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The author tells a compelling narrative regarding the geopolitics of natural gas in central Europe and the role of Russia in the politics of those countries. Investment in new natural gas infrastructure is providing more choices than just dependency to these countries as they navigate their development and their diplomatic and economic relationships with the rest of Europe and Russia.

Geopolitics of Energy was founded by the late Melvin A. Conant of Washington, DC in 1979. Since 1993, it has been published under the auspices of the Canadian Energy Research Institute. All views expressed in this journal are those of the individual authors and do not reflect the views of the Canadian Energy Research Institute.

Energy Consumption, GHG Emissions and Quality of Life: The Case of Russia's Institutional Transition to Sustainability

Vadim I. Luktionov

The main goal of economic growth is to raise the quality of life, which can be tracked through its objective elements like material welfare, quality in healthcare, etc. (Costanza R. et al., 2007; Gasper, 2010). That is why governments around the world see economic growth as one of their priorities to develop national economies. This creates the fundamental problem of ensuring long-term economic growth and improvement for the well-being of citizens while mitigating environmental impacts associated with energy development and use.

The growth of wealth and quality of life and the amount of energy consumption are interdependent, which was investigated by J. Lambert (Lambert et al., 2014), L. Liu (Liu et al., 2016), C. Pasten (Pasten et al., 2012). As shown by C. Zou (Zou et al., 2016), the long-term global economic growth, accompanied by the rapid increase in consumption of non-renewable energy, began with the industrial revolution. Global climate change creates the necessity of the sustainable energy transition (Smil, 2010; Solomon and Krishna, 2011; Tertzakian, 2009). The goals of the world community to ensure the long-term growth of the global economy and quality of life may become more difficult to achieve by using traditional energy technologies, economic management and energy "habits." At present, due to new technologies that increase the efficiency of conversion, transportation and consumption of energy resources, the improvement of citizens' quality of life can be achieved by sustainable and energy-saving ways.

According to B. Sovacool (Sovacool, 2016), there are many definitions and parameters of an energy transition. Nevertheless, to study Russia's transition to sustainable energy, the analysis of GHG emissions and the amount of renewable energy would be enough as there were no considerable efficiency improvements in both the production and consumption of fossil fuels in Russia. During the last decade, there was no significant change in annual CO2 emissions, which fluctuated around 1500 mln t. Besides, V. Luktionov (Luktionov, 2016) shows that the role of technological innovations in reducing CO2 emissions in the last decade was negligible in Russia.

During the same period, renewable energy consumption (not including hydropower) has risen from 0.1 mln toe to 0.3 mln toe, whereas the total Russian energy consumption has risen from 677.6 mln toe to 720.7 mln toe. So, despite all real or fictitious efforts of the Russian government to follow the global trends of energy progress, the country continues to remain on the path of development of traditional energy and traditional production methods (Luktionov, 2017), and there is great uncertainty about Russia's energy industry future.

There are various social, economic and political factors, influencing the course of the Russian energy system development, which could be divided into two groups:

- stimulating the development of green technologies and sustainable energy;
- stimulating the development of traditional energy.

The main factor, stimulating the development of green technologies and sustainable energy, is the generally accepted idea that the long-term increase in the quality of life can be achieved only through the development of sustainable energy. Sustainable energy development (involving energy intensity reduction, GHG emissions reduction, development of distributed generation based on renewable energy, and so on) increases the quality of life by improving the environmental situation, enhancing the safety of energy production and consumption, and combating energy poverty. Since the essence of sustainable energy is to meet the current energy demand without reducing the ability of future generations to meet their energy needs, renewable energy is the basis of sustainable energy. Nevertheless, traditional energy producers will remain as a small part of sustainable energy future, because they could be economically efficient and environmentally friendly due to new technologies and provide energy to isolated regions, thereby reducing energy poverty.

One of the factors, stimulating the development of traditional energy, is that the oil and gas industry is the main source of Russia's income. This circumstance reduces the significance of long-term positive socio-economic effects from an energy transition. The dependence of the economic well-being of Russian citizens on traditional energy could be represented by the following function:

$$QoL = f(PS, EC, T, x_1, x_2, x_3, x_4)$$

where QoL – quality of life; PS – population size; EC – energy consumption; T – technological progress; x_1 – taxes and fees, paid by the national energy companies; x_2 – expenses of the energy companies on the wages; x_3 – investments of the energy companies, made in Russia; x_4 – profits of the energy companies from foreign trade operations.

Though x_1, x_2, x_3, x_4 are interrelated variables, determined by such parameters as the global demand for oil and gas, energy prices, growth of production capacities of national energy companies, they should be highlighted to show ways by which the energy industry enhances the quality of life in Russia. However, the above function can be simplified:

$$QoL = f(PS, EC, T, X)$$

where X – the total income of the country from the foreign trade activities of national energy companies.

