POLITYKA ENERGETYCZNA – ENERGY POLICY JOURNAL

2022 ✦ Volume 25 ✦ Issue 1 ✦ 89–108

DOI: 10.33223/epj/145554

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The Baltic Pipe and its impact on energy security in Central and Eastern Europe

ABSTRACT: In 2021, the Polish gas transmission system operator GAZ-SYSTEM, in cooperation with the Danish gas and electricity transmission system operator Energinet, began construction of a new gas pipeline from Norway to Poland via Denmark. It will be the first connection of Scandinavian countries with Central-Eastern European countries. The Baltic Pipe gas pipeline is very important for Poland, which is gradually reducing its dependence on Russian gas supplies and strives to expand the energy infrastructure with neighboring countries in order to integrate the Central and Eastern European gas system within the North-South corridor and become a gas hub in this part of Europe. The aim of this article is to answer the following questions: How important is the Baltic Pipe for Poland? Will the gas pipeline have a significant impact on the diversification of gas supplies in short-term and will it contribute to the improvement of the energy security of Central and Eastern Europe in long-term? Will it contribute to the integration of energy systems within the North-South Corridor and the Three Seas Initiative?

KEYWORDS: Baltic Pipe, energy security, gas supplies, Poland, Central and Eastern Europe

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Introduction

The countries of the European Union differ greatly in terms of the possibilities of supplying natural gas to their national markets. Such differences result from the geographical location, the specificity of the development of energy infrastructure and relations between countries.

Initially, the energy system of Europe was created not on the basis of the geographical proximity of individual countries to natural gas deposits, but due to the geopolitical balance of power and political and economic ties on the European continent. The development of an integrated European natural gas transmission system was hampered by the geopolitical division of Europe. After the Second World War, Europe was divided into two blocs – western (capitalist) and eastern (socialist), and within these blocs, the expansion of Europe's separate gas systems began. The Western European gas system began to form in the 1960s. Initially, it developed around domestic gas fields, which were mainly located in the south of France and the north of Italy, but these resources were not sufficient to cover the growing demand for natural gas in European countries. In the 1960s, the Groningen field (the Netherlands) was discovered, which favored the expansion of infrastructure between neighboring countries. In the 1970s, gas resources were discovered in Norway in the North Sea, making the country the main gas exporter to the Western bloc countries. Moreover, the first LNG deliveries reached Europe from Algeria at that time.

The countries of Central and Eastern Europe, following the example of the Soviet Union, began to develop their economies, which were based on energy-intensive technologies; this resulted in a drastic increase in the demand for energy resources – gas, oil, and coal. The Soviet Union, having at its disposal enormous raw material potential, could at that time afford the development of energy-intensive industries, while the countries of Central and Eastern Europe did not have such opportunities. Therefore, an idea was born to expand the energy infrastructure from Western Siberia, the Volga region and the Urals to the countries of Central and Eastern Europe. In 1965, the construction of the "Brotherhood" gas pipeline began, which supplied Russian gas to what was then Czechoslovakia, and a few years later, the construction of the Urengoy – Pomary – Uzhgorod gas pipeline began. At the end of the 1980s, the "Progress" gas pipeline was built. All the above-mentioned gas pipelines were later called the "Brotherhood" gas pipeline system. This began the Cold War process of making Central and Eastern European countries dependent on gas supplies from the Soviet Union. Rapid economic development, the adoption of the energy-intensive Soviet economic model and the relative scarcity of its own energy resources increased the dependence of Central and Eastern European countries on energy supplies to such an extent that the USSR found it increasingly difficult to supply the necessary amounts of gas to the West. After the collapse of the Soviet Union, the situation did not change significantly, the Russian Federation became the main country-exporter of gas to Central European markets, which made it a monopolist and allowed it to dictate its own terms and prices for gas.

Significant changes took place in the region at the beginning of the 21st century, energy disputes between Russia and Ukraine (which was the main gas transit country to the EU) led not

only to energy crises that affected this part of the EU but also prompted the Russian Federation to change its natural gas supply strategy to the EU. In 2006, the construction of the Nord Stream gas pipeline was initiated, the route of which runs through the Baltic Sea and bypasses the territory of Ukraine, and in 2015, the construction of the second line (Nord Stream II) was announced. Such actions by the Russian Federation caused great concern among the countries of Central and Eastern Europe, which repeatedly spoke out against the construction of this gas pipeline and appealed to the European Commission to suspend its construction, justifying its decision that it poses a threat to security in this part of Europe (Voytyuk 2021).

Currently, the European natural gas market, due to its main exporters through pipelines, can be divided into three basic regions: north, south-west and south-east. These regions are distinguished according to the geographical indication according to the proximity to deposits of energy resources and their sources of supply. The northern region includes the Netherlands, Belgium, Luxembourg, Ireland, Great Britain, France, Denmark and Sweden. The main source of natural gas supplies is the North Sea, the Norwegian Sea and the Barents Sea, and Norway is the largest gas exporter from this part of the world. A special group of countries are Finland and the Baltic states – Lithuania, Latvia and Estonia, which, geographically located in the north-eastern region, consumed gas mainly from Russia. The south-eastern region includes, among others: Austria, Bulgaria, Romania, Poland, Hungary, Slovakia, Czech Republic, Slovenia, Germany, Croatia, Cyprus. All of these countries, with the exception of Cyprus, mainly depend on Russian natural gas supplies, and to a small extent, on Azerbaijani gas, which is transported to Turkey and thus via the extensive energy infrastructure to the EU. The countries of the south-west region include Spain, Portugal, France, Italy and Malta. These countries rely on gas from North African countries – mainly Algeria, as well as Libya and Egypt. Gas is supplied to the EU both in liquefied form and through pipelines.

