Crisis and Security Management

Final Paper

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Has the Polish government responded effectively after 2006 in reinforcing national energy security, in the wake of rising assertiveness of the Russian Federation in the region?

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Abstract

This paper provides an overview of the situation on the European energy market with emphasis on the relationship between Russia and the Eastern European countries. It touches on multiple fields of study, including history, security and energy. Although it provides many general information about the energy market in Europe and complexity of energy security, the main goal is to investigate how Poland has reshaped its energy security policy in the recent years. It is done by discussing different initiatives that were undertaken after 2006, which are related to diversification of supply and investing in alternative energy resources.

Moreover, this investigation aims to emphasise the importance of the energy security in the shifting geopolitical situation. Therefore, it explains the rise of Russian assertiveness in its foreign policy after 2006. With monopoly of Gazprom over the European energy market, it is therefore assumed that risk for the depended country has increased. This analysis also provides a numerous frameworks that could be potentially used to assess effectiveness of energy security, which is strictly related to the risk-management strategies.

Difficult relationship

For centuries, the Russian Federation had an indisputable impact on the geopolitical situation in Central and Eastern Europe. Although in some periods this influence was more direct and in others it was more subtle, the relations between Russia and most of the countries in that region have been relatively uneasy. Obviously, such statement would require more analysis from a historical perspective, as the attitudes of the countries in Central and Eastern Europe have been very much different to its *'powerful'* neighbour in the East. However, it is definitely a fact that the end of the Second World War marks the beginning of a period, in which Eastern European countries became fully dependent on the decisions made in the Soviet Union. After 1945, all of the countries in Eastern Europe, including the Baltic States, Poland, Hungary, Romania and Bulgaria were under the direct sphere of influence of the Kremlin. This evident political dependency on the Soviet Union and the repressions that was introduced in those countries, have arguably left a legacy in regards to the contemporary, bilateral relations between Russia and the countries in the Eastern Europe.

Poland, which is at the centre of this investigation, has always been in a very difficult relationship with Russia. Even before the outbreak of the Second World War, the USSR was involved in numerous conflicts with Poland. Nature of these military clashes were often different, but most of the historians argue that Poland and the other countries in Eastern Europe were the *geostrategic* goal of Russia, which always had ambitions to reinforce its position as a hegemon in that region (Torkunov, 2015: 381). Post-Second World War events have put even more negative emotions between those two states. The Soviet occupation of Poland, especially between 1939 – 1941, was firmly brutal for most of the social groups in Eastern Poland. Thousands of people were arrested, executed or deported by the Soviet secret police – NKVD (Besemeres, 2016: 40). Although scholars disagree on the number of people that were deported to the Soviet hinterland in the period of 1939 – 1945, it is approximately one million people. One of the most of the merciless examples of the Soviet repression of Poles was the mass execution of 22,000 Polish nationals in 1940, who were murdered at several sites but who are collectively remembered by the name of city of Katyń (Besemeres, 2016: 41). The Soviet occupation of Poland during the war, was obviously just the beginning of the brutality of NKVD in Poland in the later years. The *Stalinization* of Polish society was ongoing in post-war Poland, which became a communist-dominated puppet state (Besemeres, 2016: 42). Similar political process was ongoing in all of the countries, which were in the

sphere of influence of the Soviet Union at that time. That obviously created a sense of hostility in the Polish society towards Russians. The escape from this dependency came in the late 1980s, as the Soviet Union began to collapse and lose the political influence in the region. However, after Poland regained full sovereignty in 1989, the relations between those two countries were still very complicated. The period of 1990 – 2000 is often referred by historians as the "Golden Age" of the Polish-Russian relations because in comparison to the historical tensions between these two countries, the last decade of the 20th century was very peaceful (Torkunov, 2015: 539). However, the major problem for the Russian Federation at that time was the Polish desire to join the North Atlantic Treaty Organization, which practically meant the full erosion of Moscow's influence in Eastern Europe. The willingness to join NATO and increasing cooperation with the USA were arguably the main frictions in the process of relation-building between Russia and the sovereign states in the Eastern Europe (Torkunov, 2015: 540). Moreover, Poland has undertaken its own initiative and tried to promote its vision for the countries that were previously in the direct sphere of influence of the Soviet Union – Belarus, Ukraine or Georgia. Obviously, both under the Yeltsin and Putin presidencies, Russia was not willing to voluntarily lose all the influence over countries, which were previously part of the Soviet Union or a Soviet Republic. Although the first term of presidency of Boris Yeltsin gave some hope that the normalization of the relations between the Russian Federation and the Western countries was possible, the shift in Russian foreign policy after 1993 has partly restored tensions from the past (Marantz, 1997: 349).

What is also important is the fact that Russia, after the collapse of the Soviet Union was facing a deep economic recession and required reforms that would adopt its centrally-planned economy to the global markets conditions. However, instead of decentralising and privatising domestic businesses, Russia introduced policies that retained the *hierarchical governance* structure in key industries (Locatelli, 2014: 55). Thus, government retained control over key sectors of the Russian domestic market – **including the gas and oil industries**, which became a very strategic and beneficial sectors for the newly formed Russian Federation. Therefore, many experts claimed that in order to retained some form of involvement in the Eastern Europe, the Russian Federation needed to shift the focus from traditional geopolitics to geoeconomics and geoculture. The specific situation of Russian geoeconomics is the proximity to the developing European economy and the possession of massive reserves of oil and gas, which basically gave Russians monopoly in that sector in Europe. That could potentially develop into a situation in which the European energy sector be depended purely

on the Russian reserves. Control over companies, which were exporting natural gas and petroleum oil – Gazprom (50.002% of shares owned by the government) and Rosneft (75% of shares owned by the government) was arguably a valuable 'asset' that could have been used to form either political or economic pressure on the countries that were depended on imports of that strategic resources from Russia.

That dependency was not viewed as a serious threat to the European countries as most of the political leaders hoped that the policies of Boris Yeltsin and his successors would be far from *expansive*. As it was mentioned before, after 1993, it was gradually becoming evident that Russia was not going to transform itself into a fully 'Western-style' democracy and would not refuse to give up its past position as a regional hegemon. However, it was not until the presidency of Vladimir Putin, during which the Kremlin started - according to many experts, revisiting its Cold-War era bullying habits on the international stage (Blinick, 2008: 123). Such a statement is obviously biased to some extent, as it could also be argued – from a realist perspective – that Russia is simply securing its position and interests in the region. Nevertheless, gas wars with Ukraine in 2006 and 2009, military intervention in Georgia in 2008, or annexation of Crimea in 2014, all are evident examples of the rising Russian assertiveness. Such a shift in the Russian foreign policy has raised discussion in many European countries regarding reliability of Russia, as a trading partner (Blinick, 2008: 125). Obviously, the specific date, which is used in the research question – 2006 – is subjective, as the rise of assertiveness of Russia cannot be specified physically – it was rather a gradual shift than a specific event that changed the perspective of European leaders on the reformulation of Russian foreign policy.

Therefore, investigating the background of that difficult interdependency between Russia and Eastern European countries that are economically dependent on the gas and oil imports can provide a better understanding of the complexity of security in contemporary world. The importance of diversification of the energy resources has been recently on the agenda of the EU, but also of individual member states, which makes it a very relevant topic to study.

European energy market

After the end of the Cold War, the traditional understanding of geopolitics and security have greatly changed. Although there is plenty of literature on that issue, the starting point could be the analysis of David Baldwin (1997, 5-26), who tried to explain security in the post-Cold War context. Although this investigation deals with a particular theme in the security studies discourse, Baldwin makes some very useful points that could simplify conceptualisation of security in regards to energy security. Security in general has not been an important analytical concept, as until the end of the Cold War, security was understood in a fairly straight forward way. There were two elements - military forces and physical border control – in which scholars were interested in regards to security studies (Baldwin, 1997: 7). The end of the Cold War reshaped this 'traditional' understanding of security and brought new dimensions of this concept – such as the information or communications security (cyber/IT dimension), human security, energy security or environmental security. It is very much true that in the aftermath of the end of the Cold War, with the limited possibility of the outbreak of a conventional military conflict, not only the academic perspective has changed, but also the real goals in foreign policy of global powers. Rather than securing its interests by using hard power and expansion of its conventional military power - use of geoeconomics, diplomacy and soft power in general became more apparent.

