy sources. Member States are trying to tackle this challenge in two ways. Firstly, through the development of renewable energy, and secondly, looking for new channels for the supply of non-renewable energy. The restructuring of the energy sector, which has taken place in recent years, in accordance with the guidelines of the European Union, aims to intensify the use of environmentally friendly renewable energy sources. Equally important is the construction of the *Nord Stream 2* and *Turk Stream* gas pipelines, which has been ongoing for several years, which raises much controversy in the Member States. The article is an analysis of the opportunities and challenges facing the European Union related to ensuring stable energy supplies to European citizens.

Keywords: energy security, renewable energy sources, energy policy

Bezpieczeństwo energetyczne Unii Europejskiej – szanse i wyzwania

Streszczenie

Przez wiele lat przyszłość energii była jednym z najważniejszych problemów i wyzwań dla kształtowania polityki krajowej i globalnej. Jest to związane z wysoką odpowiedzialnością sektora energetycznego za zmiany klimatu na Ziemi, ale także z troską o zapewnienie wystarczającej energii dla przyszłych pokoleń. Polityka energetyczna jest zatem ważnym filarem utrzymania szeroko rozumianego bezpieczeństwa wewnętrznego kraju. Największym wyzwaniem związanym z zapewnieniem bezpieczeństwa energetycznego Unii Europejskiej jest dywersyfikacja źródeł energii. Państwa członkowskie próbują radzić sobie z tym wyzwaniem dwutorowo. Po pierwsze poprzez rozwój energetyki odnawialnej, po drugie poszukując nowych kanałów dostaw energii nieodnawialnej. Restrukturyzacja sektora energetycznego, mająca miejsce w ostatnich latach, zgodnie z wytycznymi Unii Europejskiej, ma na celu intensyfikację wykorzystania przyjaznych dla środowiska odnawialnych

źródeł energii. Równie istotną kwestią jest trwająca od kilku lat budowa gazociągów *Nord Stream 2* oraz *Turk Stream*, która wzbudza wiele kontrowersji w państwach członkowskich. Artykuł stanowi analizę szans oraz wyzwań stojących przed Unią Europejską związanych z zapewnieniem stałych dostaw energii obywatelom Europy.

Słowa kluczowe: bezpieczeństwo energetyczne, odnawialne źródła energii, polityka energetyczna

The basic task of each state is to provide its citizens with the broadly understood security. The catalog of the society's needs has been expanding over the years. In this context, however, the necessity to ensure the stability of energy supplies is constant. Initially conventional power engineering, in connection with the increase of ecological awareness of both entities exercising power, as well as society, slowly gives way to the renewable energy.

The energy of the European Union member states is largely dependent on the supply of energy raw materials and fuels from the Middle East and Russia. Thanks to import, about 50% of energy is produced. Forecasts, based on the current increase in energy consumption, predict that this state will deepen by up to 70%. The consequences of such a situation do not need to be presented to anyone – Europe's dependence on energy supplies (raw materials for its production) can cause not only an increase in prices, but also fluctuations in the economies of many member countries. According to the World Energy Council's (WEC) calculations, crude oil and natural gas reserves in the world at the end of 2005 are 159,644 million tones, which gives 1,215,186 million barrels of oil (World Energy Council 2019: p. 9–10). With an average consumption level of 3,725.5 million, oil and gas give us reserves for nearly 43 years. The situation looks better with coal deposits, which comprise 847,488 million tons of coal, what with consumption of 5,850 million a year gives a minimum of 144 years of reserves. However, natural gas production annually amounts to 2,796.6 trillion cubic meters, with resources of 176,462 trillion cubic meters, it will allow us to extract natural gas for 63 years (World Energy Council 2019: p. 14).

Accordingly, renewable energy sources (RES) play an increasingly important role in meeting society's needs around the world. Competitiveness of some technologies based on unconventional sources, currently reaches a level similar to technologies based on fossil raw materials. Moving away from a coal-based economy to increase the use of greener sources, resulting in lower emission to the atmosphere, can be an energy security not only on a local scale, but also on a national scale, and also improves the living conditions of the community. Diversification of energy sources is aimed at long-term maintenance of the energy security of a given country and independence from producers of fossil fuels. The national authorities, which are mainly responsible for the implementation of the concept of sustainable development, try to match European trends in the creation of a competitive market for renewable energy sources. The implementation of this principle applies, however, not only to the perceived economy of the achievement of sustainable development, but also to influence the natural environment, as well as to ensure an adequate quality of life for all people. The role of the state is,

therefore, to develop a model that will allow economic entities to develop in effective manner, ensuring continuous civilization development, which will not negatively affect the natural environment.

