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Backgrounder

Poland's Quest for Diversification of Energy

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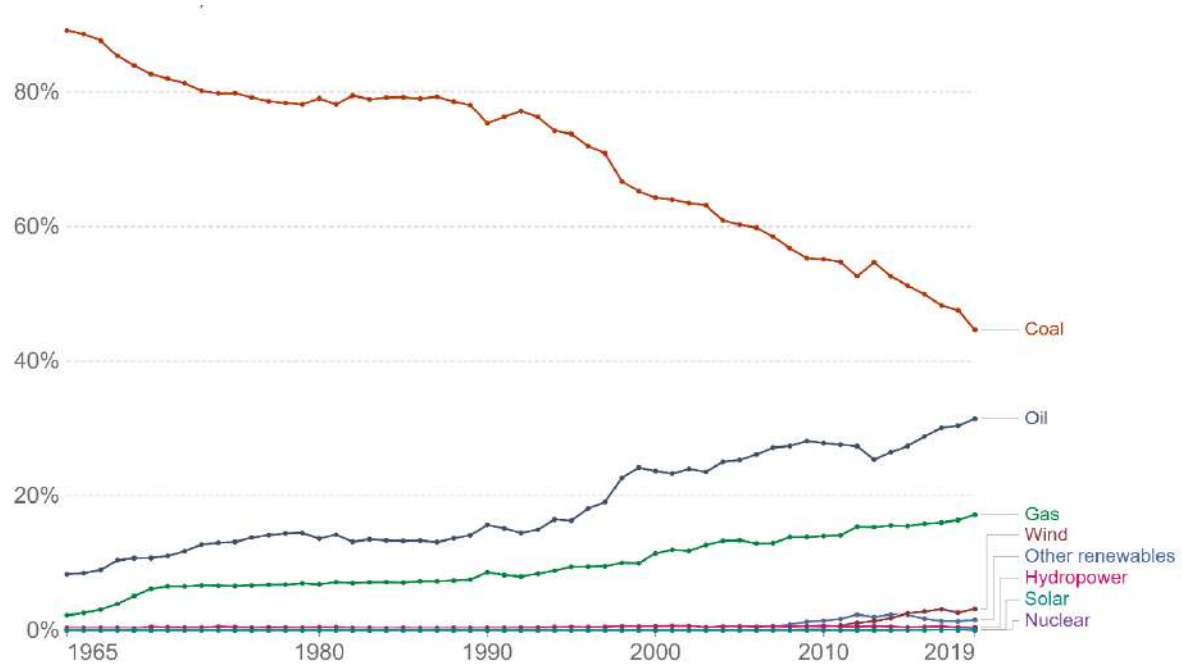
Summary

Poland has been relying on energy imports from varied sources but its overt reliance on Russia has been the core reason for the diversification of its supply chain. It is one of the heavy consumers of coal in Europe, which is leading to high carbon emissions. Such high carbon footprints do not bode well with the European Commission's target to go climate neutral by 2050. With private investments and aid under the 'Fit for 55' package of the European Union, Poland plans to follow the path laid out in its energy policy document. It has started investing in clean and stable energy sources and is diversifying to include Qatar, US, Germany and Norway among its major energy suppliers.

Poland relies on fossil fuels to meet the bulk of its energy requirements. As of 2020, 72 per cent of its power generation depended on burning coal (including hard coal and lignite). It is said to have the worst air quality within the European Union (EU).[1] Europe's share of coal in primary energy for the year 2019 was 13.54 per cent, whereas the same for Poland was 44.67 per cent.[2] This reflects the high reliance that Poland has on coal, especially amongst oil and other fossil fuels. The rising cost of carbon emissions and increasing cost of coal production in Poland is prompting investors to move towards other sources of energy like nuclear and renewables. There has been a steady rise in the use of renewables and a decline in fossil fuels (in terms of production and usage) (see Fig. 1).

Fig. 1: Share of Polish Energy Consumption



Source: Our World in Data

In 2021, the Polish Ministry of Climate and Environment came out with its energy policy until 2040. Built on the pillars of "just transition, zero-emission energy system and good air quality", it provides a framework for a clean energy transition based on strategic decision making. The Ministry estimates the share of renewables in Polish gross energy consumption for 2030 to be at least 23 per cent. It also lays down the roadmap for building domestic nuclear capabilities, with the first nuclear power plant (1–1.6 GW) to be commissioned in 2033. The policy mentions natural gas as a

[1] **"Poland Adopts 2040 Energy Policy, Plans to Cut Coal Share to 56% by 2030"**, *S&P Global*, 3 February 2021.