It seems obvious that there is a direct link between the possession of sufficient amounts of energy and the security of the state. The concept of **energy security**, which is very central in this investigation, has traditionally been linked with geopolitics. This form of security arguably plays a crucial part in the broader context of maintaining the stability of the state. Different forms of energy are essential not only in the residential, industrial and transportation sectors, but are also necessary for the military (Bahgat, 2006: 94). To understand the methods of evaluation of energy security policy, it is arguably important to firstly examine the concept of 'energy security' from the academic perspective (which however, will be done in the later part of this investigation). Scholars struggle to provide a universal definition of this term, as it covers a lot of aspects – ranging from energy poverty to climate change (Cherp, 2014: 416). However, most of the definitions focus on the aspect of *availability and affordability* of the energy resources.

Figure 1.2.1, illustrates that the energy consumption has been on a gradual rise in the recent years, which also proves that sufficient energy reserves are necessary for the economic development of the country. In the last forty years, there has been a significant rise among three energy resources – **oil, coal and natural gas**, which are predicted to dominate the energy sector in the future (**Table 1.2.1**).

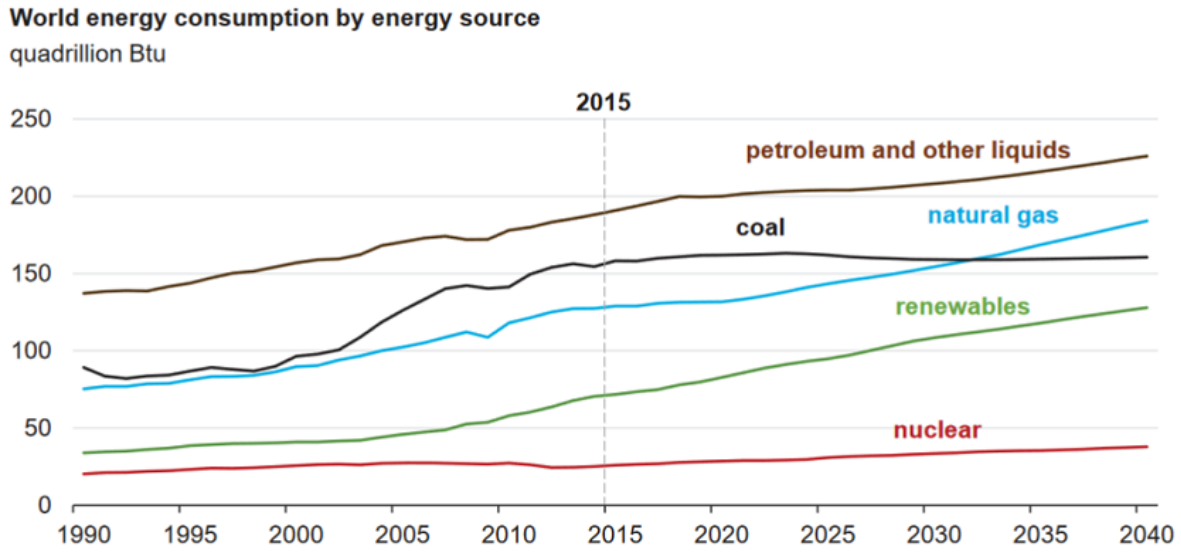

Figure 1.2.1: Energy consumption in the world, 1990-2040.

Source: www.ogj.com/content/dam/ogj/online-articles/2017/09/EIA%20IEO%20world%20energy%20consumption.png

The energy consumption levels obviously varies among countries, even in the European Union. However, most of the experts agree that the most important aspect in investing in a particular energy resources is its cost-efficiency, which is the highest in regards to coal, petroleum oil and natural gas (Shaffer, 2014: 70). Therefore, those three will definitely remain the most demanded energy resources, although in the near future, there will be increased investments in the renewable energy sources, such as solar energy, hydropower or wind power. Although some scientists provided a very catastrophic outlooks of the oil availability in the future and thus emphasised the importance of the investments in those alternative energy resources, the oil and gas sectors are predicated to fulfil the cumulative consumption requirements until 2100 (Costantini, 2005: 212). It is also worth mentioning that the primary energy consumption is increasing each year and is predicated to continue in the future (Nagayama, 2014: 89).

World	1990	2010	2015	2020	2030
Coal	25.4	27.3	28.2	27.3	25.5
Petroleum oil	36.8	32.3	31.1	29.9	27.9
Natural gas	19.0	21.5	21.4	21.9	23.3
Nuclear power	6.0	5.6	5.4	6.0	6.5
Renewable sources/others	12.8	13.3	13.9	14.9	16.8

Table 1.2.1: Energy consumption pattern in the World, 1990-2030. Source: *Eurostat*.

Unfortunately, the European Union Member States do not have the potential for energy self-sufficiency and thus are highly depended on the imports of energy resources, excluding coal. Moreover, Europe's reliance on natural gas is expected to rise in the future, which will increase the share of imports in the region's total gas supply (Costantini, 2005: 220). Therefore, the European countries must import gas and petroleum oil from different regions in the world - mostly Russia and Norway. **Tables 1.2.2** (imports of petroleum oil) and **1.2.3** (imports of natural gas) present which countries are the main trading partners in regards to those strategic energy resources. It is evident that Russia is the dominant player on the energy market in Europe, accounting for **31.8%** of all imported petroleum oil to Europe and **39.1%** of natural gas. Besides Russia, Norway has a significant share of the market, especially in regards of the natural gas – as 34.8% of that resource in Europe is imported from that Scandinavian country.

Partner	Value (Share %)	Net mass (Share %)
Russia	31.8	32.5
Norway	13.4	12.8
Kazakhstan	7.2	6.9
Iraq	7.1	7.7
Saudi Arabia	6.8	6.9
Nigeria	5.9	5.8
Azerbaijan	5.0	4.8
Algeria	3.8	3.4
Iran	2.9	2.9
Angola	2.5	2.5
Libyan Arab Jamahiriya	2.4	2.3
Mexico	2.1	2.3
Egypt	1.5	1.4
Others	7.6	7.8

Table 1.2.2: Extra-EU imports of petroleum oils, shares (%) of main trading partners, 2016. Source: *Eurostat*.

Partner	Value (Share %)	Net mass (Share %)
Russia	39.1	37.5
Norway	34.8	37.3
Algeria	11.6	10.6
Qatar	7.9	8.3
Libya	2.6	2.3
Nigeria	1.7	1.7
Others	2.3	2.3

Table 1.2.3: Extra-EU imports of natural gas, shares (%) of main trading partners, 2016. Source: *Eurostat*.

It is very important to highlight that there are high levels of diversity within the European Union regarding the amounts of oil and gas imported from either Norway or Russia. Therefore, it cannot be stated that all of the countries in the EU are depended on imports from one partner. **Table 1.2.4** provides data about the share of imports from Russia of petroleum oil and natural gas of the EU countries. According to this data, it was possible to create **figures 1.2.2** and **1.2.3**, which illustrate which countries in Europe are highly dependent on imports of these strategic resources from Russia.