The decrease in export earnings could be very painful for Russia, as it is enhanced by the multiplier effect. If such variables as PS , EC and T are constant, then the economic well-being will increase (or decrease) in proportion to the increase (decrease) in the total income X :

$$\Delta Y = Y_1 - Y_0 = k\Delta X$$

where ΔY – the change in the total income of the country (economic well-being); k – multiplier.

The importance of the oil and gas industry in ensuring the economic well-being in Russia creates powerful hindrances in the development of renewable energy and the transition to a sustainable economy. In the short-term, Russia can increase its well-being faster by developing traditional energy sources and increasing oil and gas exports. However, the aim of improving the quality of life in the long-term can only be achieved through the development of sustainable energy. In such circumstances, the task becomes very difficult to move the economy toward sustainable energy sources and away from fossil fuels. This task can be supported by reforming Russia's institutional environment.

Historically, during the Soviet Union's existence, the energy industry developed as a monopolistic market with the dominance of large companies. The companies had complex management and operational structures, which did not allow the government to divide them effectively into medium-sized companies to create a competitive environment during the collapse of the Soviet Union. This legacy continues as large thermal power plants still prevail in many regional energy markets, making it very difficult for new energy producers to appear.

Thus, the institutional and production environment inherited by Russia from the Soviet Union still has a significant impact on the current development of the Russian economy and energy industry. This situation is not unique, as formal and informal institutions change extremely slowly (North, 1990). Besides, the rapid liberalization of the Russian economy in the 1990s gave way to the gradual nationalization and bureaucratization in the 2000s, when the government intervened more and more in the economy. Through legislative reforms, the Russian government bureaucratized the process of the energy companies' management, slowing down the introduction of new ways of their development and creating inertial organizational structures. At present, the main characteristics of the institutional environment in which Russian energy companies have to operate are the following:

1. Weak competition on the regional energy markets. Large energy companies dominate the regional energy markets, which allows them to lobby their interests;
2. High legislative barriers to entry of new energy producers in the market. As a result, green energy producers cannot enter the electricity market;
3. Politicization of the international energy trade of the large energy companies. This leads to the fact that government instruments of direct and indirect impact on energy companies, supports the increase of production and export of oil and gas;
4. The government financially supports the large energy companies. To get financial support, large energy companies have to take into account that their projects should enhance Russia's geopolitical influence.
5. The idea of fighting environmental pollution and climate change is not popular in Russian society, which results in low financial support of renewable energy.

Only through the transformation of the institutional environment, can a favourable change in the transition process to sustainable energy take place in Russia. The transformation of the institutional environment will require both time and financial costs. In addition, there must be political will to carry out such a big challenge. Nevertheless, the necessity of sustainable economic development could motivate the Russian government to begin the institutional transformation to ensure long-term growth in the quality of life.

For institutional changes to occur in Russia, the economic system should be considered as a set of formal and informal institutions, encompassing various facets of economic life. Formal institutions represent the basic rules of the economic system, structuring society as a whole, whereas informal institutions operate freely in a given system and evolve slowly over the years under the influence of different socio-economic factors.

To make the Russian institutional environment develop in the right direction, it is necessary to create new formal institutions that stimulate the change of informal institutions. This will gradually lead to the sustainable energy transition. It is possible to start a self-reinforcing transformation process when changes in formal institutions lead to fundamental changes in the energy sector (development of distributed generation, development of renewable energy sources, improvement of infrastructure for development and implementation of new energy-saving technologies), which in turn will stimulate changes in informal institutions.

One of the ways to create economic incentives for renewable energy development is to introduce formal environmental taxes. Taxes have a significant impact on the economy, as they affect the decision-making process of busi-

nesses. Environmental taxes could become a powerful tool to stimulate the introduction of new energy-saving technologies, reduce CO₂ emissions and increase the share of renewable energy in the energy mix.

At the end of the 1990s, environmental taxes became an effective tool for the development of green technologies in the energy sector in most EU countries. Embodying qualitative changes in the paradigm of socio-economic development following the basic principles of the concept of sustainable development, environmental taxes take a special place in the system of taxes and fees in many countries. Even though environmental taxes, contributing to the protection of the environment, have a great influence on the socio-economic development of the country, there are still no such taxes in Russia. That is why Russia could use the experience of other countries in introducing environmental taxes.