Since the beginning of the 20th century, there has been a significant change in the context of shaping the energy sector. The restructuring of this sector of the economy took place also in every EU Member States. Currently, there is a tendency to seek a balance between maintaining the importance of some market mechanisms that drive the energy market and maintaining the partial influence of the state on its formation. The role of the market primarily affects the maintenance of appropriate conditions, and strategic planning for which the government is responsible is important in the long-term perspective. Its prerogatives are often transferred from the national level to the supranational level, which is responsible for creating a legal framework for the energy market and for formulating a coherent energy policy limiting the negative impact on the environment.

The research problem is the question, what – considering the complexity of the issues which include individual elements of energy security, the international situation, legal aspects and the importance of security for the modern state – is the biggest challenge for European energy security? Member States' previous experience allows formulating the thesis that the main challenge in shaping the EU's energy security is ensuring diversification of energy sources. In this context, both Member States on its own and the European Union are looking for new energy sources – in particular renewable as well as new sources of conventional energy supply.

The essence of energy security

After the Cold War, the understanding of national security was extended by classifying the new areas of social activity in this aspect. One of the often cited by scientists is the division proposed by Barry Buzan into five major security sectors: military, political, social, economic and ecological. Security in newly defined areas, is called soft security, while traditional military security – hard security (Buzan 1991: p. 19–20).

In the aspect of ecological security, the main assumption is to preserve the natural environment at the level necessary for the survival and development of humanity. The term may refer to the environment as a whole or to its subsidies. It can be analyzed at various management levels. Ecological safety should be distinguished from the concept of environmental safety because it places greater emphasis on the ecological issues of human activity and puts the ecological system in the center of attention (Brauch 2008: p. 19). The reference subject of safety in this case is neither the state nor the individual but the ecological system as a whole. Ecological security consists of four main components: security of natural resources, which relates to competition for resources at global and local level, energy security, which includes access to energy sources necessary for the development of the country, environmental security in the traditional approach related to the issue of preventing environmental degradation natural and biological security, which refers to maintaining community health and stable biological systems (Allenby 2000: p. 14–15).

Energy security can be understood in many ways. The most common one is the definition included in the Energy Law Act, which defines it as the state of the economy enabling coverage of the current and future demand of consumers for fuels and energy in a technically and economically justified manner, while maintaining environmental protection requirements (Ustawa prawo energetyczne: p. 8). Experts in the field of energy define energy security as the ability to satisfy the demand for energy in terms of quantity and quality in market conditions, at a price resulting from the balance of demand and supply, while maintaining environmental protection conditions (Wilczyński 2014: p. 48).

All definitions of energy security proposed in various types of documents cover three main aspects. They include the energy aspect that concerns the balancing of demand and supply, as well as the technical issues related to infrastructure and management. The second is the economic aspect, which means the need to ensure the price of energy acceptable by final recipients specified in the contracts or tariffs.

The last, ecological aspect, concerns ensuring environmental protection and its good behavior for future generations (Borgosz-Koczwara, Herlender 2008: p. 2). This interpretation also refers to the need to fulfill commitments and other environmental standards. Several entities are responsible for its provision, the most important being government administration, local government administration, energy sector entrepreneurs and the largest energy receipts.

Energy security can be analysed in the objective, as well as the subjective dimension. The first one has three main points of view. First, the perspective of producers, which is a guarantee of demand. From the consumer's point of view, it means resource security, i.e. the obligation to ensure stable supplies of raw materials and properly balanced prices that react to market changes as well as the stability of political relations between countries that import and export energy resources. The perspective of transit countries through which raw materials are transported is also extremely important. The second aforementioned dimension of energy security concerns the subject criterion. As part of this categorization, energy security is understood through the strategic and political aspect, which concerns the influence of the foreign policy pursued by a country on the export and import of energy resources. The next interpretation takes into account economic issues. Security is understood by the amount of available raw materials at a predetermined price. In the ecological aspect, the impact of the use of specific energy resources on the state of the natural environment in a given country is considered. The last aspect concerns infrastructural issues. Energy security is translated in the context of how to manage and develop the infrastructure necessary to ensure sustainable energy supplies in a given country.

