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Poland's Natural Gas Energy Strategy in the Context of the European Union's Energy Policy

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Abstract

This article on *Poland's Natural Gas Energy Strategy in the Context of the European Union's Energy Policy* discusses key problems related to the functioning of the Polish fuel market in the field of resources, production, consumption and especially raw material supply. For more than a dozen years, Poland has been a member of the European Union and together with other member countries that form a community, it has created a political and economic reality in the area under the authority of theEU organization. One of the community's key tasks is to ensure the security of Member States, within the framework of economic policy conducted by these countries as well as European Union institutions. Energy security is an important a part of this policy. The author of this article undertook the task of analyzing the situation in the Polish natural gas sector but taking into consideration the European conditions. The article outlines the prospect of future developments andspecial emphasis is placed on a discussion of the projects aimed at the diversification of natural gas supplies to Poland and those that concern the diversification of blue fuel supplies as seen more broadly from the perspective of the European Union. Some of these projects are currently implemented, some are still in the study phase, and some will probably never reach fruition.

Keywords

Natural gas, Energy resources, Fuel market, European Union, Natural gas storage facilities, Diversification, Pipelines

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Introduction

Energy policy is one of the most important challenges facing a number of countries regardless of their position, role, or importance in international politics. The differences in this policy arise from the possibilities and limitations resulting from access to energy resources, transmission routes, and the economic power represented by a given actor in international relations. No efficient functioning of states or nations is possible without access to a supply of energy resources and its sources. Energy resources, it should be stressed, are often used as a tool for creating international relations, both in economic and political terms. Countries which have at their disposal raw energy resources, in addition to profits from their sale, use them to obtain numerous political and economic concessions, thus building their position and strength. The policy defined in this way is in line with the realities of soft power. Some political commentators draw attention to the fact that countries having oil and gas in relation to countries importing raw materials is becoming more rigid. There are many historical examples of this reality, from the Middle East crisis of 1973 to the 'gas war' between the Russian Federation and Ukraine in the first years of the 21st century. Hence, Poland, a country found at the junction of two political worlds, is forced to generate an effective energy strategy based on diversification of natural gas supplies to reduce the economic pressure defined by the price of raw material, as well as the political pressure based on the security of supplies.

Poland's geopolitical location forces state authorities to undertake activities aimed at ensuring an extensive diversification of natural gas supplies. This concerns both the sources from which the raw material can be obtained and transmission routes, including those using conventional installations, as well as modern technologies in the form of gas ports. Unfortunately, many of the decisions taken are politically motivated, often referring to the history of the country or, more broadly, the region, which precludes a proper economic calculation and analysis of profits and losses. This reality has, and will probably continue to have, a negative impact on the assessment of Poland's energy security.

This research made use of studies as well as articles appearing in scientific journals and individual books. Additionally, an important supplement to the sources used for the substantive analysis of the problems discussed here was online reference material, allowing the author to follow current energy-related developments relevant to the subject of the article.

This contribution is based on the use of the case study method. According to the author, it allows for effective interpretation of facts and events subjected to problem analysis. The method was complemented by the scenario method, which made it possible to refer to the prospects for the development of the natural gas market in Poland and to forecast developments in the European energy sector.

Poland's energy strategy

Poland does not own enough natural gas resources to become a self-sufficient country in energy. The total volume of natural gas deposits does not exceed 650 billion cubic meters, and according to geologists only 125 billion m^3 is exploitable. Some hopes were pinned on unconventional gas sources, but they turned out to be an unrealistic resource.