One of the environmental taxes, which should appear in Russia, is a carbon tax, the ultimate goal of which is to fight climate change through GHG emission reduction. Having formally joined the Paris climate agreement, Russia will reduce its hydrocarbon emissions by 25% compared to the 1990 baseline. This means that Russia should not exceed 1676 mln t of CO₂ emissions, while total CO₂ emissions for 2018 amounted to 1515.8 mln t. This situation became possible due to the economic impacts of the fall of the USSR, which led to a reset for the Russian economy and created a large reduction in emissions. Therefore, the participation in international environmental agreement hides the fact that the Russian society, accepting the existence of GHG emissions problem, considers the problem only as a matter of prestige, rather than a challenge. It is widely believed that the implementation of measures to reduce GHG emissions will increase the risk of an economic crisis in some regions of the country, where coal has a significant share in the energy mix of the regions. To achieve a sustainability transition, it is necessary to reveal possibilities of structural changes in the energy sector that will ensure economic and social development in the regions.

The reform of Russia's tax system by the introduction of environmental taxes will make it possible to correct undesirable methods of production and to reduce the use of harmful technologies in the energy sector, facilitating Russia's sustainability transition. The tax reform should be carried out following other measures taken to develop the Russian economy and energy system. Energy policy and tax policy should be coordinated to implement effectively new rules and measures for the institutional environment to change.

New informal institutions, favourable to the sustainability transition, could appear with realizing the principles for responsible management education at Russian universities. Responsible management education, based on the principles of sustainable development, seeks to build skills and values for harmony between people, society and nature in the decision-making process. Understanding the new business reality and the need for economic, social and environmental responsibility, promoting the use of innovative projects and practices, studying sustainable management and evolution of a digital society would stimulate the emergence and implementation of new business models that contribute to sustainable socio-economic development. This way of institutional change is very important to enhance corporate social responsibility. M.S. Fifka and M. Pobizhan (Fifka, 2014) emphasize that the inflow of new business concepts influence the corporate social responsibility practices of the large companies in Russia. The world experience of responsible management education, as well as the results of studies of its effectiveness, is presented in the referenced articles (Mousa et al., 2020; Beddewela et al., 2017; Dickson et al., 2013; Dyllick, 2015).

As financial markets, along with the government support, provide investments for renewable energy projects, the development of formal and informal financial institutions, including investment tactics, financial products and instruments, could accelerate the sustainability transition. The Russian government should develop formal institutions by reforming financial legislation and establishing new financial instruments, including green loans and bonds, etc. Over the past decade, environmental and social responsibility standards have firmly entered the business practice of financial and investment organizations of many countries. The use of "green" financial instruments has become an effective way to stimulate investments in the development and implementation of energy-saving technologies. The companies' compliance with the principles of sustainable development is already assessed by leading rating agencies and exchanges (Sustainalytics, Dow Jones Sustainability Emerging Markets, etc.). Responsible investments and green financial instruments reduce the costs of implementation of sustainable business strategies (Anton, 2020; Knuth, 2018).

The total volume of responsible investments is growing worldwide. According to a study by the Morgan Stanley Institute for Sustainable Investing, 75% of the surveyed investors are interested in sustainable investments (Morgan Stanley Institute for Sustainable Investing, 2018). At the same time, green financial instruments have appeared recently in Russia. In December 2018, a green section was opened on the Moscow Exchange with the first green bonds in the country's history placed on it. As responsible investments and new financial products could help in increasing the energy efficiency of the Russian economy and solving environmental problems, the Bank of Russia claims that the national financial system should develop following the global trends.

Russian society is at the crossroads of its national energy system development. One of the ways the system can develop is through stable medium-term economic growth due to the further development of traditional energy and the increase in oil and gas exports. The other way lays the foundation for the long-term prosperity of Russian society through the development of sustainable energy.

The sustainable energy transition leads not only to economic growth, but also to the physical well-being by reducing environmental stressors, solving the problems of energy poverty, and developing safer energy facilities. Another advantage of the transition to sustainable energy is the reduced vulnerability of energy systems to the stressful events (such as accidents, natural disasters, etc.) due to the development of distributed generation, the establishment of cross-border electricity interconnections, the introduction of digital technologies that decrease a system's response time to emergencies, and so on.

The current Russian institutional environment is not favourable to sustainable energy development. In this regard, the initiatives aimed at implementing some renewable energy projects, cannot become the basis for a long-term process of the energy transition. To change the current paradigm of the energy system development radically, Russian society should meet the challenge of transforming the institutional environment.

About the Author

Vadim I. Loktionov, Ph.D., is a senior researcher at Melentiev Energy Systems Institute of Siberian Branch of the Russian Academy of Sciences (ESI SB RAS) in Irkutsk, Russia. He can be reached at vadlok@mail.ru.