Among the factors affecting the assurance of energy security in a given country, one can distinguish primarily: the level of diversification of supply directions, diversification of sources, issues related to fuel storage on the territory of a given state, the degree of privatization of enterprises functioning in the energy sector, reliability of the energy supply system and its transmission, the role of the state in supervision and the degree of ordering of the energy sector coordination system, planning, as well as development

and investment decisions, uniformity of the situation within the country and on the international arena (Czerpak 2006: p. 26).

Threats to security can be divided according to the time criterion into short-term and long-term (Bachman 2017: p. 15). The first group includes breaks due to technical problems, weather anomalies or political disruptions in importing and exporting countries. On the other hand, the second group includes, first of all, supplies that do not meet the demand of a given country for energy. They may be caused by actions taken by economic, financial or political entities that hinder investments in production or transport of given raw materials. At present, a cyber-terrorist attack that could temporarily reduce the functioning of critical energy infrastructure is also a big threat. However, the biggest problem is the possibility of total depletion of conventional sources, and therefore, many countries (including Poland, whose economy is still the most reliant on non-renewable energy resources) are facing the challenge of ensuring energy security based on other sources.

Legal aspects of the renewable energy sources functioning

The intensive development of renewable energy sources in most Member States began in the 1990s. The construction of the first installations using wind, solar, geothermal and biomass energy was started. Although, at that time there were already a few installations using water energy, public awareness of renewable energy sources was not common. The development of the market based on unconventional raw materials came out from the interest of private investors in the use of this type of energy sources. Another turning point in the development of RES was the introduction of legal regulations at the international level, which somehow forced the nation states to develop this energy sector.

Modifications of the national energy law were introduced mainly due to the need to implement Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market. The document assumed the use of renewable energy at the level of 22.1% in the perspective until 2010. After the enlargement of the European Union in 2004 by 10 countries with a much lower level of development of renewable energy than in old Member States, the assumed level was reduced to 21%. The White Paper of 1997 *“Energy for the Future”* also obligated the Member States to achieve a 12% share of renewable energy sources in national gross energy consumption by 2010 (European Commission 1997; Pultowicz 2009: p. 107).

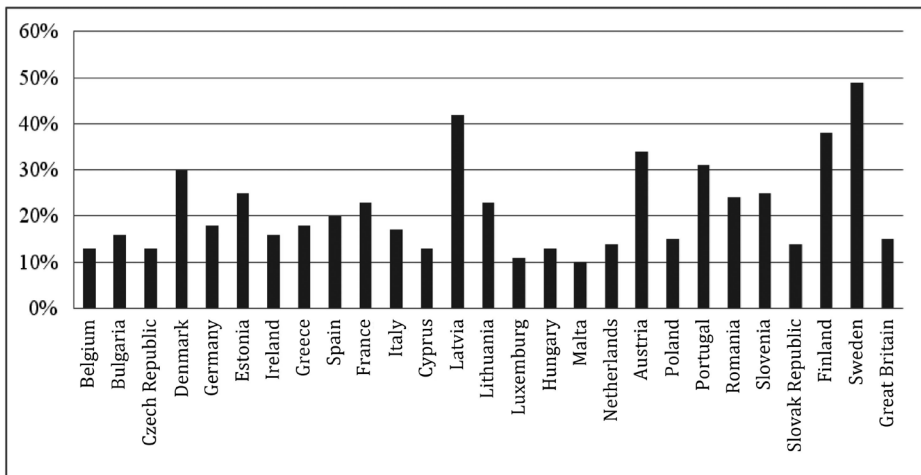
In 2005, the EU countries also committed to developing a coherent energy policy based on the pillars of competitiveness, sustainable development and security of supply. The legitimacy of such a policy was confirmed by repeated disputes over gas between Russia and Ukraine, as well as geopolitical tensions in North Africa and the Middle East. Another important document in the field of energy was the Green Paper of March 8, 2006 *“A European Strategy for Sustainable, Competitive and Secure Energy”*. In line with the recommendations contained in this document, measures to increase energy efficiency

will only bring profits if the initiatives undertaken at the international and national levels are duplicated at the local level. The *Green Paper* (Commission of the European Communities 2006) also lists the benefits that will be achieved through the implementation of tasks at many territorial levels:

- 1) increased competitiveness of the European Union resulting from energy savings;
- 2) increasing the employment level;
- 3) significant reduction of greenhouse gases polluting the atmosphere;
- 4) increasing energy security by reducing energy demand.