Currently, Polish natural gas deposits provide approximately 25% of the total domestic consumption demand. In the 1970s, it was over 50% but with the development of industry and consumer infrastructure in the form of individual households, there has been a steady decrease in produced raw material versus the growing demand. In the future, with further dynamic growth demand for natural gas, another decrease in the share of domestic production of natural gas in the overall balance of its consumption can be expected. The latter will increase within a decade from the current 20 billion m^3 annually to nearly 30 billion m^3. Such growth is a result of the country's dynamic economic development as well as further gasification to areas deprived of access to this energy resource. Also of significance are the increasingly stringent environmental standards that relate to the electricity generation process. A majority of the electrical and heat energy produced in Poland is based on coal and lignite, which unfortunately are highly emissive and therefore harmful to the environment. The growing public awareness of the negative impact of gas emissions on the environment is putting increasing pressure on governments to implement an effective decarbonization process. It is worth noting that burning natural gas to produce electricity or heat is almost 30% less harmful to the environment than burning coal. Hence, the progressive decarbonization process in Europe and the increase in demand for natural gas (Szuflicki, Malon, Tymiński, 2019, 11–30).

Currently, Poland imports gas from several sources, among which the most significant supplier is Russia , with almost 40% of the demand for raw material from Russian sources. The gas is supplied by the Russian side to Poland via the Druzhba pipeline network running through the territory of Ukraine and the Yamal pipeline built in the 1990s, which runs through Belarus and then through the territory of Poland to the Federal Republic of Germany. The transmission capacities of both installations currently allow for the transmission of more than 100 billion m^3 of gas per year, which is more than 50% of total Russian exports to the European fuel market. However, with Russian plans to build a new gas pipeline between Russia and Germany, called North Stream 2, the possibility of Russia abandoning existing natural gas transit routes has appeared on the geopolitical horizon. Poland and Ukraine would lose any possibility of influencing the EU energy policy in relation to the largest exporter of blue fuel. Not surprisingly, the Polish authorities have accelerated actions aimed at increasing independence from natural gas suppliers from the east. A decision was made to expand the liquefied gas terminal in Świnoujście, and to increase its target capacity to 7.5 billion m^3 per year (temporarily to 6.3 billion m^3). At the same time, there is also talk to expand it further or to construct a new installation enabling reception of LNG. As a bridging solution, the rental or purchase of a floating LNG terminal is envisioned with the capacity to reach 3.5 billion m^3 of natural gas. However, Poland's greatest hopes are linked to the construction of the Baltic Pipeline, through which raw material is delivered from Norway resources. Norway is the second largest exporter of gas for Europe via Denmark to Poland. This pipeline is to have a capacity of 13 billion m^3 of gas annually, out of which 10 billion m^3 is to be supplied to Poland and nearly 3 billion m^3 to Denmark. It is worth emphasizing that at present Poland could possibly obtain quantities of gas on the free market, by using the gas network which is at the disposal of Member States of the Community. It is in this way that we may receive certain, smaller amounts of gas through a network of interconnectors. We have such connections with Germany and the Ukraine. In the latter case, however,

we cannot expect more raw material supplies as the Ukraine does not have sufficient production capacity, although it does have significant raw material resources. This is a result of a number of factors, such as political instability combined with a lack of security which effectively prevent the implementation of larger investment projects. Thisinternal conflict was caused by Russia, so the Ukrainian energy policy is still very reactive. This will not significantly change in the future because such changes are predicated on the foreign policy of Russia, which is unlikely to happen. Therefore, Poland harbors greater hopes for the implementation of further infrastructural investment projects within the European Union. At present, works on the construction of interconnectors linking Poland with Lithuania and Slovakia are being completed. In the former case, small supplies of gas are possible using the existing LNG infrastructure in Lithuania (Zaniewicz, 2018; Sumara, 2015. BP, 2019)

Poland had some hopes linked to prospects of using shale gas deposits. At the end of the 1990s, a discussion began on the possibility of using unconventional gas deposits by European countries, including Poland, which continues to this day, albeit with less intensity. The exploitation of shale gas deposits in the United States and Canada was cited as an example. However, the geological factors and location of these countries shale gas deposits were not taken in to account. Initially, the volume of shale gas resources in Poland was estimated at 5.2 trillion m^3. With time, the forecasts were significantly reduced. Currently, it is estimated that the deposits which can be tapped into hold no more than 350 billion m^3 of the raw material. Taking into consideration the environmental conditions related to the hydraulic fracturing used in drilling and the location of bituminous shale in the geological structure of the countries' rocks potential production possibilities must be treated with caution. At present, there is no major project in this field in Poland. Only works aimed at finding deposits and determining their size are being conducted. According to many experts in the natural gas market, the production of raw material from deposits found in Poland is currently not only technologically complicated and dangerous for the environment, but also economically unprofitable (Miłosz, 2015).