In general, the European Union countries are largely well connected with each other in terms of gas infrastructure. Countries located in the center of the continent can use infrastructure from both the east and south as well as the north and west. However, gaps still exist in certain regions. As Figure 1 shows, there are several isolated regions that require the development of gas infrastructure, most notably some island regions in the Mediterranean Sea, such as Cyprus, Sardinia and Malta (Route 2015). There are a number of regions that are poorly interconnected by gas infrastructure, for example, there are insufficient connections between Portugal and Spain and between Spain and France. Gas infrastructure is poorly developed between the Scandinavian countries. This is due to their specific geographic locations and their energy policies. Sweden only has an interconnector with Denmark, and is not connected to either the Finnish or the Norwegian energy systems. There are no connections between France and Italy, or between Poland and the Scandinavian or Baltic countries (Gas pipeline 2021; First gas 2015).

The Baltic States are not integrated into the European gas system. Poland is currently not connected by interconnectors with any of the Baltic or Scandinavian countries. The Norwegian-Danish-Polish gas project of the Baltic Pipe will be the first gas connection that will connect the Scandinavian countries with Poland, and thus with Central and Eastern Europe. The Baltic Pipe aims not only to integrate the Polish gas system with the Scandinavian system but also to reduce

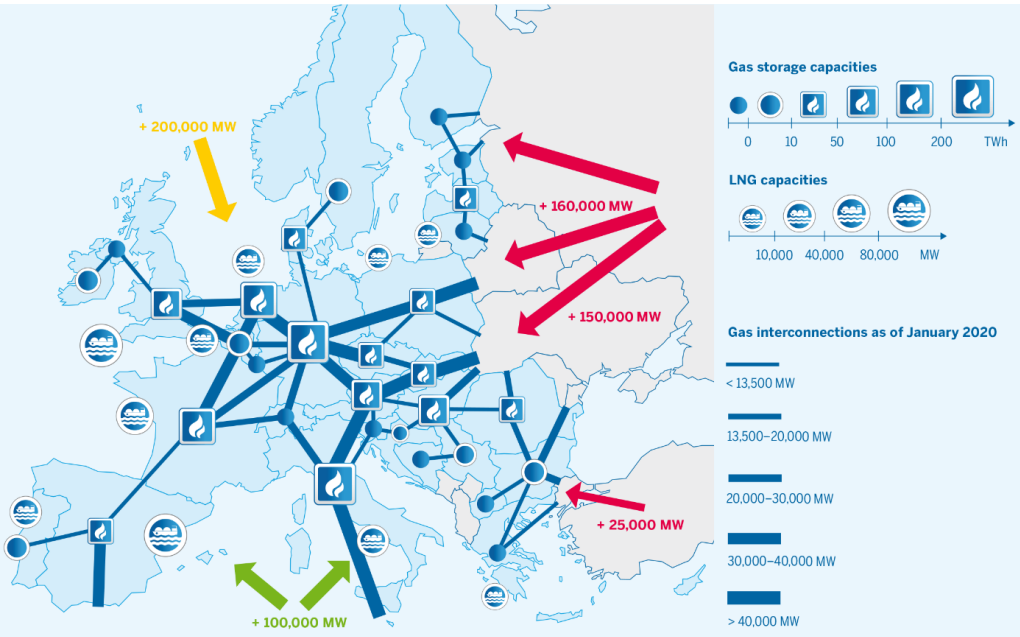

Fig. 1. EU gas system 2020 at a sight
Source: Ten-Year 2020

Rys. 1. Schemat system gazu ziemnego w Unii Europejskiej w 2020 r.

Poland's dependence on gas supplies from the Russian Federation. The Baltic Pipe, together with the energy infrastructure under construction under the Three Seas Initiative, is an element of the strategy aimed at expanding the energy infrastructure within the North-South corridor.

1. Analitical background

The main sources of information that the author used when writing the article were: Strategy for Responsible Development of Poland until 2020 (with a perspective until 2030) (Strategy for 2020), Poland's security strategy 2020 (Poland's security 2020), Poland's energy policy until 2040 (Poland's energy 2021), and the Espoo Report. "Baltic Pipe offshore pipeline – Poland part" (Espoo 2019), "Baltic Pipe Project Offshore gas pipeline – implementation stage" (Baltic Pipe Project 2020).

The Strategy for Responsible Development of Poland until 2020 (with a perspective until 2030), which was published in 2017, emphasizes that ensuring energy security requires the diversification of energy sources, and a method of energy production and distribution. In the short

term, Poland intends to diversify the directions and suppliers of natural gas and increase the capacity of its underground gas storage facilities (Strategy for 2020). The Security Strategy of the Republic of Poland 2020 also emphasizes the fact that the Polish market, similarly to other Central and Eastern European countries, is dominated by gas and oil supplies from the Russian Federation. Against the background of the emergence of new projects such as Nord Stream II, the region's dependence on Russian supplies is even deeper and creates conditions for its eastern neighbor to use gas supplies as an instrument of political pressure (Poland's security 2020). The document shows that the main task of Poland is to ensure the energy security of the state, based on traditional energy sources, by diversifying sources and expanding import capacities, including by increasing the capacity of the LNG terminal in Swinoujscie. In addition, it is planned to build new gas connections and entry points to the Polish gas pipeline system (construction of the Baltic Pipe gas pipeline and the floating LNG platform in Gdansk Bay, expansion of the natural gas storage system) (Poland's security 2020).