In 2007 and 2008, activities on the European forum were conducted to combat global warming and significant emissions of atmospheric pollutants. These activities resulted in the adoption of the so-called 3x20% package, which obliged Member States to reduce greenhouse gas emissions by 20%, to increase energy efficiency by 20% and to achieve a 20% share of renewable energy sources in the national energy balance. These values must be achieved by 2020. At the forum of the European Parliament in 2009, it was stated that pre-established values should in fact be much higher, therefore in 2011, the so-called energy road map by 2050 and a plan for the transition to a low-emission economy were developed (Ciepielewska 2016: p. 12).

Figure 1: Estimated share of renewable energy in gross energy consumption in 2020



Source: (GUS 2012: p.12)

Another extremely important document for renewable energy is the EU strategy for smart, sustainable and inclusive growth *Europe 2020* (COM(2010) 2020 final). This document includes the European Union's priorities for employment and economic growth. The implementation of the strategy started in 2010, and its main objective is to create the conditions for smart, sustainable and inclusive economic growth. These priorities are related to the achievement of 5 assumptions for various areas of life by 2020: employment,

investment in research and development, environmental issues, education and the fight against poverty. From the point of view of energy policy, the most important issues raised in the strategy are related to climate change and sustainable energy use. The strategy *Europe 2020* assumes reduction of greenhouse gas emissions by 20% compared to 1990 level, and even by 30% if conditions are favorable. The 20% of energy should be obtained from the renewable energy sources. Energy efficiency should be increased by 20% (see: *Europe 2020 Strategy in a Nutshell* 2012). Therefore, the objectives of the strategy are reproduced by those included in the climate and energy package. The progress in implementing the strategy is being monitored within the European Semester, which aim is to coordinate the economic policy of the Member States of the European Union.

The EU energy policy framework is currently defined by so-called EU energy policy framework. The framework includes a package of 8 legislative acts that help to shape the Energy Union and meet the EU's Paris climate commitments. The last legal acts were adopted in May 2019 (Energy Union for Europe 2019). The new rules will make the EU electricity market more competitive, more consumer-oriented and more flexible. Consumers will have more rights and will be able to participate in the market as active clients. Electricity suppliers will be able to set their own prices, which will reduce market distortions, increase competition and lower prices for consumers. The new rules on turnover and balancing obligations will allow the power system to receive energy generated from renewable sources with unpredictable production characteristics. The new act on how to prevent, prepare for and manage electricity crises will increase energy security throughout the EU. The regulation will oblige Member States to draw up emergency preparedness plans based on regional and national electricity crisis scenarios. It also provides for greater cooperation and easier assistance between Member States in the event of such a crisis.

In conclusion, the old law frameworks did not encourage entrepreneurs to invest in renewable energy sources. Excessive bureaucracy in the process of obtaining permits prevents many people from successfully commencing an investment. Potential in using energy from non-renewable sources remains unused, which may in the future result in the problem of ensuring stable energy supplies, as well as the intensification of problems in meeting the ecological requirements imposed by the European Union law. The legal framework changed in 2019 is create to change the attitude of entrepreneurs and facilitate the market entry of renewable energy producers. It will be possible to assess their real impact on the energy market in a few years.

Challenges for the development of renewable energy sources on the example of Poland

According to the current report about renewable energy, most Member States will achieve their targets for the level of energy production from renewable sources. The share of renewable energy in heating and cooling services in 2014 was estimated at 16.6% (European Commission 2015: p.3). Heated energy sources are increasingly used as

a cost-effective and safe alternative to fossil fuels in the application of warm state entitlements at a specified level.

Currently, 26% of EU energy uses renewable sources. Around 10% of total EU electricity with changes in energy sources and variable characteristic productions (such as wind or solar).

Achievements in renewable energy for 2020 will remain fully available for the EU as a whole and to some Member States. However, based on a comparative and planned assessment, it can be found that most countries need to meet or exceed their 2020 targets for the updated energy (Renewable Energy Progress Report 2019: p. 3). Nineteen Member States – including, for example, Austria, Estonia, Denmark, Germany, Italy, Lithuania, Romania and Sweden – may exceed their 2020 renewable energy targets implementing planned policies for the renewable energy.