Another example at attempts to diversify the sources of natural gas supplies to Poland are activities aimed at taking over deposits found outside the country by purchasing shares. Thus, Poland is making efforts to gain direct access as the owner of majority stakes to deposits in Norway, Kazakhstan, and Africa. Unfortunately, in the case of African and, to some extent, Central Asian deposits, the problem is still the ability to ensure the safety of gas extraction and its later transport. Poland does not have these capabilities. The region of Central Asia is dominated by Russia and China, who are reluctant to look at the actions of competitors, and the Polish initiative would be interpreted as such. Therefore, vaguely outlined projects in this area should be approached with caution (Furman, 2021).

Natural gas storage facilities are of importance in Poland's energy security strategy. Currently, the country has six natural gas storage facilities whose capacity allows for storing a gas equivalent of two months' consumption of the raw material. These include sitesin Kosakowo, Mogilno, Swarzów, Husów, Strachocina, Brzeźnica, and Wierzchowice. The total storage capacity of the entire blue fuel storage system is 3.72 billion m^3 of natural gas. The Polish Gas and Oil Company (PGNiG), which owns the natural gas storage facilities, has decided to expand and modernize the facilities to increase their storage

capacities, which will enable the company to supply gas in the amount corresponding to three months' demand for the raw material. However, it should be remembered that the demand for natural gas will grow dynamically and at the end of 2030 will reach 30 billion m^3 of raw material annually, which would mean an increase of almost 30%. The future reality requires the construction of new natural gas storage facilities. Basing the country's energy security strategy on this may prove to be far from sufficient. It should also be noted that the European Union supports this construction and expansion, including modernization, of the existing natural gas storage systems, seeing in it the possibility of boosting energy security of the entire Community (MAG, 2020; POD, 2020).

Energy Strategy of the European Union

The European Union has at its disposal small resources of natural gas, which does not allow for self-sufficiency nor any serious contribution to the task of supplying EU residents with the raw material necessary for the functioning of the economy. Despite the passage of years and an unfavorable history, the Community, defined as 26 states as well as an institution, has not managed to work out a uniform energy strategy. There are many reasons for this situation. The main reason is the domination of national policies over Community policy. Germany's strategic interest, i.e., striving to build a strategic energy partnership with Russia, is different from that of Poland, which is politically and economically much weaker. According to the concept adopted by the authorities of Germany, it is to become an energy hub in the near future, redistributing Russian raw materials throughout Europe. In this way, Germany would not only gain a serious economic advantage in the form of gigantic revenues from sales of natural gas, but also a political advantage, which would translate into strengthening its position as the dominant player on the European political scene. Poland and other countries in Central and Eastern Europe are reluctant to adopt such a political and energy vision. This is due to fears of domination by the Russian-German tandem, underpinned by historical experiences difficult for this part of the Old Continent. The latter stay largely alien to countries once on the other side of the former Iron Curtain. For this reason, Poland, in addition to building an energy independence perceived through the prism of natural gas supplies, are trying to ensure a supply alternative to Russian resources. The assumption is that in the future it would be Poland and not Germany which would be the main gas hub of a united Europe. However, this will probably never materialize. Given the Russian-German potential, Poland's capabilities are so limited that, despite the declared support of the United States, the implementation of a policy defined in this way appears to be a fantasy calculated for the purposes of an internal political campaign. The international situation is not favorable either. The focus of American foreign policy has shifted towards Asia. The U.S. faces many years of a complicated economic confrontation with China. The European theatre of political events is of secondary importance to the administration in Washington. It even seems that the Americans are ready to sacrifice certain hitherto seemingly unshakable principles in their European policy for the sake of a constructive dialogue with Russia, counting on its neutrality in the growing dispute with the Middle Kingdom. To what extent these political calculations are consistent with reality is another matter. As far as energy policy is concerned, it is hard not to get the impression that there has been a serious shift in the policy of the United States from hard to soft power. This