The Security Strategy of the Republic of Poland, as well as Strategy for the Responsible Development of Poland, emphasizes the necessity and continuation of diplomatic, legal and administrative actions to stop the construction of transmission infrastructure (Nord Stream II), which increases the dependence of the Central and Eastern Europe region on gas supplies from the Russian Federation by strengthening the region against the risk of using natural gas as an instrument of political pressure (Poland's security 2020). Poland's energy policy until 2040 also emphasizes the diversification of gas supplies and the expansion of energy infrastructure (Poland's energy 2021). All the above-mentioned documents are consistent and have similar goals and activities, which means that Poland will consistently strive to achieve the intended goals. The expansion of the energy infrastructure is crucial, and the Baltic Pipe is considered a gas pipeline of strategic importance.

The literature on the Baltic Pipe gas pipeline is not extensive – most scientific articles only briefly mention this project, the only article that thoroughly analyzes the significance of the Baltic Pipe from the point of view of geopolitics and law is an article by J. Górski, "The Baltic Pipe in Context: The Geopolitical and Normative Analysis" (Górski 2019). Małgorzata Kamola-Cieślik, in her article "Directions of Poland's Energy Security Policy in the Natural Gas Sector", presents the history of the Baltic Pipe project and the main reasons that delayed its implementation by almost 20 years (Kamola-Cieślik 2020). There is considerable literature on the concept of the Three Seas Initiative. The articles "Three Seas Initiative capabilities in terms of diversification of natural gas supply versus Russian Federation foreign policy – a geopolitical approach" by Aleksy Borówka deserve attention. In his article, the author points to the challenges associated with redirecting current natural gas supplies and proposing a set of strategic directions for the development of the Three Seas Initiative (Borówka 2020). Marek Górka's article, "The Three Seas Initiative as a Political Challenge for the Countries of Central and Eastern Europe", analyzes the basics of TSI and prospects for the development of cross-border cooperation and the implementation of macro-regional projects, including the expansion of the North-South energy corridor (Górka 2018). The article "The influence of infrastructure investments in the gas sector on energy" by Krzysztof Tomaszewski confronts the theory of the European integration process

(issues of solidarity and loyalty) with the practice resulting from the pragmatic approach of the EU Member States to the issue of energy security. Based on extensive analysis, it was found that the game of interests related to the implementation of gas connections in the Baltic Sea region – the Nord Stream and Baltic Pipe gas pipeline systems – is primarily determined by the particular interests of the countries (and companies) that are participating in their implementation (Tomaszewski 2017). The statistical data of Morsk Petroleum and British Petroleum, as well as information from Polish analytical websites pism.pl, biznesalert.pl and others, were useful while writing the article.

2. The Baltic Pipe and its importance for Poland

The Baltic Pipe is not a new initiative, its idea was born during the reign of Jerzy Buzek, at the beginning of the 21st century. In September 2001, PGNiG SA and Statoil signed a contract called a Norwegian trade contract for gas supplies to Poland for an amount of 5 bcm annually via direct connection to the supplier's deposits (Meeting 2002). The first gas, pumped through a 1,400-kilometer pipe, was to be delivered to Niechorze in 2008 (Malinowski 2016). However, in September 2001, after the parliamentary elections, the newly appointed government of Leszek Miller rejected the Baltic Pipe project, because the project had a propaganda character and was calculated for electoral effect, and Norwegian gas was too expensive for Poland (Miller 2014). The concept of building an underwater gas pipeline connecting Poland with Denmark returned during the rule of Y. Kaczynski. The Baltic Pipe was considered a project of strategic importance. Its implementation was planned under the 2015–2025 investment program. It is an infrastructure project and aims to build a new gas supply corridor from Norway to the Danish and Polish markets. The main partners of the project are Polish Gaz-System and Danish Energinet. In 2017, a memorandum of cooperation between Poland and Denmark was signed. The Baltic Pipe has the status of a "Project of Common Interest". This status is awarded by the European Commission to infrastructure projects aimed at strengthening the European internal energy market, as part of the implementation of the objectives of the EU energy policy (Baltic Pipe Project 2020). The gas pipeline is to be built as part of the North-South Gas Corridor (Baltic Pipe Project 2020). In January 2018, the European Commission's proposal to grant funding to the level of EUR 266.8 million for the Baltic Pipe was accepted by EU countries (Baltic Pipe Project 2020). The Baltic Pipe is part of a wider Three Seas Initiative – a strategy for integrating the energy systems of Central and Eastern European countries. In connection with the assumptions of the strategy, the Polish company Gaz-System has started construction of over 2,000 km of gas pipelines in the west, east, and south of the country, and Baltic Pipe is to fill the gaps in the natural gas transport system in the north of the country. It is assumed that the expansion of Poland's transmission network will strengthen its energy security and allow the diversification of gas supplies to

the neighboring countries of Lithuania, Slovakia, the Czech Republic, and Ukraine, which all still heavily depend on Russian supplies.

The gas pipeline will consist of five key components, two of which are submarine: a gas pipeline linking the Norwegian and Danish gas transmission systems, and a gas pipeline linking the Danish and Polish transmission systems. The above-ground part will consist of three parts – the expansion of the Danish and Polish transmission systems and the construction of gas compressor stations in Denmark. Like the Nord Stream gas pipeline system, part of the Baltic Pipe route will run along the bottom of the Baltic Sea. The pipeline with a capacity of 10 bcm should be commissioned in 2022 (Agreement 2018).

According to preliminary forecasts, the implementation of the Baltic Pipe project will be conducive to:

- increasing Poland's energy security;
- reducing its dependence on Russian gas supplies;
- maintaining the status of a transit country;
- increasing competitiveness in the gas market;
- increasing the freedom to negotiate gas prices and terms of concluding contracts for its supply;
- resetting Russian gas supplies provided that alternative routes of supply to Poland are used (eg. LNG).