Some countries (including France, Luxembourg, Malta, the Netherlands, the United Kingdom, and to a lesser extent Belgium and Spain) should be assessed, whether their policies and instruments are sufficient and effective in achieving their energy resource targets. Reaching renewable energy coverage in 2020 is not particularly important for Hungary and Poland (Renewable Energy Progress Report 2019: p. 6).

The development of renewable energy sources in Poland began with the initiative of small investors who were the first to notice their energy potential. There were few non-governmental institutions and foreign experience to support investors. In the initial phase, the development of RES took place entirely without the participation of state institutions (Bogusz-Koczwara, Herlender 2008: p. 13). The increase in prices of fossil fuels was indicated as the main reason for interest in new energy sources. As shown in the table below, renewable sources accounted at the beginning of 2017 for about 15% of installed capacity and accounted for around 7% of electricity production in Poland.

Table 1: State of the National Power System in 2017

Type of power station	Power (MW)	Production (GWh)
Proffesional water power plants	2 296	2 399
Thermal power plants	30 097	138 328
Coal power stations	19 155	813 48
Brown coal power plants	9 332	51 204
Gas power plants	1 610	5 776
Wind power plants and RES	6 344	11 769
Total	38 737	152 496

Source: Own study based on statistic data of the Polish Power System 2017.

The main source of renewable energy in Poland is biomass, and state institutions have the greatest hope for the future concerning it. The share of biomass in the fuel balance in Poland is increasing with each subsequent year. The accumulation of biomass can be an opportunity for the development of agriculture in many regions of Poland,

which in the longer term will translate into a reduction in unemployment in some regions of the country. These benefits can only be achieved when determining the appropriate national or regional policy to support local initiatives to build small installations producing renewable energy. Biomass can be directly incinerated in the form of solid biofuels such as wood, straw, energy crops, gas plants in the form of biogas or processed into liquid substances such as oil or alcohol. Biogas can also be a support for energy wastewater treatment plants, often financed by local government.

As far as wind energy is concerned, the countries with a long shoreline have the greatest potential to use this energy source, because the wind blows in such regions most intensively and most often. This type of energy is developed primarily in Denmark, Germany, the Netherlands, Spain and Portugal. Poland has no climatic conditions for the development of this type of energy production. However, the Pomerania and Suwałki Region have the best potential. Wind energy is associated with the problem, that its too big share in the energy balance of a given region may cause temporary changes in voltage parameters, which exposes very sensitive consumers to losses caused by interruptions in energy production resulting from windless periods. This issue is a serious limitation and it also discourages small business from using this type of electricity source.

An interesting solution, the use of which in Poland is becoming increasingly popular every year, are solar systems. Solar energy can be produced anywhere in Poland. Such installations are the most often used in residential and service construction. The use of solar energy in public buildings is also quite common. Theoretically, technical potential of solar energy in Poland is very high. In addition, such installations are willingly co-financed from the EU funds, which undoubtedly encourages their assembling.

Until now, the share of energy from renewable sources in the overall energy balance has been growing at a satisfactory pace, faster than expected from commitments. In 2014, the share of renewable energy amounted to 11.45%, while the target for this year was 9.5%. Thus, Poland achieved a better result, than e.g. France or Great Britain. However, the situation looks worse when we look at the pace of change. According to it, the achievement of the required 15% share of RES in energy production in Poland may not be achieved. The analysis of the trend of the last five years demonstrates that in 2020 the share of the renewable energy will be 14.9% (Raport 2016).

On the other hand, applying only on the basis of the growth rate in 2013-2014, Poland will reach by the end of 2020 only 12.2% share of renewable energy sources in the energy balance, thus it fails to meet the level assumed in the EU commitments. The situation can be saved by the rapidly growing wind energy sector. Windmills in Poland in 2015 produced over 5 GW of power, while the governmental National Action Plan for RES assumed production at the level of 3.5 GW (Raport 2016). Biomass-based power plants, which once played a dominant role in the production of renewable energy, are currently achieving a much lower level of development. In 2015, energy production from biomass amounted to approximately 1 GW against expected 1.5 GW. The transport sector may have the greatest influence on the failure to reach the required European Union index. The downward trend in green energy production is currently dominating

instead of planned growth. In 2014, the production of renewable energy (mainly from biofuels) amounted to 5.67% while the national government assumed a share of 7.48%. If this trend is maintained, the share of renewable energy in transport will fall below 5%. The EU commitments take into account specific objectives, one of them is to achieve a 10% share of renewable sources in energy production for transport, which Poland will most likely fail to meet.