[2] Hannah Ritchie and Max Roser, **"Share of Primary Energy from Coal"**, *Our World in Data*, 2020.

"bridge fuel", from coal mines to nuclear and renewable sources of energy.[3] Along with expanding infrastructure for already existing energy sources, there is a constant mention of the need to diversify the supply sources.

The EU has been providing financial aid to member-states willing to switch to cleaner energy sources. European Commission has mobilised funds worth €1 trillion to finance the green transition under the European Green Deal.[4] It lays down an ambitious package of measures, ranging from cutting greenhouse gas emissions by at least 55 per cent by 2030 to investing in cutting-edge technology and research and development for the same. Poland is its fourth-largest beneficiary, with an estimated aid of €38 billion.[5] This aid should help Poland in switching to cleaner energy sources, achieving energy diversification and reducing payments for carbon emissions.

Alternatives to Russian Gas Supplies

Poland's annual natural gas consumption is estimated at 17 billion cubic metres (bcm), out of which 56 per cent is imported from Russia. The major pipeline transporting gas is the Yamal Pipeline, which originates in the Yamal fields of Russia and runs through Belarus and Poland before a section of it reaches Germany.[6] In 2014, when Russia cut off gas supplies to Ukraine, its impact was felt throughout Central and Eastern Europe. Poland was already amidst policy discussions to diversify its energy imports and this incident only hardened its resolve. The high gas prices in the winter of 2020, along with the additional cost borne due to the pandemic hit the Polish markets hard. Energy insecurity combined with geopolitical tensions with Russia, made Poland look for energy partners outside Russia.

Poland realises that if it has to be independent of the East for its energy needs, it needs to keep its energy policy on track and invest in technologies and projects to become not only a consumer but also a supplier of energy. The Polish oil and gas state company, PGNiG, has signed a memorandum of understanding with Qatar-based Black Cat Engineering & Construction (BCEC) for joint development of

[3] **"Energy Policy of Poland Until 2040"**, Ministry of Climate and Environment, Government of the Republic of Poland, 2021.

[4] Presented first in December 2019, the European Green Deal is a set of policy initiatives by the European Commission to help the EU economy transit to a sustainable economic model. It aims to transform the EU into a resource-efficient economy, revert biodiversity loss, achieve clean environment standards and sustainable growth patterns. It is a step in the direction to make EU climate neutral by 2050. See **"European Green Deal"**, European Commission.

[5] Samuel Petrequin, **"EU Lays Out 1 Trillion-Euro Plan to Support Green Deal"**, *ABC News*, 14 January 2020.

[6] **"Poland–Country Commercial Guide"**, International Trade Administration, US Department of Commerce, 3 September 2021.

upstream activities in the Gulf region.[7] It has also been recently awarded four new licences for development in the Norwegian Shelf, which means more gas supplies for Poland in the times to come.

PGNiG and ERU Europe (a company based in Wien, Austria) have been cooperating over American liquefied natural gas (LNG) recently. The US LNG cargo has been purchased by the former to be supplied to the latter. It is scheduled to arrive at the Polish LNG terminal before March 2022. From there it will be regasified and fed into the Polish transmission system to be supplied to Ukraine through the interconnectors at the Polish–Ukrainian border. The first-ever non-Russian gas to be supplied to Moldova during the energy crisis of 2021 was also through the cooperation of these two firms.[8] In the current scenario, there is a huge scope for cooperation and inter-reliance between these two entities to increase non-Russian gas supplies especially to Ukraine.

Another long-term alternative to Russian supplies is the use of renewable sources of energy. In order to fulfil the national emission reduction targets under the Paris Agreement of 2015, Poland has been investing heavily to harness solar and wind energy. It is building renewable sources of energy like off-shore wind energy units, solar power units, harnessing biogas and biomass energy and increasing the number of on-shore wind farms. Even after ongoing investments, renewables account for only 15.4 per cent share in the total energy mix, with wind farms contributing to 9.2 per cent and biomass and biogas power plants holding a share of 4.6 per cent.

In the energy policy laid out in 2021, Poland plans to build six nuclear power plants, starting 2033. The remaining five will be commissioned at the interval of every two to three years.[9] Nuclear energy will resolve the problem of low domestic energy generation, provide a zero-emission energy system, further diversify the sources and provide reliable and stable energy supply to customers. The policy also provides a detailed description regarding the disposal of spent nuclear fuel.