is evidenced by the American withdrawal of sanctions against North Stream 2. America have given tacit consent to the implementation of the German variant of a European energy policy. On the other hand, the temporary block on construction of the Baltic Pipeline, which, contrary to the assurances of Poland, may result in delaying or even stopping the investment, is reportedly a cause for concern. The fact that the contract for natural gas supplies from Russia to Poland expires at the end of 2022, the energy balance of Poland will be, according to various data, short of 4 billion to 8 billion m^3 of the raw material, which results from forecasts of a dynamic increase in domestic consumers' demand for natural gas and limited possibilities of its production in Poland. Then the country will be left with either having to purchase raw material on the free market under short-term contracts and supplying natural gas using the interconnector system or signing another short-term contract with Russia. The latter, however, does not necessarily have to agree to this given the negative or even hostile stance of Poland towards the energy strategy pursued by the Russian side. It therefore seems essential to strengthen rather than weaken Poland's involvement in the European Union's energy policy, despite its obvious weaknesses. There is simply no other way. Poland's energy policy, which is independent of Community institutions, is not capable of producing good results in the diversification and security of natural gas supplies. Unfortunately, there is no such determination on the part of Poland's state power elites. What is more, the actions of the Polish authorities tend to be very destructive, not to say unfriendly, in the common energy policy of the European Union, and certainly not conducive to compromise solutions. This does not bode well for the future both in terms of the energy policy of the Community and the energy strategy of the Polish state (Miciuła, 2015, pp. 57–67; Zajączkowska, 2011, pp. 81–96; Sallet, 2021).

Polish position on the energy policy of the European Union in the field of production, transmission and import of natural gas

Since the collapse of the Soviet Union and the emergence of new nation states, as well as the regaining of full sovereignty by the countries hitherto under Soviet rule, Poland has sought to limit Russian influence not only on itself, but also on the entire region of Central and Eastern Europe. The past three decades, which have shaped the geopolitical situation on the Old Continent, can be divided into two periods. The first, from 1990 to 2000, was a time of marked weakening of Russia, whose significance in international politics was clearly diminished. The second period after 2000 was associated with the seizure of power by Vladimir Putin. This was a time when Russia's position as a superpower was being strengthened, not only in the former USSR, but in a wider global context. One of the tools for shaping international relations, both economically and politically, has become energy resources, especially natural gas. Excluding Poland's own resources, the consumption of natural gas in the country in the 1990s was entirely dependent on imports from Russia. The Russians skillfully used their monopolistic position to obtain economic benefits from gas trade with Poland. Subsequent agreements with the Russians were unfavorable to Poland, not only for political reasons, but particularly, and this needs to be emphasized, from an economic point of view. It is worth noting, however, that Poland itself has, to a large extent, contributed to this by generating, as the key entity selling gas to the Polish state, not the Russian company Gazprom, which would seem rational and logical, but a private company Bartimpex, owned by the Polish entrepreneur Aleksander

Gudzowaty, which is unique on a European scale and testifies to the lack of transparency in gas trade in the last decade of the 20th century. The consequences of the agreements signed have been felt by the Polish economy right up to the present day. It was not until the end of the 1990s that an interconnector with Germany was established, which enabled Poland to connect to the EU gas system, of which it relatively quickly became a member. This improved Poland's energy security, although it did not lead to the diversification of gas supplies expected by the Polish authorities. There were many reasons for this. One of them was the lack of serious contractors capable of selling raw materials at an affordable price. Another was the permanent lack of financial resources for such a large investment project as the construction of a gas pipeline and a liquefied gas terminal. Only with time, together with the growing importance of Poland in international economic relations, which contributed to the increase of trust on the part of western contractors operating on the global fuel market, did such opportunities appear (POL, 2020).