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Geopolitics of Natural Gas in the Region of Central Europe

Andrej Zrak

Faculty of International Relations, University of Economics in Bratislava, Dolnozemska cesta 1/b, 852 35 Bratislava, Slovak Republic,
4 e-mail: andrej.zrak@euba.sk

Introduction

Since the industrial revolution in the 19th century, energy resources have played an important role in national policy, whether it was coal, oil, natural gas or uranium. The abundance of these resources ensured the basic functioning of the state, as they powered the engines in the factories, and later began to produce electricity to illuminate streets and households and also to heat them. Countries that have had enough of these resources have been and still are at an advantage over those who do not have or can produce them only in insufficient quantities. They must then secure them by importing from countries where they are mined in large quantities. But, together with resources, political influence often comes, and this is the role of geopolitics.

This paper deals with the impact of geopolitics on natural gas imports in the region of Central Europe. Specifically, we focus on the V4 countries - Slovakia, Poland, Hungary and the Czech Republic. These are countries of the former Eastern Bloc; it is clear that in the past, they were under the political influence of the Soviet Union and thus imported natural gas from that country. These countries have a lot in common, except for Poland, these are small inland economies, which, after the fall of the Eastern Bloc, had only a weak connection to the international pipeline network. The gas crisis between Russia and Ukraine has shown not only to them but to the whole of Europe that there is a need to expand this network and diversify natural gas suppliers for energy security. Here, these states decided to take different paths, as a result of various factors (economic and political). In this article, we describe what the current geopolitical state in these countries looks like regarding natural gas.

We also apply to them the theories of natural gas geopolitics, which were discussed by Agnia Grigas in her book *The New Geopolitics of Natural Gas* (2017). These theories describe possible scenarios for the behaviour of states in gas trading, covering, in particular, the political aspects. Carlos Pascual of Columbia University also dealt with this issue in his work *The New Geopolitics of Energy* (2015).

This paper aims to verify the functioning of these theories in the V4 countries and to compare which styles of foreign policy the individual states follow and what their possibilities in this area are. We also present the reader with the current state of affairs concerning energy security and diversification of natural gas imports in these countries.

Position of Natural Gas in Geopolitics

Interdependence

Although in energy policy, being an exporting country means having an impact on the countries to which gas is supplied, this relationship is not one-sided for the benefit of the exporter. The markets also depend on exports and income from exports. The resulting relationship can be described as interdependence. Thus, as long as the level of dependency on the exporter-importer relationship is at a similar level, gas supply is generally stable in the long- term and more resistant to political and security fluctuations.

Interdependence is determined by a number of conditions, such as the size of the market of the exporter and the importer, or alternatives of both parties to the question of gas import or export. The level of equilibrium is not constant and may change with changing conditions in the natural gas market. The cycles of excess and shortage of supply, the discovery of new resources, the development of technology, the economic situation and other domestic or international factors play a role. Therefore, perfect interdependence is rather scarce in the real world, making stable, non-politicized energy policy relations practically non-existent (Grigas, 2017).

Policy of Supply

As long as the balance between the exporting and importing states is in favour of the exporting country, it can use its supply policy towards its partner. It is a set of measures based on its more favourable position, which enables it to pursue its economic, political and security interests through trade with importing countries. The exporter can benefit from three types of policies: market flooding, market starvation and assistance to allies.

Thanks to the flooding of the market, the exporter can gain most of the market share and drive out new or existing competition. Although there are a number of anti-dumping measures within the WTO, they do not apply to trade in oil and gas. This allowed Saudi Arabia in 1986 to push Russia and the United States out of international markets and to establish itself as the world's dominant oil exporter. Conversely, market starvation tactics were used by Saudi Arabia in 1973. This means that the exporter will limit the amount of stock available to influence importing countries to its advantage. This tactic has also been used in several cases by Russian Gazprom in Ukraine, the Baltic States or Georgia. Aid policy for allies may include discounts, targeted deliveries or financial and technological assistance to build infrastructure to related countries (Pascual, 2015).

For these policies to make sense for the exporter, there must be an infrastructure in place that includes pipelines and LNG terminals. If this infrastructure exists, policy steps are easier for the exporting country and help it gain an advantage over importers. Thus, when negotiating prices or quantities of imported gas, it may also require a change in domestic or foreign policy in the importing State to join the exporter's political or economic bloc or to allow it to use its own military bases. Restricting supply or raising prices can be in the form of coercion or weapons at times of political tension or during armed conflict. All these measures can be used by exporters against individuals, groups of states or globally. They can also influence states' internal policies to promote the use of gas in place of other energy options.

The Russian Federation is a prime example of a country that uses its position as a dominant natural gas exporter and practices a supply policy. It has built up its political influence based on gas supplies to various degrees in the European Union, Central and Eastern Europe, the Caucasus and Central Asia. However, the effectiveness of this policy in influencing importing countries with market changes and increasing interconnections in the natural gas market is slowly decreasing (Grigas, 2017).