The Baltic Pipe Project

One of the major European energy diversification projects is the 'Baltic Sea Pipeline', due to be commissioned in October 2022. It is a strategic infrastructure project positioned across northern and eastern Europe. It will launch a new gas supply corridor for Denmark, Poland, Sweden, Baltic States and central-eastern European nations (Fig. 2). This project will enable direct transportation of gas deposits from Norway to Denmark and Poland. It comprises offshore segments, traversing the North Sea and Baltic Sea and onshore pipelines laid in Denmark and Poland. The

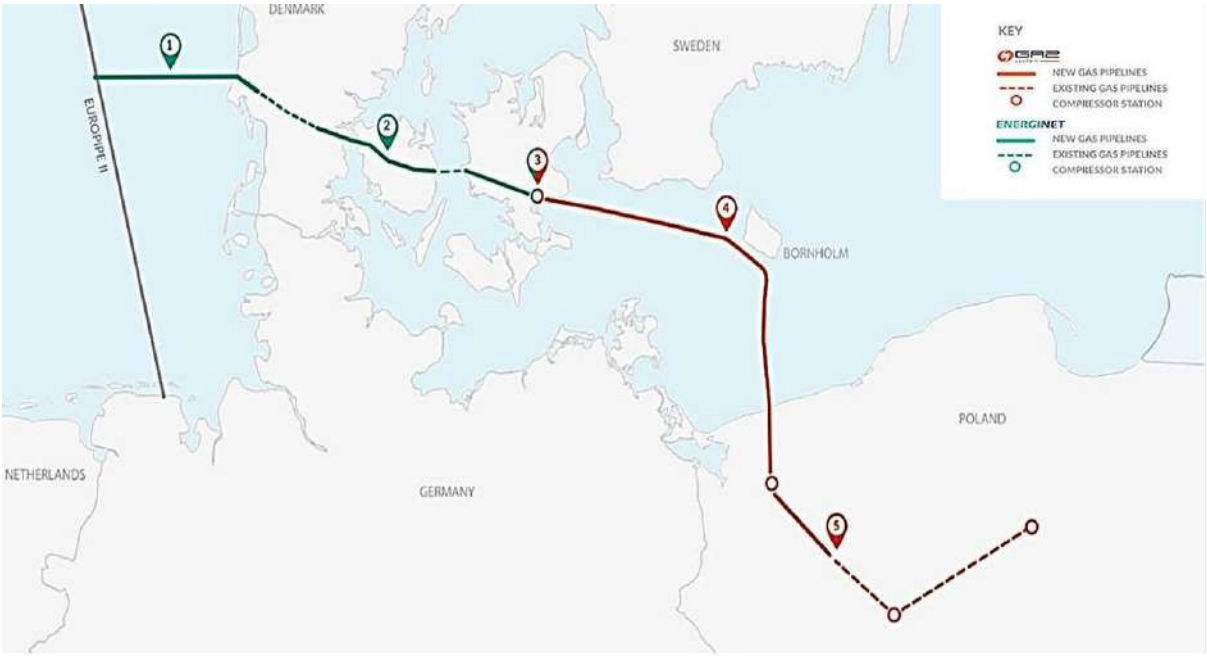
[7] **"PGNiG and Black Cat Plan Joint Development of Upstream Activities in the Gulf Region"**, *PGNiG*, 30 September 2021.

[8] **"PGNiG and ERU Contract American Gas for Ukraine"**, *PGNiG*, 1 February 2022.

[9] **"Energy Policy of Poland Until 2040"**, Ministry of Climate and Environment, Government of the Republic of Poland, 2021.

advantage of this project is the reverse flow feature which will allow for gas to flow not only from Denmark to Poland but also vice versa. It will transport 10 bcm of natural gas annually from Norway to Poland and Denmark, and 3 bcm from Poland to Denmark.[10] European Commission has granted subsidies under the Connecting Europe Facility (CEF) Programme for this project.

Fig. 2: The Baltic Pipe Project



Source: Baltic Pipe Project Website

Poland has stated in clear words that it is trying to replace Russian energy imports with other stable options. Piotr Naimski, Polish academic and a member of the *Sejm*,[11] who is also responsible for Poland's strategic energy infrastructure said, "We will not extend the contract with the Russian Gazprom" and will be importing "the full amount of gas necessary for the economy from other than Russian sources".[12] Poland's 26-year-old contract with Gazprom expires in December 2022, which will be problematic if the Baltic Pipe Project is not commissioned prior to it.

The revocation of the environmental permit by the Danish Environmental and Food Appeals Board could possibly delay the project by another three months. Changes in the rules and functioning of the Danish Environmental Protection Agency (DEPA) since 2019, call for prior approval of detailed remedial measures put in place, as described in the project's Environment Impact Assessment (EIA) report. According to the new regulations, the Baltic Pipe Project did not fully undertake the required measures to protect the local dormice, Nordic Birch mice and bat population, which resulted in the environmental permit being revoked. Energy experts believe that due

[10] **"About the Baltic Pipe Project"**, Baltic Pipe Project.