The Baltic Pipe gas pipeline is of strategic importance for Poland, as the country's own natural gas resources are small and consumption is constantly growing (Fig. 2). In 2019, the country produced only 3.8 bcm of gas, and consumption amounted to 18.66 bcm. Over the past twenty years, consumption has increased on average by around 1 bcm per year. If this trend continues, then in 2030, the consumption of natural gas may increase to up to 30 bcm per year (President

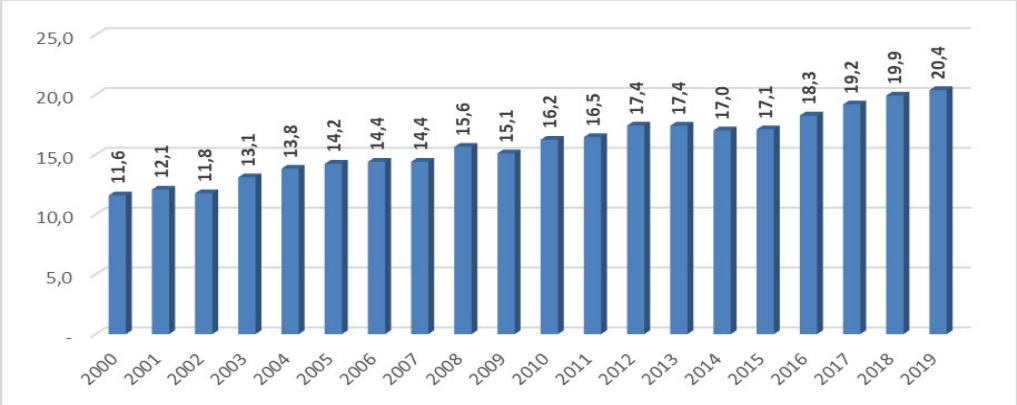

Fig. 2. Natural gas consumption in Poland [bcm per year]
Source: own study based on BP Statistical Review of World Energy 2020

Rys. 2. Konsumpcja gazu ziemnego w Polsce [mld m^3/rok]

2020). Consequently, the capacity of the Baltic Pipe will only suffice in the short term. The total gas import to Poland in 2019 amounted to 14.86 bcm. About 3.43 bcm was imported by Poland in the form of LNG, mainly gas from Qatar, the USA, Norway, and Trinidad and Tobago (Mroczek 2020); 8.95 bcm from Russia and 2.48 bcm from the west and south (PGNiG 2020).

Adherence to the pipeline construction schedule is very important in the implementation of the Baltic Pipe project. Construction works on the bottom of the Baltic Sea began in 2021. The pipe-laying intensity is to be 3 km per day. The launch of the Baltic Pipe gas pipeline is planned for October 2022. Meeting this deadline is important as the contract with Gazprom expires at the end of 2022. The so-called "Yamal" contract was signed in 1996 and was a long-term contract. The contract was very unfavorable for Poland, as the gas price was non-market, overstated and, in turn, the transit price was understated (Borkowska 2019). In 2014, PGNiG filed a lawsuit to renegotiate the pricing formula; such a procedure was provided for in the contract, but the negotiations failed, which prompted Poland to refer the dispute to the Arbitration Tribunal in Stockholm, and in February 2016, to file a lawsuit against Gazprom. The verdict was issued in favor of Poland and Gazprom was obliged to refund the difference caused by overpriced prices of over PLN 6 billion (Czyżewski 2020). Poland announced that the contract would not be extended in 2018, justifying the withdrawal from its extension with the fact that by 2022, it plans to diversify gas supplies so as not to buy more Russian gas. Russian gas supplies will be the task of the Baltic Pipe in the short term.

Before the construction of the gas pipeline began, Poland tried to solve all possible difficulties related to the construction of the Baltic Pipe. Poland secured all the necessary permits for the construction of the pipeline. There were two problems: obtaining environmental permits for the construction of the gas pipeline and solving the problem of crossing the submarine gas pipelines of the Nord Stream and Baltic Pipe systems. The problem was solved with the help of the Danish side. Agreements have been signed between Denmark and Gazprom, which contain technical conditions specifying how the gas infrastructure should intersect on the section common to the Nord Stream system and the Baltic Pipe gas pipeline. The agreement data was a condition for the approval of the Danish Energy Agency (DEA) for the construction of Nord Stream II in Danish waters. According to the arrangements, the project operator "Nord Stream II AG" will conclude an agreement with the owners of cables and pipelines, i.e. with Gas-System, which are to intersect with the planned infrastructure, which was a necessary condition. Without regulating the conditions for crossing the Baltic Pipe and other Baltic infrastructure, consent would not be granted, and Nord Stream II could have an even greater delay due to the need to establish a new route bypassing Danish jurisdiction. On the other hand, the marking out of the Nord Stream II route through Denmark's exclusive economic zone was possible thanks to the conclusion of the territorial dispute between Poland and Denmark in 2019. In this way, the Danes obliged the Russians to establish the conditions of crossing, inter alia, with the Baltic Pipe so that the interests of its owner (Gaz-System) can be secured. The Danes made it a sine qua non for the construction of the Nord Stream II in their waters, which prevents surprises for which Russian Gazprom is historically known. The DEA set the conditions that the Russians could not refuse (MarketNews 2020).

In June 2021, the Danish Environmental and Food Appeals Board repealed the environmental permit that was issued by the Danish Environmental Protection Agency in July 2019 (Kucharczyk 2021), justifying its decision on the basis that dormice, Nordic birch mice, and bats that live in the area passing through the island of Fyn were not sufficiently protected (Łoskot-Strachota and Szymański 2021). Withdrawal of the permit does not mean that work along the entire length of the pipeline has been suspended. In other sections, the construction of the gas pipeline is carried out according to the work schedule. The works on the Danish section have been temporarily suspended until the Danish investor meets the environmental and legal requirements (Forsal 2021).