Nord Stream and Turk Stream as a chance for diversification of energy supply?

For 20 years, natural gas – unlike two other major fossil fuels: oil and coal - has played an increasingly important role in meeting Europe's energy needs. Currently, gas accounts for almost 25% of the EU's gross internal energy consumption, in particular in home heating and electricity production. However, the importance of gas varies from country to country – in countries such as the Netherlands, Italy and the United Kingdom, gas plays a greater role than in Sweden, Estonia or Finland. At the beginning of 2019, Malta received the first ever supply of liquid gas, and Cyprus is just beginning to search for gas (European Parliament 2019). The European Commission would like every EU country to benefit from at least three independent sources of gas supply. The European Union imports two-thirds of its demand for natural gas – via pipelines or by sea through terminals (gas ports). More than a third of these imports come from Russia, and gas is also purchased in Norway, Algeria and Qatar. Most EU countries depend entirely or almost entirely on gas imports, with some being the main or sole gas supplier is Russia. Dependence on one supplier or one means of gas transport is risky for security of supply (e.g. technical disturbances and faults, political or economic disputes over gas prices, as between Russia and Ukraine in 2006 and 2009).

Currently, two gas pipelines are being built: *Nord Stream 2* (55 billion cubic meters) and *Turk Stream* (31.5 billion cubic meters), which are supposed to displace gas transit through Ukraine and strengthen the position of Russian gas on the European market. According to the plans of *Nord Stream 2*, it was to be completed by the end of 2019, however, due to the fact that Denmark proposed a different version of the route (which involves the need to carry out an environmental impact assessment), this deadline will be extended (Brzozowski 2019). Construction of the pipeline is opposed by Central and Eastern European countries, and the United States has repeatedly expressed its disapproval of this project. *Turk Stream*, which one thread (15.75 billion cubic meters) is to supply gas to the Turkish market, and the other one, the so-called *Turk Stream 2* for the European market, are supposed to be ready by the end of 2019.

Works are also underway on diversification projects supported by the EU's Project of Common Interest. Among them, Trans Adriatic Pipeline is being built as part of the Southern Corridor. Trans Adriatic Pipeline with a transmission capacity of 10 billion cubic meters will deliver Azerbaijani gas and Baltic Pipe to Europe from 2020, which will enter into operation in 2022 and will transported Norwegian gas to Poland.

The diversification of energy sources is also important because at the end of 2019, the contract for the transit of Russian gas through the territory of Ukraine expires. Future of the gas supply using the Ukrainian transmission system is the subject of triologue negotiations, in which the European Commission (EC), Ukraine and Russia participate (Brzozowski 2019). Gazprom has already announced that it will stop supplying gas to Turkey via Ukraine and Bulgaria from January 2020 (despite the current contract for transit with Bulgaria until 2030) (*Gazprom stops...* 2019). At the same time, the Bulgarian transmission system is involved in running the European branch of *Turk Stream* through Bulgaria, which could become a Balkan energetic supply.

In total, both gas pipelines, *Nord Stream 2* and *Turk Stream*, account for 70.75 billion cubic meters of additional capacity for Russian supplies transported to the EU. This means an oversupply of transmission capacity to the eastern part of Europe. For comparison, diversification projects amount to 20 billion cubic meters for gas from Norway and Azerbaijan. Currently, Ukrainian transmission capacity towards the EU and Turkey amounts to 146 billion cubic meters. Due to the approaching end of the transmission contract, the Ukrainian side claims that it is not profitable for them to maintain transmission below 40 billion cubic meters per year, and the Russian side talks about the possible maintenance of transit at the level of 10–15 billion cubic meters per year. Considering the volume of Ukrainian transit with high *Nord Stream 1* exploitation, the construction of *Nords Stream 2* and *Turk Stream* (a total of 86.5 billion cubic meters) is able to almost completely replace transport through Ukraine. The delay in the construction of *Nord Stream 2* and the increase in gas imports by the EU make possible to extend the transit of 40–50 billion cubic meters in the short-term and long-term maintenance of transit at the level of 20–25 billion cubic meters. For Ukrainian and EU's interests, this is an unsatisfactory solution which does not guarantee that Ukraine will maintain a stable position as a transit state. In Union's interest is maintaining transit through Ukraine as part of stabilizing its direct neighborhood and creating better conditions for exporting its regulations. In parallel with the policy of diversifying sources and directions of supply, leaving some of Ukraine's supplies to the EU is a form of guaranteeing energy security for the EU and building Ukrainian international status as a reliable partner. In the face of a potential crisis, the EU will have an additional argument to engage in its resolution and strengthen its position in the region. In addition, Ukraine is a member of the Energy Community, in the structures of which it is reforming its energy sector thanks to the implementation of the EU regulations aimed at adapting the Ukrainian market to the requirements of the EU market.