[11] Sejm is the lower house of the bicameral Polish Parliament.

[12] Piotr Macej Kaczyński, **"Poland Free of Gazprom Gas"**, *Euractiv,* 14 September 2021.

to this, labour will have to stay on-site longer than expected, leading to an overall additional expenditure of about 80 million Euros.[13] Although Danish authorities involved in the case have assured that the outcome of the proceedings will be in their favour and the project will suffer no further delays but that is only a hopeful assurance.

Expanding LNG and Gas Supplies

Poland estimates that its gas demands will cross 21 bcm by 2023–24.[14] The main reasons for this are two-fold. One is the global increase in energy demands and the other is the need to shift from fossil fuels to renewables. To prevent any shortages and fulfil the increasing energy demands, Poland has signed a deal to expand the capacity of the Swinoujscie LNG import terminal (northern Poland) from 5 bcm per year to at least 7.5 bcm per year. It will also be launching an LNG floating storage unit and regasification terminal in the Bay of Gdansk (northern Poland).[15] Through its terminals, Poland can receive LNG from the United States (US) and other exporters and further supply gas to its neighbours. One of the major initial costs of being a supplier of energy lie in building the infrastructure for transporting energy. In Poland's case, the pipeline system is already in place in the neighbouring countries, incurring no extra cost of building the infrastructure.

One of the projects conceived on similar lines is the North–South Gas Corridor, listed in the "National Ten-Year Network Development Plan".[16] It is a Polish document which lays down the ways to fulfil gas demands from 2020 to 2029. It plans to link a set of gas pipelines in southern and eastern Europe to improve the supply of energy and decrease the dependence on Russia. The main aim of this project is not only to diversify the supply sources but also the supply directions. A central or southern European country should not have to look only east for its gas supplies. To fetch the best results from this supply corridor, Poland can connect the LNG terminals at Swinoujscie and Krk (in Croatia) to a set of interconnectors and pipelines laid out in its southern and eastern direction. This will allow for gas to be imported from West Asia, the US, Canada, North Africa and Norway.

The North–South Gas Corridor requires the infrastructure of Poland and its neighbours to be interconnected. Four key areas that need urgent attention of the Polish authorities are the expansion of the domestic transmission system in north-eastern Polish territories, developing underground gas storage facilities, building new

[13] **"Energinet Estimates Cost of Baltic Pipe Delay at 80 Million Euro"**, *Baltic Pipe Project*, 2 July 2021.

[14] Stuart Elliot and Adam Easton, **"Poland Sets Plan to Install New LNG Import Terminal in 2024–25"**, *S&P Global*, 24 April 2019.

[15] Wojciech Mroczek, **"LNG is Becoming Increasingly Important for Poland and Europe"**, *Obserwator Finansowy*, 20 October 2020.

[16] Wiktor Hebda, **"The North-South Gas Corridor in the Context of Poland's Gas Transmission System—A Perfect Opportunity to Diversify Gas Resources"**, *Energies*, 2 November 2021.

interconnectors with Lithuania, Slovakia and Denmark and increasing the LNG import capacity of Poland. Poland needs to overcome the limitations of its domestic gas supply transmission system. It has a well-established network of pipelines in southern, south-eastern and western directions but the north-eastern section of Poland, which borders Lithuania and Kaliningrad of Russia, is rather underdeveloped in this regard. Upgrading supply systems to Lithuania is the key to supplying energy to the Baltics through an onshore system of pipelines.

Poland and Slovakia have also been building a gas interconnection system since 2014, which is due to be commissioned before 2023.[17] It will serve as an important element for the integration of the European gas market and will provide stable and secure supply to the central and eastern European countries. It can be fed with the gas supplied through the Baltic Pipe Project or even through the supplies from Polish LNG terminals.

Another aspect that requires focus is the need to increase entry points on the western side of Poland. Due to heavy reliance on eastern neighbours for energy and gas supplies, Poland has enough entry points to receive energy at its eastern borders. But owing to the switch in direction, from where Poland plans to receive the bulk of its supplies from now on, it will have to build the required infrastructure and entry points on its western border.