Not all natural gas producers can or can equally benefit from supply policies. Just as the level of interdependence between the exporter and the importer determines the extent to which it can benefit from a bidding policy, so too does the characteristics of the exporter influence how it can increase or decrease its influence in this partnership. Smaller suppliers who fail to meet most of their customers' demands do not have sufficient business or political advantage over importers.

Similarly, suppliers who are isolated from other markets, whether geographically or because of infrastructure, also have a problem. Diplomatic factors also play an important role. If international sanctions (such as Iran) are imposed on a country, it cannot fully exploit its potential.

The absence of transit states may also be a problem, as neighbouring states may not be stable partners in the export of natural gas to more remote areas. Examples are Azerbaijan and Turkmenistan. These countries have limited access to both the European and Asian markets due to the absence of access to the sea and the proximity of fragile states such as Afghanistan, Iran or Pakistan.

Policy of Demand and Dependence

Unless the interdependence of natural gas exporting and importing countries is uniform, importers may pursue a demand or dependency policy, or a combination thereof. The first option is a set of instruments applied by countries to achieve their economic, political, military and other interests as a force against a particular exporting state, group of states or market. Dependency policy is followed by states that, on the other hand, are at a disadvantage compared to exporting countries and follow their interests from a weaker position. In particular, the diversification of imports, the volume imported, and the market situation determine the country's position.

We are talking about a good diversification of imports when the state imports natural gas from several sources or can fill part of its consumption from its own resources, is well connected to the pipeline network and with access to the sea and liquid gas terminals. If the state meets all these conditions, it is in a good position to pursue a demand policy. Otherwise, if it is unable to obtain gas supplies from several sources and is dependent on imports from one or a small number of partners, it must resort to a policy of dependence. This is particularly true of the countries of Central and Eastern Europe that were part of the Eastern Bloc and, to date, most of them are largely dependent on gas supplies from Russia.

In terms of volume, it may seem that countries that import more are prone to an addiction policy, but in this case, too, diversification is crucial. Therefore, countries that import more natural gas (in absolute and relative terms) but have well-allocated resources may be in a better position than countries that import only a relatively small amount but from limited sources. As an example, China, which is one of the major gas importers, but its location and built-in infrastructure, can import from multiple sources and, therefore, can use its policy of demand to achieve its interests. Another advantage for such countries is that if any of their suppliers do not have many opportunities to export gas, they will gain a significant advantage in price negotiations. Conversely, countries that import small volumes of gas are in a poor bargaining position as they do not play such an important role for their suppliers and therefore adhere to dependency policies.

The market situation is another factor that can influence the position of the supplier country vis-à-vis the exporter. The cyclical development of oil prices and the quantity of oil on the market are the main indicators that influence which side of the trade will benefit. In particular, the expansion of shale gas production (in North America), which leads to an increase in tradable natural gas, could be bad news for exporters, which should also lead to a fall in prices, which will strengthen the position of importers (Grigas, 2017).

Policy of Transit

Transit countries play a specific role in gas trade. These are countries that facilitate the transport of raw material between the exporter and the importer, either using a pipeline that leads through their territory or by a port with a natural gas terminal from where gas can be transported by sea. These countries have the advantage of receiving huge rents for transit through their territory, which often make up a significant part of domestic income. However, this revenue may be jeopardized in the event of a conflict between the importer and the exporter or may be influenced by different parties in the struggle for power in the region. Their disadvantage is that, in addition to gas transfer, they are also dependent on their supplies, in which case conflict with the supplier can have very serious economic and political consequences (example of Ukraine). Equally, exporters (e.g. Russia for the countries of Central Asia) can also serve as transit countries, in which case they gain an advantage over the countries for whom they transit the gas, as they may cause them difficulties in supplying gas to partner countries.

In general, however, the importance of transit countries is gradually decreasing. This is mainly due to the expanding network of gas pipelines and the better possibilities of transporting liquefied natural gas (LNG) by sea. This diversification of routes is, on the one hand, an advantage for importers who have so far taken gas from one regional power (Eastern and Central European countries from Russia), but also for exporters (USA) who are more easily entering new markets (Grigas, 2017)

Natural Gas in Central Europe

For natural gas, Central European countries have always been net customers or transit countries, with Russia being their most important partner. This relationship arose mainly from the fact that countries such as Poland, the Czech Republic, Slovakia and Hungary belonged to the Eastern Bloc after World War II and thus had no choice from whom to import natural gas. In 1967, the *Brotherhood* gas pipeline was opened, which imported Russian gas through Ukraine to Slovakia and continued further to Austria. As a result, Slovakia has become an important transit country. Later in the 1990s, the *Yamal* gas pipeline was built, which made Poland a transit country, where natural gas flows to Germany.