In view of this situation, the European Commission declared that it is ready to engage in finding a solution after Denmark's decision, so that environmental issues are fully taken into account (Dziennik 2021). At the same time, PGNiG assures that even if the construction of the gas pipeline is delayed and the Baltic Pipe is commissioned after the end of the Yamal contract, there will be no shortage of gas in Poland (Forsal 2021). Poland operates in many directions of diversification of supplies and meeting the domestic demand for gas will not be a problem3 (Borkowska 2021). Everything indicates that the launch of the Baltic Pipe will be postponed to 2023 (Borkowska 2021).

There are assumptions that if the investment is successfully completed, the gas pipeline will be conducive to taking steps to start a program of the gradual phasing out of coal mining in Poland. According to the Energy Policy program until 2040, Poland intends to withdraw coal from use in individual heating in cities by 2030, and in rural areas by 2040 (Poland's energy 2021). Poland is a leader in coal mining in Europe, for which it has been repeatedly criticized on the EU forum. Unfortunately, Poland cannot eliminate this program very quickly, as it is associated with serious economic problems, an increase in unemployment, and an increase in dependence on gas imports. The successful completion of the Baltic Pipe and its integration with the energy system of Central and Eastern Europe, with a particular emphasis on the expansion of interconnectors with neighboring countries in the south and east, will allow Poland to start implementing sustainable development plans. Moreover, if Poland does not increase the supplies of LNG from the USA, Qatar and other countries, then in the middle-term perspective, Russian gas may again become the only alternative to coal.

3. The importance of the Baltic Pipe for Central and Eastern Europe

The construction of the Baltic Pipe and the expansion of the Polish transmission system may have a positive impact on the countries of Central and Eastern Europe in the future. Poland is actively trying to diversify gas supplies to its market and has made significant progress in this

direction over the past few years. Since 2016, when the gas terminal in Swinoujscie was launched, the level of imports have increased. The new LNG terminal allows for the purchase of gas in the form of LNG and is conducive to the expansion of the gas infrastructure. Thanks to the expansion of the interconnector with the Czech Republic (STORK) and the expansion of power with Germany, gas is being delivered to Poland from three directions via pipelines – eastern, western and southern. However, powers in the south and west are still considered limited. The potential of the Stork interconnector is 0.5 bcm of gas per year, and the German interconnector – 1.5 bcm. Individual Polish cross-border pipelines are not able to ensure transit due to low power and the lack of the necessary interconnectors. Some of them serve only regional needs. In order for Poland to be able to use its transit potential in the future, it is necessary to expand the power of interconnectors with neighboring countries.

According to the plans set out in the Polish Energy Policy until 2040, interconnectors should be developed on the Polish-Ukrainian border with a potential of 5–8 bcm (to be completed in 2022), on the Polish-Slovak border with a capacity of 5.7 bcm (to be completed in November 2021), Polish-Lithuanian (GIPL) with a potential of 1.7–2.4 bcm (to be completed in November 2021) and the second line of the Polish-Czech STORK interconnector (6.5 bcm). In addition, Poland plans to increase the regasification capacity for terminals in Swinoujscie to 10 bcm and build a FSRU terminal in the Gdansk Bay with a potential of 4.1 to 8.1 bcm of gas (Poland's energy 2021). According to forecasts, all projects should be completed by 2030. In this way, Poland will reduce dependence on Russian gas, enabling Norwegian, Qatari, and the US to enter the Central European gas market, and thus may become an important transit country in the region. In 2019, Poland completed thirty-one LNG deliveries, including eighteen from Qatar, three from Norway, and ten from the USA, and plans to increase this potential in the future to be able to supply the necessary amounts of gas to neighboring countries (Mroczek 2020). By increasing gas imports and diversifying its supply routes, Poland will be able to foster regional energy cooperation by re-exporting gas surpluses to neighboring countries – the Czech Republic, Slovakia, Lithuania, and Ukraine (Gawlikowska-Fyk and Godzimirski 2017). It should also be noted that Poland should not completely abandon the already existing infrastructure, including the Yamal-Europe gas pipeline, which can be used for reverse gas supplies to Eastern European countries. The construction of the Baltic Pipe and the floating LNG platform in the Bay of Gdansk will accelerate the expansion of the missing infrastructure in Central and Eastern Europe and will intensify the activities of the countries in this region towards the diversification of supplies, and will foster internal integration and closer cooperation in ensuring energy security of neighboring countries with Poland (Goble 2020).

The Baltic Pipe is also important in the context of activities planned in connection with the expansion of gas infrastructure under the Three Seas Initiative, which was launched in August 2016 at the meeting in Dubrovnik (Croatia). The main goal of these projects was the diversification of gas supplies and the development of infrastructure, including interconnections. The list, which was presented in Bucharest in 2018, includes projects that take into account the Polish energy policy until 2040 (Poland-Lithuania gas pipeline (GIPL)); Poland-Slovakia gas interconnection, Poland-Ukraine interconnection (Commissioning 2018), and a number of other projects:

- the Bulgaria-Romania-Hungary-Austria (BRHA) gas transmission corridor, the expansion is to be completed in 2022;
- the southern natural gas transmission corridor through Romania for the reception of gas from the Black Sea – Podisor coast is to be completed by 2023;
- the "Eastring" transmission gas pipeline connecting the existing Veľké Kapušany interconnection point on the Slovak-Ukrainian border with the Ukraine-Hungary Romania-Bulgaria transit gas pipeline;
- Romanian-Hungarian-Slovak gas transmission corridor, construction is to be completed in October 2022 (Górski 2019);
- the regional LNG terminal in Paldiski, Estonia, is to be completed in the fourth quarter of 2024;
- The LNG terminal on the island of Krk (Croatia) was launched in early 2021 (First Croatian 2021).