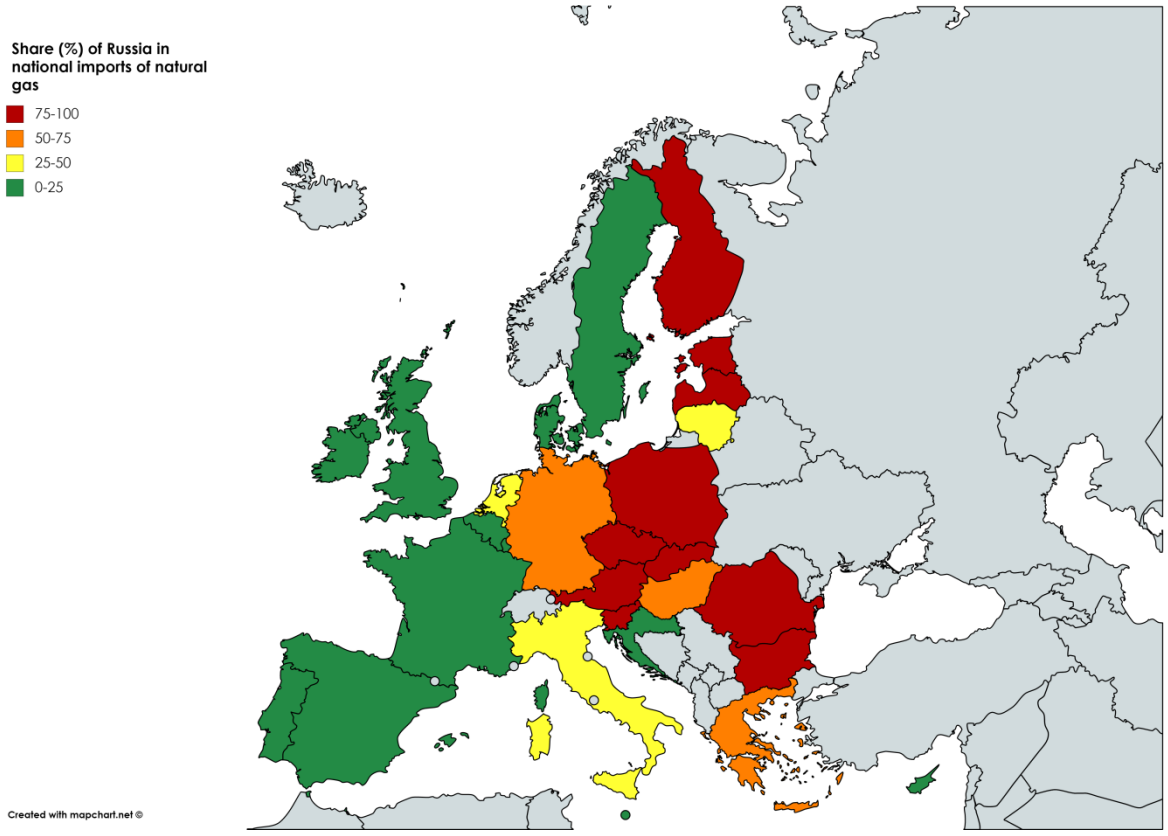

Figure 1.2.2: Share of Russia in national imports of natural gas in EU member states.

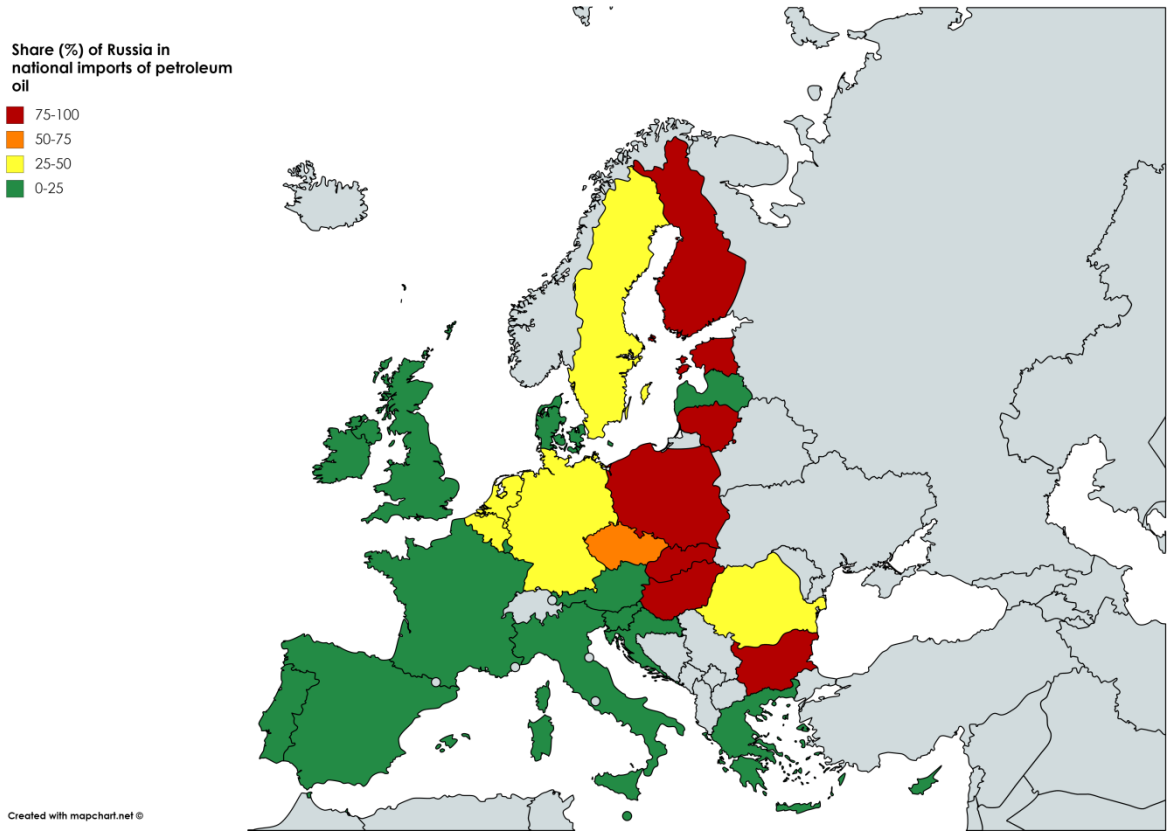

Figure 1.2.3: Share of Russia in national imports of petroleum oil in EU member states.

	Share (%) of Russia in national extro-EU28 imports	
Country	**Petroleum Oil**	**Natural Gas**
Belgium	25-50	0-25
Bulgaria	75-100	75-100
Czech Republic	50-75	75-100
Denmark	0-25	0-25
Germany	25-50	50-75
Estonia	75-100	75-100
Ireland	0-25	0-25
Greece	0-25	50-75
Spain	0-25	0-25
France	0-25	0-25
Croatia	0-25	0-25
Italy	0-25	25-50
Cyprus	0-25	0-25
Latvia	0-25	75-100
Lithuania	75-100	25-50
Luxembourg	0-25	0-25
Hungary	75-100	50-75
Malta	0-25	0-25
Netherlands	25-50	25-50
Austria	0-25	75-100
Poland	75-100	75-100
Portugal	0-25	0-25
Romania	25-50	75-100
Slovenia	0-25	75-100
Slovakia	75-100	75-100
Finland	75-100	75-100
Sweden	25-50	0-25
United Kingdom	0-25	0-25

Table 1.2.4: Share (%) of each Member State in extra-EU imports of petroleum oils and natural gas, 2016. Source: *Eurostat*.

According to this data, it is clearly visible that Eastern Europe is much more dependent on the imports of oil and gas than the countries in Western Europe. Some countries, such as Poland, Slovakia, Finland, Estonia or Bulgaria import more than 75% of both oil and gas from one partner – Russia. In that sense, it could be asked if being highly dependent on importing such strategic resource poses a threat to the national security and domestic stability of the state.

Russian assertiveness on the rise

According to the *BP Statistical Review of Energy* (2017, 26), the Russian Federation possesses 17,3% of the total share of proved reserves of natural gas in the world. Together with Iran (18%) and Qatar (13%) these countries have a monopoly of the market regarding this energy resource. As it was explained in the previous chapter, Russia has an absolute monopoly in exporting oil and gas to most of the countries in Eastern Europe, including the Baltic States, but also Ukraine. What is also important to understand is how the gas and oil is being transported from Russia to Europe. **Figure 1.3.1** illustrates active pipelines and pipeline terminals operating in Europe, via which gas 'enters' Europe. There are two pipelines – *Yamal* (capacity of 33 billion cubic metres) and *Brotherhood* (capacity of 27.9 billion cubic metres) which are crossing via territories of Belarus, Poland and Ukraine. The other two, *Nord Stream* and *Blue Stream* are connecting Russia directly with Germany and Turkey.