Slovakia

Natural gas deposits were discovered in western and eastern Slovakia in the 1950s. In connection with the discovered sites, gas infrastructure was also being built in Slovakia. The available natural gas reserves were not sufficient to provide the resources needed to supply the national economy and the population. The real possibility of securing the necessary resources for supply was the construction of natural gas transport routes from Russia, rich in natural gas deposits, to Western Europe.

As we have already mentioned, the *Brotherhood* gas pipeline was put into operation in 1967. It was built mainly for the needs of Austria, and at the same time, natural gas became available for Slovakia. In 1972, the first line of the transit gas pipeline was built. In the following years, the four remaining lines and the respective compressor stations were built, creating opportunities for wide industrial processing and use for industrial plants, power plants, heating plants and consumers. The transit system through Slovakia accounts for approximately 15% of the total demand for natural gas in Europe.

At present, Slovakia is the second most gasified country behind the Netherlands in terms of the gasification rate of residential settlements. *SPP - distribúcia*, as the owner and operator of the natural gas distribution network, ensures its distribution in the territory of the Slovak Republic to more than 1.5 million offtake points in 77% of towns and municipalities. The volume of gas distributed in this way represents approximately 98% of the total distributed volume of natural gas in the Slovak Republic for more than 94% of the population of Slovakia with access to natural gas. At present, the natural gas distribution network has a length of 33,270 km (oplyne.info, 2016).

In the first half of 2018, 34.3 billion m³ of natural gas went through Slovakia as a transit country, for the entire previous year, it was 64.2 billion (Eustream, 2019). It was the highest figure since 2011. The profit of Eustream, which ensures the transit of natural gas through Slovakia, was more than EUR 223.6 million for the period January - July 2018, compared to EUR 352.4 million for the whole of 2017 (Eustream, 2019). Most of the transported and imported gas (as well as other energy raw materials) are directed to Slovakia from Russia and 23% of electricity production in Slovakia is produced from natural gas. Nuclear is the only other electricity generation option with a higher market share at 24% (OECD, 2019).

Transit of Russian gas through Slovakia is threatened by several factors. Perhaps the most important of these are Russian-Ukrainian relations. This started in 2009 when the dispute between Russia and Ukraine over Ukraine's debt for gas supplies culminated in a 13-day cessation of supplies. Given that the European pipeline network was poorly diversified, for Slovakia, which imported all gas from Russia and lost 97% of its supplies, this was a serious threat to the economy. During that time, the government, under Prime Minister Robert Fico, declared a state of emergency.

Natural gas reserves would be enough for a few weeks to cover three-quarters of demand. Concerns about the same scenario were also raised by the Ukrainian-Russian conflict, which has continued since 2014. However, this scenario has not materialized (Pirani, Stern, Yafimava, 2009).

The threat of cessation of gas supplies through Ukraine returned at the end of 2019. Russia and Ukraine were unable to agree on a new gas supply agreement. This time, however, the European Union also took part in the negotiations, and its delegation was led by Slovak Maroš Šefčovič. This time, however, the potential crisis would not have such a big impact on Slovakia due to the lack of gas on the market, as it would be able to import gas thanks to the reverse flow from the Czech Republic, Austria and Hungary. Of course, the financial damage would still be huge. Fortunately, on January 1, 2020, the countries announced that they had agreed on a new treaty, and the energy crisis was averted (Pravda, 2019).

New gas pipeline projects are also threatening the energy security of Slovakia in relation to Ukraine. These are, in particular, the *Nord Stream 2* and *Turkstream* projects, which are to import Russian gas to Europe via the Baltic and Black Seas, respectively, and thus bypass Ukraine and Slovakia. Several EU countries and the United States, which imposed sanctions on companies involved in its construction, have a negative attitude to the *Nord Stream 2* (Euractiv, 2019).

Thus, as a small country, Slovakia has very few options in the area of the geopolitics of natural gas and can only implement a policy of dependence. There are virtually no diversification prospects, which puts the country in a position of weakness compared to other importers from Russia. Moreover, it is also vulnerable to its neighbourhood with Ukraine, whose relations with Russia are currently very tense.

From this point of view, Slovakia could be assisted by the *Eastring* project, which should connect gas pipelines from the Baltic and Black Seas and Slovakia would have direct access to natural gas flowing into Europe via the Black Sea. Although this would not dramatically strengthen the situation of Slovakia from a geopolitical point of view, it would at least have a positive impact on energy security. The EU Energy Union project, which would create a single market with a much better negotiating position with suppliers than individual states, could also help. From a geopolitical point of view, such a market could also weaken Russia's influence in the region.