All these projects are aimed at reducing the monopoly of Russia and, in the future, of Germany on the European gas market. It is planned that a significant part of natural gas to the countries of Central and Eastern and Southern Europe will be brought in the form of LNG to four LNG terminals – in Croatia (Krk), Lithuania (Klaipeda), Poland (Swinoujscie), and Estonia (Paldiski). There are plans for the construction of an LNG terminal in the Black Sea in Romania (Konstanta) and a floating LNG platform in Ukraine (Odesa) (Gusilov 2019). The Baltic Pipe project may merge some initiatives that are being developed in a team with neighboring countries into the only thriving gas system (Fig. 3).

The Baltic Pipe project is not only a North-South connector but also a guarantor of security for the countries of Central and Eastern Europe and Ukraine. Poland's intentions regarding the diversification of gas supplies are serious. In the future, the country expects to become a fully fledged gas hub. In order to be able to supply gas in different directions, projects of interconnection are being developed at the borders of Lithuania, Ukraine, Slovakia, and the Czech Republic (Vozdvizhenskaya 2019). Power development with Ukraine is very important. The bidirectional nature of the Poland-Ukraine interconnector would enable Poland to use huge gas storage facilities located several dozen kilometers from the Polish border, with a total capacity of around 10 bcm, not used by Ukrainians (New 2014). Tariffs for gas storage in Ukraine, taking into account the benefits introduced by the Operator from the Ukrainian gas transmission system, will be cheaper (EUR 15.1 per MWh) than in Poland (16.5) and Germany (18.3) (UPMP 2021). In turn, Ukraine, after the expiry of the Polish Yamal contract and the launch of the Baltic Pipe, could increase gas imports from Poland from the current 0.5 bcm to 5 bcm per year.