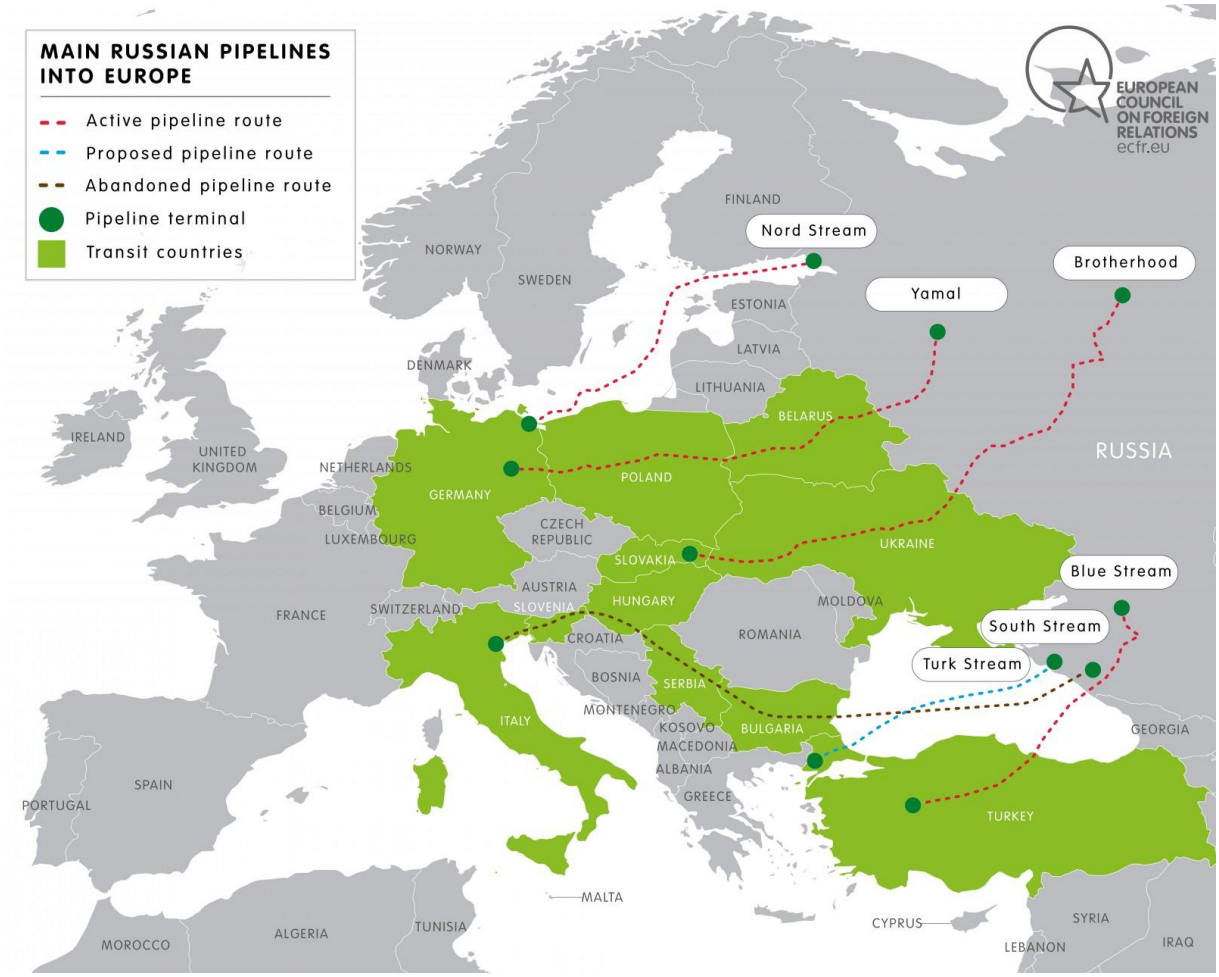

Figure 1.3.1: Main Russian pipelines into Europe. Source: *European Council on Foreign Relations.*

It is possible to argue, that gas is one of the most complex natural resource in terms of geopolitics and geostrategy. One of the reasons for that is the matter of infrastructure (pipelines), which is used to transport gas. That can even add to the geopolitical complexity of trading this natural resource by e.g. invoking economic issues such as the hold-up problem (Nagayama, 2014: 93). It was often a case in relations between Gazprom and Ukrainian government, which had many disputes about gas prices, but also transit costs. (Lee, 2017: 206). It is commonly accepted among experts that the evident example when Russia has used 'gas' as a weapon was the conflict with Ukraine in 2009 (Lee, 2017: 202). At that time, Russia was supplying about 70% of Ukrainian gas demand, while via the Brotherhood pipeline Russia was supplying as well 80% of its total export value to its Western partners (Lee, 2017: 201). In that sense, there are some scholars, who are claiming that there is a casual link between interdependence and conflict (Lee, 2017: 200). It is also very important to emphasize that it is interdependence – not purely dependency relation of countries that are importing oil and gas from Russia – as exporting energy resources is one of the largest cash inflows for the Russian economy. As it was mentioned before, exporting energy provides about 20% - 25% of the Russian Gross Domestic Product (Neacsu, 2016: 32). Still, the example of the energy market and Russian relations with Ukraine and Poland (to a lesser extent) seems to fit perfectly to such hypothesis that this kind of interdependence is a major threat for the stability of the countries which are depended on the monopoly of Gazprom.

It is worth to explain in more detail the 2009 conflict, which was different from previous ones, mainly because there were significant consequences not only for Ukraine, but for many European countries. In the early 1990s Ukraine was benefiting from lower gas prices than the countries in the West, but the situation was changing, as the Ukrainian demand for gas increased, Russian officials requested higher prices (Lee, 2017: 202). Both in 2006 and 2009, Russians decided to limit the supply of gas to Ukraine due to unsuccessful negotiations regarding the price of gas. However, in 2009 Russia has completely cut off the gas supply on the *Brotherhood pipeline*, which disrupted the energy security of not only Ukraine, but Slovakia or Czech Republic as well. Still, Russian officials made their point and Ukraine accepted to pay same prices, which countries in the Western Europe pay for the Russian gas. The so-called 'pipeline diplomacy', which arguably is conducted by Gazprom, is not limited only to disputes with Ukraine or Poland but is also strengthening the position of Russia in international disagreements, as was seen in the cases of Russian opposition to Kosovo independence and accession of Eastern European Countries to NATO (Blinick, 2008: 124).

The Polish case is different from the Ukrainian as there have been no disputes regarding the gas prices with Gazprom. PGNiG, the company that was representing Poland, signed a contract (for 25 years) in 1996 assuming that Russia would supply 250 billion cubic meters of gas. Experts disagree on the fee that Polish officials had to pay, but it is approximately 21-25 billion dollars (Gabryś, 2014: 31). At that time, such a price was arguably the highest paid by all the European countries importing gas from Russia. Moreover, *The Yamal agreement* aroused much controversy inside Poland and weighed heavily on the relations between Warsaw and Moscow. That situation was mainly caused by the ownership structure of the Yamal pipeline. In the beginning, the shares were divided equally between the Polish PGNiG (48%) and Russian Gazprom (48%) and the remaining amount of shares was in the hands of the Polish private company EuRoPol Gaz (4%). Until 1999, this private company was represented mostly by the Polish officials, which gave the Polish government control over the Yamal pipeline crossing Polish territory (Torkunov, 2015: 237). However, in 1999 the shares of EuRoPol Gaz were partly sold, which gave Gazprom the possibility to assume control over this private shareholder and thus get the control over the Yamal pipeline in Poland (Torkunov, 2015: 239). In Poland, this situation was seen as contrary to the national interest. It was believed that the Yamal pipeline, like the whole transmission infrastructure, should be under Polish control (Torkunov, 2015: 240). Russian ownership of the Yamal pipeline in Poland gave Gazprom independent decision-making regarding a variety of aspects such as expansion of the pipeline or the yearly revisions of the gas prices. One of the most examples, which was possible because of that particular ownership structure, was cancelling the debt of Gazprom (350 million US dollars) by EuRoPol Gaz for transiting extra amounts of gas to Germany, which was not allowed according to previous agreements (Gabryś, 2014: 387). It also has to be remembered that Gazprom has undertaken two projects (Nord stream and potentially Nord stream 2), which will deliver gas directly from Russia to Germany, decreasing the role of Poland, as a transit country even more. Generally, the Polish situation – as a developing country, with a growing consumption of energy – can be described as very difficult, given that it imports more than 75% of oil and gas from Russia. However, in the recent years, there projects have been undertaken that could potentially improve the situation of the Polish energy market, but also strengthen the position of the Polish government after the current contract with Gazprom (2021) will expire. Therefore, the analysis of those projects, using analytical framework would enable to assess the extent to which the Polish government responded to the changing geopolitical situation and secured the stability of the state for the future years.

Measuring energy security

As it was mentioned before, scholars struggle to provide a universal definition of energy security, as it covers various aspects. Although for most scholars conceptualizing it in the 1970s and 1980s was straightforward – as it simply meant stable supply of cheap oil – contemporary situation on the market and the increasing focus on environmental dimension of energy consumption requires re-examination of that matter (Cherp, 2014: 416). Obviously, due to the fluctuating oil prices and the geopolitical supply tensions, this term is still mostly related to be a part of the geopolitical discourse (Kruyt, 2009: 2167). However, defining energy security is mostly subjected to the given context – as in 2015, 83 different definitions of energy security have been identified (Ang, 2015: 1080). Therefore, selecting a particular or a few of such definitions is arguably not that crucial, as it is more important to concentrate on understanding how it is possible to assess energy security, rather than just define it.

Most of the scholars evaluate the energy security of the state in regards of four factors - **"four As"– availability, affordability, accessibility and acceptability** (Cherp, 2014: 418). In basically every research regarding energy security, the authors use at least one of these factors. In the simplest way, these four criteria can be explained as:

- Availability – geological dimension. Physical existence of natural resources on the territory of the state.
- Affordability – economical dimension. Costs of extraction or import of natural resources.
- Accessibility – geopolitical dimension. Acquiring access to natural resources (physical or by importing), which can have geopolitical implications.
- Acceptability – environmental dimension. Environmental sustainability of extracting or transporting natural resources.