Opportunities for Poland

Poland can utilise its extensive pipeline system to supply gas to the Czech Republic, Slovakia, and Ukraine in the immediate neighbourhood in near future.[18] Europe has been very determined to not let Ukraine become redundant as an energy transit nation. Germany has joined hands with the US to develop projects for the production of hydrogen energy. An added advantage that Ukraine has is its massive gas storage facilities. In 2020, it had utilised its storage to a historical maximum of 28.4 bcm of gas.[19] After a harsh winter and high energy bills, Europe may look towards utilising the storage capacity of Ukraine to the maximum. This will have two advantages. One, Europe will be able to maintain the significance of Ukraine in the energy market and help it economically by paying a storage fee. Second, Europe will have gas reserves in abundance and will not have to resort to spot buying in huge quantities. In fact, Ukraine could tie-up with Poland for a longer tenure, to use its regasification facilities to import LNG from the US and other exporters. The rationale behind why specifically this duo, is two-pronged. First, Poland and Ukraine both have suffered the brunt of loss of transit fees from Russia over the gas pipelines laid through their territories. So much so that Ukraine used to get at least US$1 billion in transit fee from Russia

[17] Piotr Kuś, **"Construction of a Gas Interconnection Between Poland and Slovakia",** Gaz System, 2019.

[18] Wiktor Hebda, No. 16.

[19] Evelin Szőke, **"Ukraine Targets Gas Reserves of Over 19 Bcm Ahead of Winter"**, *Ceenergy News*, 18 August 2021.

annually.[20] Second, the strong trade ties between Poland and Ukraine could become the basis for developing energy trade between the two countries. In 2018, Poland was Ukraine's second-largest export market, with a trading value of about US$ 3,257,236.[21]

Impact of Russia–Ukraine Crisis

With the Russian invasion of Ukraine, the expansion of energy routes and suppliers has assumed increased urgency not only for Poland but the EU as a whole. However, the question is will the diversification make Poland completely free of Russian supplies? Diversification plans may not always yield complete independence from reliance on a certain source. In some cases, the reliance only shifts from one source to another. Owing to the heavy energy dependence that Europe has on Russia, how feasible will it be for the Western nations like Germany to increase their supplies to Poland? Given that the Nord Stream 2 pipeline is already under suspension and Germany is looking to decrease its dependence on Russia, how will it fulfil its own energy requirements? The current crisis in Ukraine has brought even the developed European nations to announce their intent to decrease reliance on Russia. It will be difficult for non-Russian suppliers to fill in Russian boots in a short span, considering the huge quantities of energy (especially oil and gas) that Russia provides to Europe.

Russia claims to have played fair in the energy game with Europe. Russia has not reduced the supply of energy to Europe. Russia provides at least 16 per cent of the global energy trade and given such prominence in the energy market, it will be difficult to replace a majority of Russian energy exports.[22] Putin will not easily let go of the prominent position that energy trade enjoys in the Russian economy. However, the post-Crimea sanctions imposed in 2014 and now the added SWIFT (Society for Worldwide Interbank Financial Telecommunications) sanctions will only further the decline of the Russian economy. Given these circumstances, Russia may have to possibly look to the east to bolster its supplies and exports.

Summing Up

The Green Deal is a boon for Poland as it comes at a critical juncture. Poland's coal production has been on a decrease and it has been looking to expand into the renewable energy sector. European aid has provided it with the much-needed financial assistance to make this shift. Now it is upon Poland to execute the plans,

[20] Jo Harper, **"Can Ukraine do Without Russian Gas Transit Fees?"**, *DW News*, 28 January 2022.

[21] Ariyand Amnipour, **"Energy Security in Poland: Where the Energy Sector Falls Short and Where It Can Go"**, *Georgetown Scientific Research Journal*, Vol. 2, Edition 1, Fall 2021.

[22] Tatiana Mitrova and Yuriy Melnikov, **"Energy Transition in Russia"**, *Springer Link*, 11 September 2019.

to be able to reach the national targets agreed at the Paris Agreement in 2015. The Baltic Pipe Project is an essential component in this chain of transition. If completed timely and as planned, it will not only diversify Poland's energy sources but also help it to become an energy exporter to its neighbouring countries. The North–South Gas Corridor along with the expanded LNG facilities can bring a lot to the table of diversification.

The ongoing Ukraine–Russia crisis has additionally fuelled Polish desires to move away from Russia. In fact, it is also having a similar impact on other European economies with a heavy Russian reliance. Poland retains the advantage of moving first towards diversification of energy supplies. It had its policy in place much before the crisis struck. Considering that many countries are looking to diversify after this crisis, it may be less tedious to find partners for collaboration and joint exploration of energy fields. The demands of gas and oil from other exporters like the US and Africa will see a rise. This might also be an important cog in the wheel of the EU–Africa partnership and help revive the transatlantic ties as expected.

About the Author

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