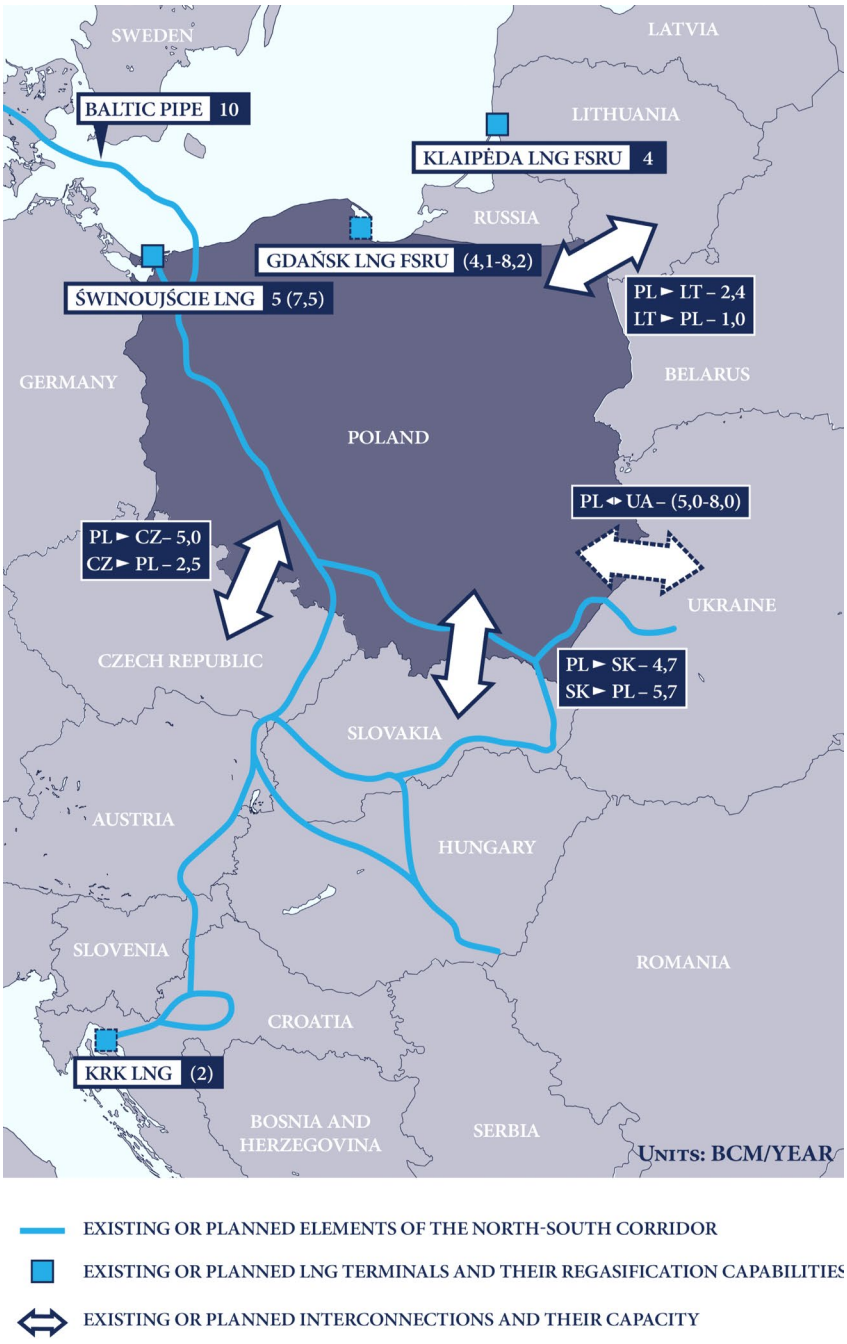

Fig. 3. North-South gas corridor
Source: Zaniewicz 2019

Rys. 3. Korytarz gazowy Północ–Południe

4. Is Norwegian gas enough?

In the context of the construction of the Baltic Pipe gas pipeline, one should also look at the situation on the energy market in Norway, which will be the main gas supplier to the Polish market. In January 2019, PGNiG received three concessions for the production of gas in Norwegian waters. In addition, the company bought a stake in the Tommeliten Alpha field on the Norwegian shelf for $220 million (Vozdvizhenskaya 2019). The total recoverable reserves of natural gas there are around 12.8 bcm (Tommeliten 2021). The exploitation of the deposit is planned for 2024. According to BP statistics (2020), documented gas resources in Norway have been gradually declining over the last 15 years, from 2.4 trillion cubic meters to 1.5 trillion cubic meters, and production has been gradually increasing with the exception of the last three years when there has been a decreasing tendency. This was caused by the warm winter and the covid-19 pandemic, which both contributed to a decrease in demand for natural gas (Fig. 4) (Production 2021). Norwegian gas comes from three regions – the North Sea, the Norwegian Sea, and the Barents Sea (Norwegian 2021). The North Sea has the greatest potential, but its natural gas deposits belong to the group of mature deposits which are gradually depleting. The potential for the Norwegian Sea and the Barents Sea is much smaller, although potential undiscovered resources still exist there (Resources 2021).

In 2020, Norwegian gas exports remained at a consistently high level. Norway exported around 112 bcm of gas, mainly to other EU countries. Norway is a significant exporter of natural

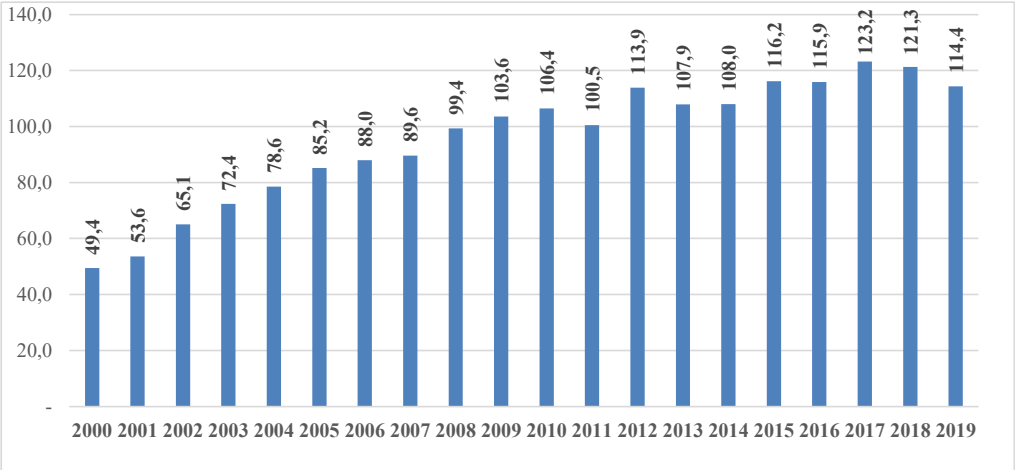

Fig. 4. Natural gas production in Norway (2000–2019) [bcm]
Source: own study based on BP 2020

Rys. 4. Produkcja gazu ziemnego w Norwegii [mld m^3/rok]

gas to the EU (Export 2021). Despite the relative success of the energy transition, the country and the rest of the world depend on oil and natural gas, which are important sources of revenue for the state budget (Anchustegui and Glapiak 2021).

As can be seen from the forecasts (Fig. 5), the resources in the already discovered fields will gradually run out, and the potential undiscovered resources will be much smaller than before. Taking into account Poland's plans to diversify gas supplies, it can certainly be said that in the long term, Norwegian gas may not be enough to cover the growing needs of Poland and the countries of Central and Eastern Europe. If countries in the region decide to implement a sustainable development policy, implement the "energy transition" (Modelling 2021) program and reduce the role of coal and oil in their energy balance, the demand for natural gas may increase dramatically, which may create the threat of turning back to Russia in order to make up for insufficient gas volumes.

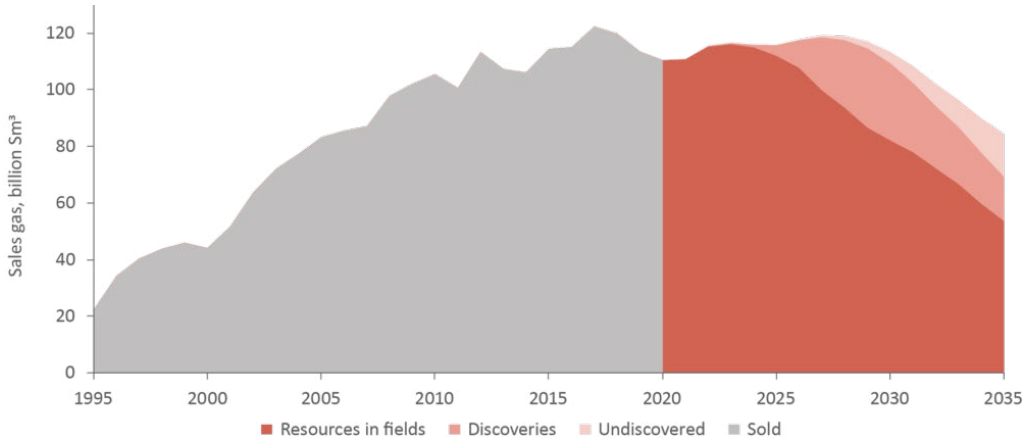

Fig. 5. Expected volumes of sales gas from Norwegian fields (1995–2035)
Source: Oil 2021

Rys. 5. Przewidywane wielkości sprzedaży gazu ziemnego z norweskich zasobów (1995–2035)

Conclusion

The importance of the Baltic Pipe for Poland and Central and Eastern Europe can be presented in the form of a SWOT analysis (Table 1). With the help of which, the main advantages and disadvantages of the project can be determined, as well as challenges and threats. Of course, as the geopolitical situation in the Baltic Sea region and Central and Eastern Europe develops, these elements in the table will change and take on different meanings.