Still, these four factors propose a very broad and mostly theoretical framework, which cannot be used as an analytical tool in such investigation. Some scholars have developed this general 'model' and added other criteria, such as *regulation* or *technological development* (Sovacool, 2011: 5344). In his research, Sovacool (2011), created a model based on five different dimensions, each having a number of *simple indicators and metrics*, which he then uses to assess 15 different countries and their energy security (**Figure 2.1.1**).

Dimension	Explanation	Underlying Values	Components
Availability	Having sufficient supplies of energy. Being energy independent. Promoting a diversified collection of different energy technologies. Harnessing domestically available fuels and energy resources. Ensuring prudent reserve to production ratios	Self sufficiency, resource availability, security of supply, independence, imports, variety, balance, disparity	Security of Supply and Production Dependency Diversification
Affordability	Producing energy services at the lowest cost, having predictable prices for energy fuels and services, and enabling equitable access to energy services.	Cost, stability, predictability, equity, justice, reducing energy poverty	Price Stability Access and Equity Decentralization Affordability
Technology Development and Efficiency	Capacity to adapt and respond to the challenges from disruptions, researching and developing new and innovative energy technologies, making proper investments in infrastructure and maintenance. Delivering high quality and reliable energy services.	Investment, employment, technology development and diffusion, energy efficiency, stockholding, safety and quality	Innovation and Research Safety and Reliability Resilience Efficiency and Energy Intensity Investment and Employment
Environmental and Social Sustainability	Minimizing deforestation and land degradation, possessing sufficient quantity and suitable quality of water, minimizing ambient and indoor pollution, mitigating GHG emissions associated with climate change, adapting to climate change.	Stewardship, aesthetics, natural habitat conservation, water quality and availability, human health, climate change mitigation, climate change adaptation.	Land Use Water Climate Change Pollution
Regulation and Governance	Having stable, transparent, and participatory modes of energy policymaking, competitive markets, promoting trade of energy technology and fuels, enhancing social and community knowledge about education and energy issues	Transparency, accountability, legitimacy, integrity, stability, resource curse, geopolitics, free trade, competition, profitability, interconnectedness, security of demand, exports	Governance Trade and Regional Interconnectivity Competition and markets Knowledge and Access to Information

Figure 2.1.1: Energy security dimensions, values and components (Sovacool, 2011: 5345).

Sovacool provides a very comprehsive model that could be used to analyse energy security, however this investigation focuses strictly on the question of resilience of the energy sector in the wake of potential external pressure. It could therefore be more accurate, to use the framework proposed by Cherp (2014), who defines energy security as *low vulnerability of vital energy systems* **(Figure 2.1.2)**.

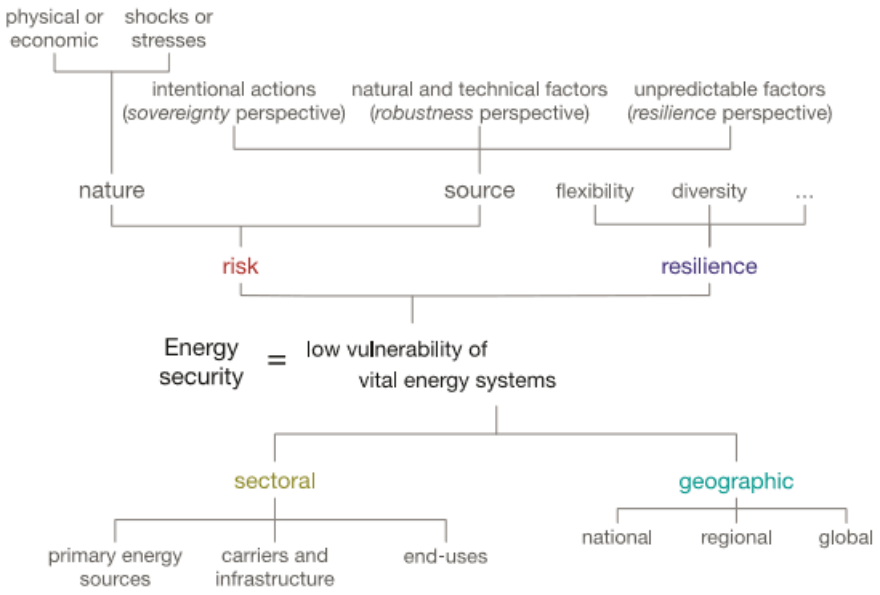

Figure 2.1.2: Energy security defined as low vulnerability of vital energy systems (Cherp, 2014: 419).

This theoretical model distinguishes two dimensions that can have impact on the vulnerability of the energy sector – risks and resilience. On the other hand, it emphasises the vital systems that can have impact on the energy security of the state, which can be either sectoral or geographic. The question of *'low vulnerability'* is arguably covering the key assumption of this investigation. A similar approach can be observed in **The IEA Model of short-term energy security.** This model developed by the experts from International Energy Agency in 2011 is not classifying different countries in regards to any criteria, but rather proposing particular indicators that could mean that a country energy sector is vulnerable or resilient. **Table 2.1.1** explains four dimensions that are used in this model – external risk, domestic risks, external resilience and domestic resilience. This understanding of energy security is related to the risk-management strategies (Gurgul, 2014: 82).

	Risk	Resilience
External	**External risks:** risks associated with potential disruptions of energy imports.	**External Resilience:** ability to respond to disruptions of energy imports by substituting with other suppliers and supply routes.
Domestic	**Domestic risks:** risks arising in connection with domestic production and transformation of energy.	**Domestic Resilience:** domestic ability to respond to disruptions in energy supply such as fuel stocks.

Table 2.1.1: Dimensions of energy security addressed in the IEA Model. Source: The IEA Model of short-term energy security.

In the **tables 2.1.2** and **2.1.3** it is presented what the particular risks and resilience indicators are regarding crude oil and natural gas. Although it is not a very complex model, it proposes a few, very particular, indicators that can be used to assess whether the resilience of the Polish energy sector has improved after 2006.

	Risks	Resilience
External	**External risks:** • import dependence • political stability of suppliers	**External resilience:** • number of ports • number of pipelines • diversity of suppliers
Domestic	**Domestic risks:** • share of offshore production • volatility of domestic production	**Domestic resilience:** • average storage level

Table 2.1.2: Indicators of potential risks and resilience in regards to crude oil. Source: The IEA Model of short-term energy security.

	Risks	Resilience
External	**External risks:** • import dependency • political stability of suppliers	**External resilience:** • entry points: Liquified natural gas (LNG) ports • entry points: pipelines • diversity of suppliers
Domestic	**Domestic risks:** • offshore production	**Domestic resilience:** • send-out capacity from natural gas storage • gas intensity

Table 2.1.3: Indicators of potential risks and resilience in regards to natural gas. Source: The IEA Model of short-term energy security.

Combing the dimensions of the IEA model and the main assumptions of the existing literature it could be argued that the definition of energy most suitable for such investigation could be:

> "energy security is conditioned by strategic planning, aimed at diversification of fuels and resources, and also effectiveness and flexibility in the energy sector". (Gurgul, 2014: 89)

That definition is still not enough to assess the energy security of Poland as the discussed models do not provide enough indicators that can be used in this analysis. Therefore, it is also possible to use e.g. *Energy Security Risk Index***,** which takes into account variety of data in assessing the stability of energy sectors of different countries. That could be also a very relevant way to evaluate the effectiveness of the Polish energy sector by doing a cross-time analysis. This index, developed in 2016 by the experts from the U.S. Chamber of Commerce provides also some predications for the future years, which could also be useful in such analysis. Different statistical model is for example the *Energy Security Index***,** developed in 2011 by scholars from the Polish think tank – the Kosciuszko Institute. It takes into account different statistical characteristics of the energy sector, such as domestic oil production, diversification of crude oil supply or capacity of import infrastructure. It is possible to compare the data from those two indexes and thus evaluate how (according to different experts) Polish energy security deals with the increased external risk of a Gazprom monopoly. It would obviously be much more accurate to analyse the specific (statistical) indicators, or more precisely to compare those past indicators with the predications for the future. However,

such data is almost impossible to acquire and its interpretation require a high level of understanding of the technical aspects related to energy studies.