Poland

With 40 million inhabitants, Poland is the largest market among Central European countries. At the same time, it has the smallest share of natural gas in electricity production. Rich in hard coal deposits, it uses mainly this raw material for its production and is the second-largest consumer in Europe after Germany (Greenpeace, 2008). Nevertheless, it consumes the most natural gas in Central European countries. Unlike others, however, it can cover a third of its consumption from its own resources (OECD, 2016).

The most important partner is still Russia, which has supplied natural gas to Poland since the late 1940s (Gazpromexport, 2020). With the construction of the Yamal pipeline in the 1990s, the country has also become an important transit country for Russian gas to Germany. However, recent political tensions regarding Russia have motivated the diversification of natural gas imports.

Part of Poland's gas reserves is imported from Germany by the reverse flow of Russian gas through the Yamal pipeline. In 2018, however, Polish Foreign Minister Jacek Czaputowicz said that this form of diversification of natural gas imports should be the last resort. The country is much more concerned with LNG.

Compared to other Central European countries, Poland has a huge advantage thanks to its access to the sea. Just by sea, Poland was able to diversify its imports with supplies from the US, Norway and Qatar. LNG accounts for about 23% of Polish imports, an increase of 5% over the previous year. On the contrary, Russian gas imports fell by 21% (Cocklin, 2019). By increasing LNG imports, Poland wants to become independent of Russian gas as much as possible. Current supply agreements with Russia end in 2022.

From a geopolitical point of view, this situation favours the US influence in Central Europe. If they prove to be a reliable partner in this area and can export LNG at a competitive price, they could supply gas to other countries thanks to the Central European Pipeline Network. This could, together with the obstructions of the *Nord Stream 2* gas pipeline, could significantly undermine Russia's position as an energy hegemony in the region and, consequently, its political influence.

Thanks to its size and advantageous position, Poland is the only one of the Central European countries to pursue both demand and transit policies. The successful diversification of gas imports has allowed them to choose partners to subscribe to, and in the future can be in a good position to negotiate gas prices with Russia, or to become independent of supplies from that country. The *Eastring* project already mentioned in Slovakia, which would allow Poland to import gas from the Black Sea, could also help.

Hungary

Although there are several fields for the extraction of natural gas in the south-east of Hungary (*Battonya, Makó, Üllés*), they are not sufficient to cover national consumption and Hungary is, like other Central European countries, a net importer of this raw material.

Natural gas accounts for one-third of the country's energy production resources, with no other raw material being used more by the Hungarians (OECD, 2019). The largest supplier of natural gas is Russia, on which Hungary is currently totally dependent. Russian gas to the country flows from Ukraine and also from Austria through Slovakia. However, with the

construction of the *Turkstream* pipeline, Hungary has been allowed to pump Russian gas across the Black Sea and thus not be threatened by Russia's potential disputes with Ukraine. Viktor Orbán and Vladimir Putin met on this issue in October 2019, while the Hungarian Prime Minister expressed Hungary's interest in diversifying gas supplies (Hurriyet Daily News, 2019).

However, the diversification of supplies from Russia still does not address complete dependency on one supplier, and Hungary is, therefore, looking at other countries from which it could import natural gas. Recently, the United States and Qatar have been mentioned.

In May 2019, Hungarian Foreign Minister Peter Szijjarto expressed his interest in importing gas from the Black Sea through Romania, with the US ExxonMobil and the Austrian giant OMV taking care of the extr666action. The problem, however, was that the American company at that time still had not decided whether to invest in the area (Reuters, 2019). In December, OMV representatives said they were able to start building infrastructure as soon as the Romanian government removed obstacles such as offshore investment laws and the new taxes introduced by the previous socialist government (Reuters, 2019). Finally, given the uncertainty about the project, Hungary signed another gas supply agreement with Russia.

From 2021 onwards, however, another possibility for the country to divert supply could arise. At the beginning of the year, the LNG terminal on the Croatian island of Krk should be completed, where natural gas should flow from Qatar. It is Qatar's natural gas that could shuffle the cards in energy security and import diversification for Central European countries (Ministry of Foreign Affairs and Trade of Hungary, 2019). In addition, Hungary can also benefit from the aforementioned *Eastring* project, which will allow the country to supply gas from Poland.

From a geopolitical point of view, Hungary is a purely dependent country. Thus, the minimum own resources and virtually non-existent diversification from the supplier's point of view mean it must pursue a policy of dependence on Russia. The good relations between the two countries are positive, as both Vladimir Putin and Viktor Orban are close to each other.

For energy security, the construction of the Turkstream pipeline is beneficial for Hungary but does not reduce its dependence on Russia. Still, it at least reduces its dependence on transit through Ukraine.

Regarding the diversification of imports, the US projects in the Black Sea and the construction of the Qatar gas terminal in Croatia look interesting for Hungary. With better access to new sources, the position in the gas price negotiations with Russia should also improve.