Although the delay in the construction of *Nord Stream 2* improves the EU position in discussions about the future of gas transport through Ukraine, it does not give prospects for a long-term solution. The situation is significantly complicated by the presence of the second Russian project, *Turk Stream*. Usually, the EU works effectively when it determines access to its internal market based on a system of regulations and standards. The reality shows that in the case of relations with Russia, in the conditions of a huge divergence of opinions at the intergovernmental level in the EU, this approach is insufficient. The construction of *Nord Stream 2* and *Turk Stream* shows the asymmetry in

the implementation of energy projects by Russia and the European Union. Therefore, the EU's weakness is the lack of political will (due to the differences in Member States' interests) at the intergovernmental level and the lack of a political approach at the supranational level in the form of the European Commission, which results in the inability to effectively enforce the EU interest.

Conclusions

It is the responsibility of many institutions to ensure energy security. The competences in this respect are primarily provided by state administration bodies, local government institutions, energy sector enterprises and the largest energy recipients in a given country. Therefore, coordination of activities undertaken by the above institutions becomes extremely important. Many aspects of energy security require that coordinated actions are carried out in a different way and that it cannot be fully provided to citizens. In addition to its own efforts to increase energy security, it is also important to be active on the EU forum, to influence the energy policy of Brussels and to use its assumptions to achieve a joint sustainable development of European countries.

Renewable energy sources in both Europe and Poland have been of great interest in recent years, primarily due to the need to increase Europe's energy security by reducing the dependence of Member States on imported fossil fuels such as coal, oil and natural gas. Secondly, it is equally important to ensure environmental protection by reducing greenhouse gas emissions, and in particular by reducing emissions from fossil fuel combustion.

Moreover, energy security is an extremely important element in achieving the economic security of a given country. Activities in this area should be aimed at the rational use of available energy resources, as well as at searching for the new ones. Despite the fast development of renewable energy, which may be adapted to the needs and capabilities of a given country, Poland still does not express much interest in this kind of the energy sources.

Analysis of the energy policy of the entire European Union demonstrates, that the EU have no chance to block the expansion of the gas pipeline. Alternatively, the project may be still delayed. The fact that Gazprom will simultaneously be the owner of the gas pipeline and the gas supplier, also draws special attention. Theoretically, the European Commission should not agree to this, taking into account one of the key assumptions of the Energy Union, which states that one company cannot be responsible for transmission and extraction at the same time.

There is still no clear and easy solution to the problem of lack of political will in the intergovernmental dimension of the EU. However, these difficulties can be reduced to some extent by postulating the adoption of a more active political role by the EC. Manfred Weber, head of the EPP faction in the European Parliament and a candidate from the group for the position of President of the European Commission, during one of the meetings discussed the need for a greater political role of the EC in the context of China's expansion in the EU market and the EC blocking the merger between Alstom and

Siemens. He suggested that the EU must be more open to the possibility of political use of competitive regulations to create European industrial champions. These proposals can be efficiently transferred to the EU's energy relations with Russia, which show that rigid compliance with regulations does not always bring the expected results. Therefore, setting the EU policy towards Russia in a geopolitical context and interpreting it in the spirit of EU interests could result in better EU political efficiency.

As the above considerations show, the European Union's energy security is ensured by encouraging Member States to diversify their energy sources. Considering the global trend of sustainable development, the development of renewable energy is promoted more than providing various sources of conventional energy. Both solutions form the basis for political discussions, but environmental issues are prioritized which results in greater involvement in regulation at EU level of issues related to renewable energy sources.

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