It could be also relevant to explain what factors may impact formulating the energy security policies. Although this investigation presumes that it was the geopolitical shift in the region, however, it could be useful to present alternative theories. There are four theories, which are often used by the scholars that are very much related to the IR narrative: *Realist, Institutionalist, New Economics of Energy and Critical Political Economy*. Realist theory is very much related to the broader realists assumptions made in the International Relations field. It assumes that the matter of natural resources can be a used as a form of 'soft power' and therefore can lead to political conflicts (Helm, 2002: 176). Moreover, the realists assume that the international system is anarchic and therefore, the main goal of every state is to ensure the energy self-sufficiency by any possible means. The Institutionalist approach analyses the role of the international economic institutions (such as OPEC) in regards to the energy security (Helm, 2002: 177). The New Economics of Energy assumes that the energy sector became a complex system of trade transactions, where the price formation could become a major source of the political vulnerability. Thus, it assumes that the cooperation of states in regards to energy security is strictly dictated by the markets (Helm, 2002: 178). Lastly, the Critical Political Economy emphasises the economic values of the state (Nationalism, Liberalism) in the creation of energy security strategies. This approach assumes that the structure of the internal economic system of the state has the largest impact on its relations with other states in regards to energy security cooperation and for its internal strategy as well (Helm, 2002: 179). After evaluation of the Polish energy security in the recent years, it could be discussed whether the rise of Russian assertiveness was the only factor that encouraged the possible reformulation of energy policies in Poland. However, firstly it is important to get a better understanding of the Polish energy security dilemmas in the last two decades.

Polish energy security after 1989

As it was mentioned in the introduction, Poland has signed a contract with Gazprom in 1996, which provided Poland a stable supply of oil and gas. Domestic discussion on that issue had already flared up in 1993 on the question of whether the Yamal agreement ensured the country's energy security by providing long-term supplies and balancing Poland's dependence on Russian supplies with Russia's dependence on transit across Poland, or whether it sealed Gazprom monopoly, precluding any diversification initiatives for many years to come (Torkunov, 2014: 331). Russian monopoly on the market and the later control of Gazprom of the transit pipeline through Poland were obviously the main challenges of Poland's energy security. Another challenge was arguably the political instability in Poland after the collapse of the Communist regime (Gabryś, 2014: 42). That resulted in a succession of cabinets, which had different and often incoherent strategies regarding Polish energy security. An example illustrating such a case can be the government of AWS-UW (a coalition of a right-wing and a centrist parties) in 2001. Increasing diversification of supply of oil and gas was one of the crucial goals of that government regarding energy security. In 2001, government officials signed a provisional contract with Norway for a purchase of five billion cubic meters of gas, beginning in 2012 (Torkunov, 2014: 333). That would definitely improve the stability of supply of gas to Poland, but also meant a symbolic challenge of the monopoly of Gazprom on the Polish market. However, the next government (which was also a coalition government, but dominated by the SLD party – which was based on the former communist officials), abandoned the deal with Norway (Torkunov, 2014: 334). Similar case occurred in 2005, when the right-wing party PIS won the elections and immediately looked for alternative exporters of oil and gas (Norway and USA). This government was dissolved two years later and the new coalition of PO-PSL (Centrist-liberal parties) renegotiated the contract with Gazprom in order to increase the annual supplies of gas by 20-30% (Torkunov, 2014: 334). Inconsistency of Polish politicians was arguably more detrimental than external pressure of Gazprom. On the other hand, Gazprom was very much consistent in its position, but also as many scholars argue it used a number of lobbying groups to curtail other sources of supply for the Polish market (Gabryś, 2014: 380).

Apart from the historical analysis, it is also crucial to concentrate on Polish energy security from the analytical perspective. **Table 2.2.1** illustrates the energy consumption in Poland from 1990 up to predictions for 2030. In comparison to the energy consumption pattern (**Table 1.2.1**), Polish energy sector is dominated by coal, which *availability* in Poland is very high. However, it is visible that the dependency on coal is decreasing, mostly due to the environmental regulations imposed by the European Union (regarding the emissions of CO_2). Therefore, many experts expect that the share of alternative energy resources – such as nuclear power or natural gas is going to increase in the future. Still, both petroleum oil and natural gas at the moment constitute approximately 41,5% of the whole natural resources used in Poland.

Poland	1990	2010	2015	2020	2030
Coal	76.0	53.0	49.5	44.0	39.5
Petroleum oil	14.0	27.0	28.0	27.0	26.5
Natural gas	9.0	13.0	13.5	14.0	14.5
Nuclear power	0.0	0.0	0.0	3.0	7.0
Renewable sources/others	1.0	7.0	9.0	12.0	12.5

Table 2.2.1: Energy consumption pattern in Poland, 1990-2030. Source: *Eurostat.*

Over the years, many experts argued that the Polish energy sector should be built around coal and the EU regulations should be partly ignored (Gabryś, 2014: 320). Coal is obviously relatively cheap and cost-effective natural resource, but it has a detrimental impact on the environment. Therefore, increasing the consumption of coal should not be considered as a realistic solution to the problems of the Polish energy sector. Using sustainable and environmentally friendly energy resources was one of the three main assumptions of the Polish energy security policy of 1997 (Gabryś, 2014: 301). The policymakers have defined energy security in that document as:

> "the condition of an economy to meet the prospective demands of recipients for fuels and energy in a way which is technically and economically justified, while, at the same time, meeting the requirements of environmental protection". (Gurgul, 2014: 89)

It seems to be a very broad definition, which is not specifying the particular risks for the country that is not self-sufficient and is dependent on imports from an outside partner. It could be even argued that using a phrase ‘economically justified’ means ‘profitable for the supplier’. This vague definition has been heavily criticised by Polish experts, which in their opinion lacks clarity (Gurgul, 2014: 90). It could even be argued that it was favouring the interests of the supplier, rather than Polish national security.

In such situation, with the rapidly growing economy (and thus growing energy consumption) and the increasing instability of the main – and only – partner, which exports both petroleum oil and natural gas, Poland needed a coherent strategy. Thus, it is necessary to discuss what particular changes or alternatives have been proposed in the recent years and to what extent those changes can reshape the Polish energy market.

Reformulation of Polish energy strategy

The IEA model highlights two external risks that can affect the short-time security of the energy sector of the state – import dependency and political stability of suppliers. In the Polish case, import dependency is evident and the political stability of suppliers is also questionable due to the tense relations with Russia. Since 2006, there have been several initiatives that aimed to decrease that risk. During the last 11 years, Poland has continued its incoherent strategy regarding energy sector and different governments proposed different solutions in the wake of the rise of Russian assertiveness.

In 2011, American company ConocoPhillips gained concession to seek for **shale gas** on Polish territory. Surprisingly, it turned out that there are large reserves of shale gas, which would not only be sufficient to cover the Polish demand for gas, but also provide an opportunity to export it to nearby countries (Johnson, 2013: 390). This resulted in a 'shale gas euphoria' in Poland and many prominent politicians of the governing party at that time – PO, were predicting a bright future for the Polish energy sector. The US private companies and the US Energy Information Administration estimated that the recoverable amounts of shale gas in Poland are approximately 5300 billion cubic meters (Johnson, 2013: 391). However, those estimates turned out to be highly overstated after research done by the Polish Geological Institute (Gabryś, 2014: 86). Moreover, the extraction of shale gas is a very complex technical process, which according to many specialists can result in environmental degradation of soil and water. Bans on hydraulic fracturing, which is required in the process of extraction of shale gas was already in place at that time in the Netherlands, the Czech Republic, Bulgaria, France and some federal states of Germany (Johnson, 2013: 391). Not only the environmental dimension became a dilemma, but also the procedural regulations for the outside contractors. Polish companies do not have enough technical expertise, and more importantly, the necessary equipment that is required for extraction of shale gas. Some scholars argue that there was also a significant lobbying of Gazprom aimed at discouraging policymakers to speed up the process of extraction of shale gas in Poland. However, it seems that the lack of necessary technological expertise and infrastructure are the most crucial arguments that made the former Polish government drop the strategy.

Another idea of the former government was to invest in **nuclear energy**. In 2007, Polish officials were considering seriously the construction a nuclear power plant in Poland (Tatarzyński, 2007: 41). Nuclear energy is considered by many experts as a very reliable alternative to natural gas or coal (Shaffer, 2014: 66). What is more, nuclear energy accounts for more than 25% of energy consumption in the whole European Union, while in Poland there is no operating nuclear power plant. The leading country is France, which has 58 nuclear power plants, but many more countries such as the Netherlands, Slovenia, Slovakia or Romania have constructed their own energy power plants. However, in Poland, this project was not continued for long, because there were problems with legal regulations and the possible partner, who would deliver enriched uranium, which is necessary for construction of a power plant (Tatarzyński, 2007: 49). It was not until 2017 that the Polish government accepted a provisional plan to construct a power plant in Poland during the next 15 years. Obviously, nuclear energy cannot be treated as a substitute for natural gas or petroleum oil, but it would definitely be a useful addition to Polish energy sector.