The main problem in Poland's relations with the EU and within the Community is the doctrinaire approach to geopolitical issues on the Polish side, which precludes compromise. Unfortunately, the Polish authorities seem not to have taken note of the changing geopolitical balance of power in the world, including the growing position of China and Russia recovering from the difficult post-Cold War period. All too often, Poland's political elites refer to the Giedroyć doctrine reinforced with Promethean elements, which proclaims the need for a 'political crusade' for the democratization of the former Soviet states, and for them to become a tool of influence on Russia, thus inducing that state to transform itself from an authoritarian country into a democratic state under the rule of law. Sometimes in Polish politics there appear notions of returning to the Jagiellonian idea, where Poland would play the role of a mentor for Central European countries, showing them the way forward. The grandiosity of these plans is both at odds with Poland's interests and falls far short of the state's capabilities, the latter fact being particularly painful in taking a rational point of view of the narrative. This brings chaos to international relations and unfortunately condemns Poland to the role of a political outsider. A strong involvement in the political dispute around the North Stream 2 gas pipeline, which excluded any possibility of a compromise solution and, what is worse, went against the position of the majority of EU Member States, resulted in a political weakening of Poland and a loss of trust on the part of members of the Community. The assessment of the Polish energy policy is also negatively influenced by a certain hostility of the Polish authorities towards the EU climate policy assuming fast abandonment of hard coal as a high-emission input in the production of electricity and heat. Thus, increased problems are accumulating around the Polish energy policy, especially in the natural gas sector. Some of them are generated by the Polish side on its own. However, reality defined in this way could have been foreseen or at least considered. Unfortunately, as often happens in Polish politics, there was no alternative solution to the problem. Nonetheless, the policy aimed against the interests of leading EU states continues, which does not support compromise solutions and which, given Poland's limited capabilities is going to lead to the deepening of international isolation over time (Gawlikowska - Fyk, 2020).

Conclusion

There is no doubt that Poland has benefited from EU membership in the area of energy security. A number of energy projects have been successfully implemented, including the expansion of the natural gas storage network, interconnectors, EU support for the construction of the Baltic Pipe and the expansion of the liquefied gas terminal in Świnoujście. Not without significance are also legal solutions in the transmission and trade of natural gas within the EU limiting the possibility of obtaining a full monopolistic position by Russia. Unfortunately, Poland is trying to implement, against the majority of EU countries, the concept of complete elimination of Russian natural gas from the EU fuel market, which is an unrealistic prospect and, what is worse, harmful for the Community. Russian gas is still the best solution for the countries of the Old Continent. There are currently no other equally stable and safe sources of this raw material. Prices for liquefied gas on the global fuel market of nearly USD 1,000 per 1,000 m^3 of raw material justify a far-reaching restraint against ideas such as switching the economy to this type of fuel. What remains is to use Russian gas while ensuring safeguards against the Russian energy policy of building influence on the basis of using natural gas as a tool for increasing the country's clout. Such solid safeguards include interconnectors, natural gas storage facilities, reinforcement of the domestic natural gas production system and expansion of the possibilities of importing the raw material from outside Russia based on the LNG terminal in Świnoujście and the Baltic Pipe, however within a reasonable range given economic realities. Having such possibilities, negotiating solutions good for Poland within the framework of bilateral or - which cannot be excluded in the future - multilateral agreements on purchase of gas from Russian sources can be successfully done. So far, however, Poland prefers to conduct its energy policy without basing it on pragmatism of actions and political realism of the concepts generated by the country.

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