Table 1. Baltic Pipe SWOT analysis

Tabela 1. Analiza SWOT Baltic Pipe

Weaknesses	Strengths
✦ the depletion of the North Sea's resources ✦ low capacity of the gas pipeline ✦ political project ✦ tensions in Poland-Russia relations ✦ lack of extensive infrastructure with neighboring countries ✦ increase in internal gas demand in Poland	✦ reducing Poland's dependence on Russian supplies ✦ creating competition for Russian gas on the Eastern European market ✦ fostering the diversification of gas supplies to the markets of Central and Eastern Europe ✦ accelerating the expansion of gas infrastructure within the CEE region
Threats	**Opportunities**
✦ is the geoeconomic field of rivalry between the USA and the Russia-Germany tandem ✦ lack of necessary gas volumes in the medium-term perspective ✦ obstacles to the expansion of gas infrastructure in the region of Central and Eastern Europe	✦ integration of gas pipelines in Central and Eastern Europe ✦ establishing close cooperation with neighboring countries in the field of security of natural gas supplies – Lithuania, the Czech Republic, Slovakia, and Ukraine ✦ Poland as a gas hub in the region ✦ increasing the role of Poland as a transit country

Source: own study.

As shown in Table 1, the Baltic Pipe, along with the completion of the existing gap in the gas infrastructure between the countries of Northern Europe and Central and Eastern Europe, will accelerate the energy integration of the region. The Baltic Pipe will eliminate Poland's dependence on Russian gas supplies for the short term and will help diversify gas supplies to their markets from other sources. The Baltic Pipe can be considered as a project bringing together many other energy initiatives within the framework of the cooperation of the Three Seas Initiative countries. Moreover, the Baltic Pipe will increase the chance for Poland to remain a gas hub in the eastern part of Europe and at the same time, it will create competition for Germany and limits its influence in the region.

The new gas pipeline does little to compete with the Nord Stream gas pipeline system. This is explained by the fact that its capacity is not large and the gas supplied through this pipeline will be mainly directed to the Polish internal market and will allow for the elimination of Russian gas supplies to Poland only at an initial stage. Its construction will not significantly affect the Central European gas market in the short term, but it will contribute to the expansion and connection of the necessary gas infrastructure to ensure safe gas supplies.

If Poland approves the sustainable development program and decides to reduce coal consumption in the energy balance, the demand for natural gas in the country will grow, and ensuring stable supplies from directions other than Russia will be a priority. If Poland does not take care of increasing gas supplies from directions other than Russia, it may well return to Russian gas in the medium term. However, in the event of an effective expansion of the energy infrastructure in Central and Eastern Europe as part of the Three Seas Initiative and the integration of gas

systems of the countries in the region, the Baltic Pipe may gain importance regardless of its low capacity as it will be a pipeline connecting the North-South energy corridor.

NOTES:

1. The Galsi gas pipeline from Algeria is planned to be built to Sardinia, while Cyprus and Malta have liquefied gas supplies. Malta intends to build an interconnector with Italy.

2. "The energy transition is a pathway toward transformation of the global energy sector from fossil-based to zero-carbon by the second half of this century."

3. The Danish Environmental Protection Agency (Miljostyrelsen) estimates that it will take seven to eight months to issue a new environmental decision for the onshore Baltic Pipe section in Denmark.

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Oksana Voytyuk

Baltic Pipe oraz jego wpływ na bezpieczeństwo energetyczne w regionie Europy Środkowo-Wschodniej

Streszczenie

Baltic Pipe nie jest inicjatywą nową, jej pomysł narodził się na początku XXI wieku, ale realizacja rozpoczęła się prawie 20 lat później. W 2021 r. polski operator gazowego systemu przesyłowego GAZ-SYSTEM, we współpracy z duńskim operatorem systemu przesyłowego gazu i energii elektrycznej Energinet, rozpoczął budowę nowego gazociągu z Norwegii do Polski przez Danię. Gazociąg Baltic Pipe ma bardzo ważne znaczenie dla Polski, która stopniowo zmniejsza swoją zależność od rosyjskich dostaw gazu oraz dąży do rozbudowy infrastruktury energetycznej z państwami sąsiednimi, aby zintegrować system gazowy Europy Środkowo-Wschodniej w ramach korytarza Północ–Południe i stać się hubem gazowym w tej części Europy. Celem niniejszego artykułu jest znalezienie odpowiedzi na następujące pytania: jak duże znaczenie ma Baltic Pipe dla Polski, czy gazociąg będzie miał znaczący wpływ na dywersyfikacje dostaw gazu i czy będzie sprzyjał poprawie bezpieczeństwa energetycznego Europy Środkowo-Wschodniej? Czy przyczyni się do integracji systemów energetycznych w ramach korytarza Północ–Południe i inicjatywy Trójmorza? Czy wystarczy norweskiego gazu, aby gazociąg Baltic Pipe działał zgodnie z projektowaną przepustowością? Czy Baltic Pipe konkuruje z Nord Stream II? Podsumowaniem niniejszego artykułu będzie analiza SWOT mocnych i słabych stron projektu oraz wyzwań i zagrożeń.

Słowa kluczowe: Baltic Pipe, bezpieczeństwo energetyczne, dostawy gazu, Polska, Europa Środkowo-Wschodnia