A very important initiative, which could provide an alternative supply of gas, was undertaken in 2006 (during the coalition government of PIS). That was the decision to build an **LNG terminal** in Świnoujście, in Western Poland. LNG (Liquefied Natural Gas) is considered by many as an alternative for other fossil fuels, which can also highly reduce the dependency on oil and natural gas transported via pipelines (Grobarčíková, 2015: 32). Natural gas in liquefied form can be transported from any place on earth, albeit in smaller amounts and usually at higher prices than the traditional way of transporting gas. It is worth mentioning that the number of entry points: LNG terminals is one of the criteria of the IEA model, which can improve the resilience of the energy sector of the state. Although initially the terminal was supposed to be fully operating in 2013, it was not until 2015 when the first transport of LNG from Qatar reached Poland. It has be considered as one the crucial improvements in Polish energy security. Qatar is the largest LNG exporter, however the USA is predicated to be a potential world-leading exporter, as this country is massively investing to expand its capacity. **Figure 2.3.1** illustrates the division of the world's LNG exporting market. It is visible that there are so many exporting partners, which definitely going to improve the possibilities of Poland to import gas from different destinations. Contracts have been signed already between Polish PGNiG and LNG providers from Qatar and USA. Lithuania has constructed a similar LNG terminal in Klaipeda, which started operating in 2014, which has already been announced as a milestone for Lithuanian energy security, which will decrease dependency on

importing gas from Russia (Łabuda, 2015: 62). However, it has to be remembered that Lithuania is a country with a much lower energy demand than Poland and even a fully operational LNG terminal is not going to solve the problem completely. Moreover, taking into account today's low prices of gas and oil, transporting LNG is much more expensive than importing 'traditional' natural gas (Grobarčíková, 2015: 34). Still, constructing an LNG terminal in Świnoujście is another step to make the Polish energy sector more resilient to external pressure.

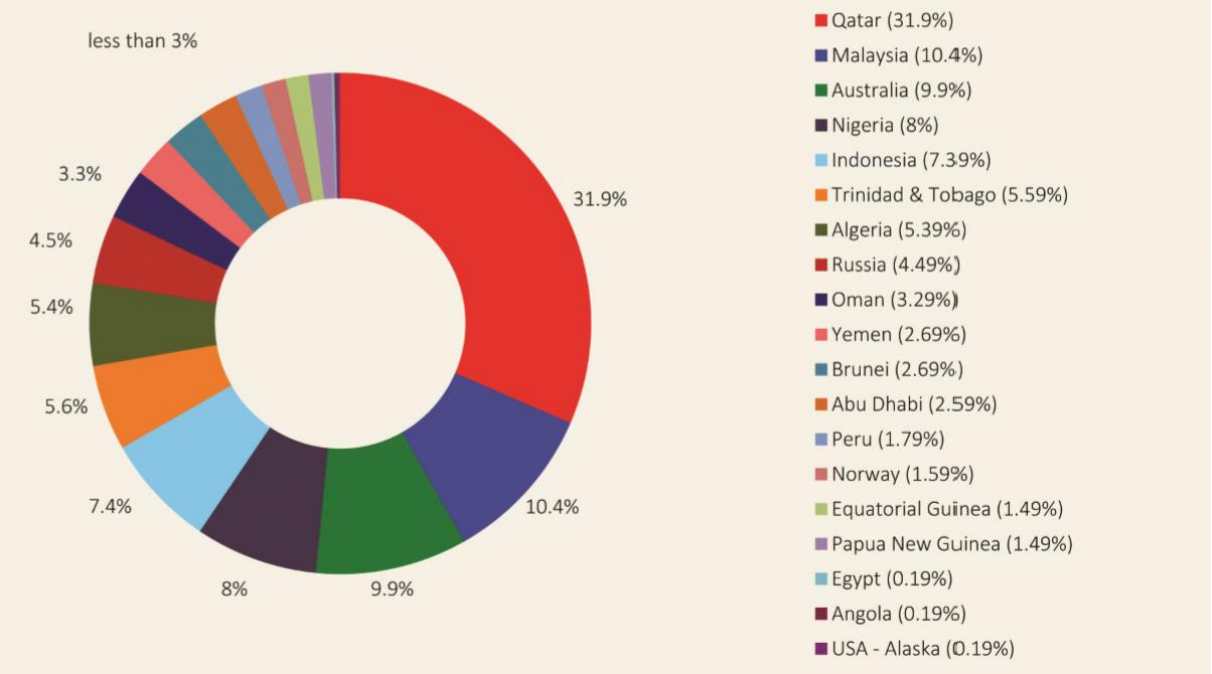

Figure 2.3.1: Sources of LNG imports (2014). Source: *BP Statistical Review of Energy*.

Another possibility for improving the resilience of the Polish energy sector is investing in the **renewable energy resources**. Many experts argue that Poland has the potential for greater use of hydro, biomass and wind energy (Eiser, 2010: 600). Such strategy could be even more desired due to the EU directive to achieve 15% of its overall energy mix from renewable sources by 2020 (Gabryś, 2014: 31). It is highly unlikely that Poland will achieve that goal mostly due to the short-term expenses that are related with construction of wind farms or hydropower plants. Moreover there is little infrastructure and expertise in that field among Polish scientists and engineers (Eiser, 2010: 601). Therefore, even though the Polish government announced in 2010 that it will strongly support private projects in the sector of renewable resources, it has not resulted in any measurable effects on Polish energy security.

A project that has been successful is looking for alternative suppliers in the recent years. First, a very minor success (in a rather symbolic sense) was signing a contract with the German company VNG in 2006, which has been supplying Poland a very limited amount of natural gas during the period 2006-2016 (National Centre for Strategic Studies, 2016: 19). A more remarkable success was acquired by the Polish government in the recent years, as a contract was signed between Norway, Denmark and Poland to transport **Norwegian gas** to Poland via Denmark. The Baltic Pipe (**Figure 2.3.2**) – which will connect Denmark will Poland will have a capacity of 10 billion cubic metres and will provide a significant alternative for Gazprom (National Centre for Strategic Studies, 2016: 28). It will be fully operational in 2022 and although its capacity is much smaller than the Yamal pipeline, it is definitely going to improve the Polish energy security. Moreover, Poland is planning to re-export some amounts of the Norwegian gas to the countries of the Visegrad Group (especially Czech Republic and Slovakia), which will be possible due to the interconnecting pipelines that have been constructed in the recent years (National Centre for Strategic Studies, 2016: 41).

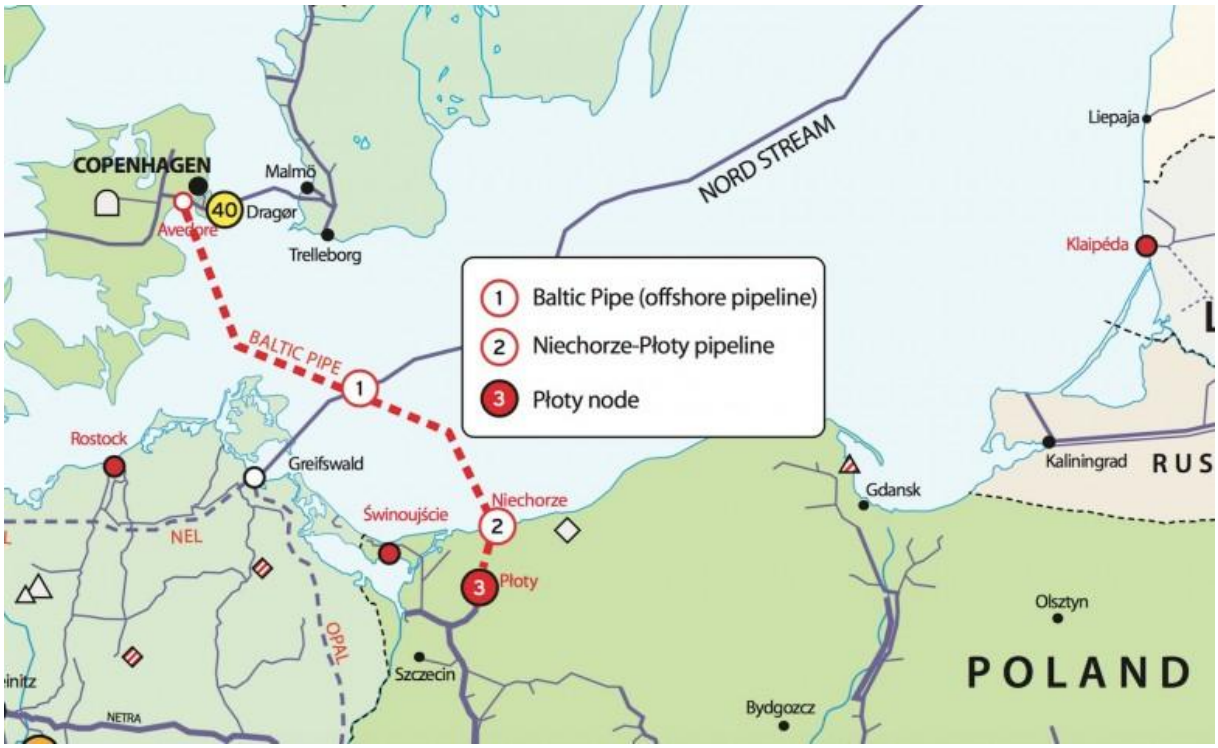

Figure 2.3.2: Location of Baltic Pipe.