Czech Republic

The development of natural gas imports into the Czech Republic is closely linked to the Slovak ones since, until 1993, they formed one state and both countries import Russian gas through the Bratstvo gas pipeline. However, thanks to its connection to the German and Polish pipeline networks, the Czech Republic signed a 20-year contract on gas supplies from Norway in 1997, in which case it was only re-exported Russian gas. At present, more than half of the imports come directly from Russia, a quarter then from Germany, but again it is only a re-export of Russian gas (iDnes.cz, 2016).

Natural gas consumption currently accounts for only 16%, as the country has abundant hard coal resources, and this plays a major role in energy production (OECD, 2019). However, given the EU and UN environmental agendas, it can be expected that the country will be forced to reduce its coal consumption, leading to an increase in natural gas consumption as a greener option.

In particular, the construction of the Gazelle gas pipeline connects the Czech Republic with the East German OPAL pipeline and, subsequently, with the North Sea gas pipeline, Nord Stream. This has contributed to the improvement of the Czech Republic's energy security. The pipeline was opened in 2013, and its construction was a reaction to the gas crisis of 2009. Thanks to the much denser network of gas pipelines, the Czech Republic is no longer dependent on gas imports through the Bratstvo gas pipeline.

In the framework of natural gas policies, the Czech Republic is a net importer and thus can only implement a dependency policy. Currently, the vast majority of imports flow to the country from Russia, either directly or by re-export from Germany. And the dependence on Russia will difficult to change as the Gazprom Treaty lasts until 2035 (iDnes.cz, 2006). However, thanks to a better pipeline network in Europe, the Czech Republic could diversify its gas imports from the North Sea or LNG from the US or Qatar, similar to Poland or Hungary. At the time of writing, we have not noticed any efforts of the Czech Republic to significantly change the current situation. One barrier to North Sea gas imports, often cited, is that its composition is different from Russian, and its use would require technical changes in all facilities using this resource (iDnes.cz, 2016).

Conclusion

In this paper, we have discussed the foreign policy of Central European countries, namely V4, as it relates to natural gas. We compared their current situation concerning the import of this resource and its source diversification. We have also applied theories of the geopolitics of natural gas, which describe the possibilities of states in trading in natural gas.

In most cases, Central European countries must implement a dependency policy. This is mainly because these are small economies, with no access to the sea and a limited diversified network of suppliers. The largest supplier to these countries is Russia, which is understandable given their socialist past. Despite some efforts to reduce the share of Russian gas in imports, these attempts are currently not cost-effective, and there is no political will to change this dependency. Russia is aware that with less gas in these markets, its political influence would also be reduced, and therefore it maintains good relations with representatives of the current governments.

Conflicts between Russia and Ukraine may be a threat to the energy security of Central European countries. This was shown already in 2009 when Russian gas stopped flowing to Europe through the Brotherhood pipeline for several days, and a similar scenario threatened at the end of 2019. Fortunately, this did not come true. Meanwhile, Russia built the Nord Stream and Turkstream pipelines and is building *Nord Stream 2*, which supplies gas to Europe around Ukraine. This also means that Slovakia and the Czech Republic are being circumvented, for which it may mean a decrease in revenues from gas transit.

The exception among Central European countries is Poland. Unlike others, it is a large economy with access to the sea, so getting to gas from anywhere other than Russia is not such a problem. In addition, there is a long-standing mistrust between these countries and Poland is thus trying to gradually reduce or even end its dependence on Russian gas. It can achieve this by relying mainly on LNG supplies from the US.

The US would also like to import gas to other V4 countries, thereby increasing its influence in the region. There is no political will to move in this direction, which is compounded by the gas being more expensive than from Russia.

The US company ExxonMobil plans to extract gas in the Black Sea in Romanian waters, and this gas could later flow to Central Europe. Negotiations have already taken place with Hungary. In addition, Qatar gas could flow into the region from a newly built terminal in Croatia. Thus, diversifying imports in the future might not be as demanding as they were ten years ago for these states.

What could improve the negotiating position of these states in the gas price negotiations is the creation of an Energy Union within the EU. However, there is still no widespread support for this project, even among those countries. Today, thanks to good political relations, they can obtain better conditions than Russia would probably offer Europe as a whole.

If the current ruling parties lose their influence in these states and the opposition parties form government, the new governments are likely to agree to this Black Sea project, which could have a positive impact on importers' diversification and hence energy security of the V4 countries. However, we have seen attitudes and official natural gas foreign policies differ in other governments such as Germany. So, it might be in the V4 countries.

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Telephone: (403) 282-1231; Fax: (403) 290-2251; Email: info@ceri.ca.

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