Source: http://swiatoze.pl/wp-content/uploads/2017/06/Baltic-Pipe.jpg.

The single-energy market of which major part will be the North-South Corridor, will provide different alternatives for Poland. The North-South Corridor will connect the Baltic Sea to Adriatic Sea, which will provide a massive boost of competitiveness for the Eastern European Countries and highly diminish the monopoly of Gazprom (National Centre for Strategic Studies, 2016: 42). Increased cooperation in recent years within the Visegrad Group, but also with the Baltic States and Croatia should also be assessed as an effective solution to limit the monopoly of Gazprom on the Polish market.

As the Polish PGNiG is not only interested in importing gas from Norway and LNG from the USA and Qatar, but also in exporting it to neighbouring countries, it is arguably a sign that Poland has ambitions to become an important player on the European energy market. High investments in creating sufficient infrastructure (interconnecting pipelines) should be considered as an example of that. Signing a provisional agreement with USA in 2017, regarding importing American LNG is also a very symbolic manifestation of willingness to break the Russian monopoly on the market. However, many experts argue that none of the discussed projects are going to completely remove Gazprom from the Polish market. The price of oil and gas is still the most influential factor on the market – in the current situation, with relatively low prices of oil and gas, LNG imports and exports of Norwegian gas to neighbouring countries will not be that beneficial for the Polish economy. What is however important is the fact that the position of the officials of the Polish PGNiG during the negotiations with Gazprom in 2022 (when the current contract will expire) will be much stronger and the Russians will have to lower the price of gas, as Poland will be able to acquire it from alternative partners. From that perspective, it could be argued that Polish decision-makers have undertaken the right initiatives in recent years and are gradually decreasing the impact of Gazprom on the Polish market. However, the question that should be asked is why it took so long for the Polish officials to understand the importance of diversification of supply? Lack of a clear and long-term strategy for the Polish energy sector until 2006 seemed to be caused by domestic political instability and possible lobby of Gazprom in the strategic Polish companies and think-tanks that were involved in agenda-setting. On the other hand, it could be speculated that there was actual little risk before 2006 and even now, there is little possibility that Gazprom could halt the gas exports, as it is a crucial sector of the Russian economy.

Was is really a threat?

Both of the statistical rankings of the energy security - Energy Security Risk Index and Energy Security Index – are evaluating Polish energy security as very reliable. In the Energy Security Risk Index, Poland has been classified on 11th place (among 25 countries), which should be considered an optimistic perspective on the Polish energy market. However, it has to be remembered that such ranking is assessing the Polish energy sector in a very broad sense – including not only oil and gas reserves, as it was mostly the case in this paper. In the description of the assessment, it is explicitly mentioned that the Polish energy sector is safe mostly because the large reserves of coal and lignite. That is arguably true, but the restrictions on the consumption of coal will oblige Poland to limit the usage of this particular energy resource. Still, in the wake of the rise of Russian assertiveness, the experts who created that index have gradually increased the risk levels of the Polish energy sector after 2004. Not surprisingly, year 2004 was according to that ranking, the year in which Poland acquired the highest score. The Index from 2016 emphasises that Poland is in need of diversification of oil and gas, however there is no imminent danger to the national security, even in the current geopolitical situation. Similar arguments were made in the Security Risk Index, which classified Poland as the country with the most secure energy sector among the member states of Visegrad Group. As it was created in 2011, during the 'shale gas euphoria' in Poland, experts have strongly encouraged the policymakers to develop the energy security strategy based on that particular natural resource. Still, they have also pointed out that there is a necessity (although not imminent) of finding alternative partners, other than Russia. In that sense, it could also be argued that Poland has accurately identified the risk and has effectively responded to that dilemma. According to these two rankings, there was no direct threat to the security of Poland, however if Poland was to continue its inconsistent strategy and would not actively seek alternatives, Gazprom monopoly on the Polish market would continue for the next 15-20 years (Adamus, 2016: 170). That can pose a question if the rise of Russian assertiveness was truly a reason why the Polish government decided to actively look for alternatives for importing of gas from Russia. In some sense, the previously introduced theory of **The New Economics of Energy** fits this scenario as due to the cooperation of a number of states involved in the North-South Corridor, the European gas market will be much different. From this perspective, reformulation of the Polish energy security policy was not directly influenced by the rise of Russian assertiveness, but rather a part of the broader vision of becoming a regional power (Adamus, 2016: 173).

The bright future

Based on the assessment in this thesis it can be concluded that Poland has not only found an effective way to limit the possible risk of Russian interference on the domestic energy market, but also made a potential first step to become a regional leader on the regional energy market. Although it is very difficult to provide an analytical framework that would assess the Polish energy security in the recent years, it seems evident that by engaging in the discussed projects – more precisely in developing the single gas market (within the region of Eastern Europe) and by tightening relations with Norway – has provided an effective solution to the growing risk of Russian monopoly. A very curious matter is the inconsistency of the Polish strategy between 1989 and 2006, which is arguably very much related with the ineffective democratic transition after the collapse of the Communist regime. That resulted in not only political instability (there were 16 different prime ministers during the period of 1989 and 2006), but also with many regulatory loopholes, which have been used by Gazprom to sustain the monopoly during that period. It could have also be argued that there was little risk posed by Russians during that time and even after the numerous disputes with Ukraine regarding gas transit or Russian invasion on Georgia and Crimea, Polish energy security was not threatened. From such a perspective, Poland has started developing alternative ways to acquire strategic natural resources to not only meet its growing demand, but also to have a major impact on the price fluctuations on the European market of oil and gas. It is not very surprising as Poland has been one of the fastest developing countries in the region in the recent years and definitely has ambitions to become a more influential state. Diversification of resources and investing in different forms of energy is a necessary step in such a process and Poland will definitely aim to reduce its energy dependency to the lowest level, as it could not only improve national security, but provide economical benefits. However, a true challenge for the Polish officials in the future may be limiting the consumption of coal and lignite, which is still a crucial resource in the domestic industry. The projects that were discussed in this research are not going to effectively aid in that process. Still, if Poland is compared to countries with similar dependency on the Russian oil and gas (such as Romania, Bulgaria or Finland – which however have much lower overall consumption levels), Poland has been much more efficient. Even after the construction of the Nord Stream 2, which will deliver sufficient amounts of gas for the German energy sector (and thus possibly put more pressure on Poland), the Polish energy security seems to be very much resilient for the upcoming future. Other initiatives that were discussed during the analysis, such as the shale gas or nuclear energy should also be

developed in the future, which would provide even more flexibility, especially during the process of limiting the consumption of coal and lignite.

Energy security of a given country depends on the particular context, which is very much related to the four factors that were explained (availability, affordability, accessibility and acceptability). Still, scholars and experts from different countries could potentially work on establishing a semi-universal model that would provide more objective vision on the situation of particular countries. There is also lack of literature on the matter of inconsistency of the Polish energy security strategies since 1989, especially the case of the ownership of Yamal pipeline. That would obviously require more of a historical (and the specific knowledge of the Polish regulations at that time) analysis, which would provide a broader picture on the *passive* strategy of some of the cabinets during that period.

It is also important to highlight that this investigation provides only a general view on the energy security of Poland, before and after 2006. A more analytical research would require either a wider knowledge on energy (from the technical perspective) or a comprehensive historical analysis, which could include a detailed investigation of the energy security policies of different Polish cabinets in 1990s and the extent of the Gazprom lobby at that time. Still, this paper has effectively illustrated the potential risks for countries that are depended (in regards to supply of strategic resources) on one actor and what are the solutions that could improve the condition of energy sector. Poland should be considered as a country that is aware of that risk, but also as a country which is trying to reinforce its position as the influential country in the region using the new alternatives which are opening in the upcoming future.

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