

# **Central Europe towards contemporary energy challenges**

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**I.**

# **Fit for 55 and the Visegrad Group**

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## 1. Introduction

Possible effects of *Fit for 55* on Visegrad countries would have been easier to measure before these days' energy crisis and the Russia-Ukrainian war, since these events are constantly shaping all aspects of our economy as we speak. Thus, future consequences of *Fit for 55* can only be credibly predicted if the effects of the war and crisis are thoroughly assessed with multiple scenarios.

V4 countries' energy supply has been largely based on Russian gas and oil the supply of which is getting scarce this year and probably for the next couple of years. This fact will have different effects on different V4 countries, since they have varying energy mixes. Their industry, agriculture and transportation are also vastly different, therefore their reactions to the crisis do and will differ. Consequently, *Fit for 55* will affect all four countries, but not the same way, which calls for an analysis focusing on these nations' possibilities and challenges.

The *Fit for 55* package's other 7 legislative proposals are summarized as follows.

- Effort Sharing Regulation (ESR) – The proposal raises national reduction targets to achieve an EU-wide GHG emissions reduction of 40 percent (up from 29 percent) over 2005 levels in the ESR sectors.
- GHG emissions and removals from Land Use, Land Use Change and Forestry (LULUCF) – The proposal intends to reverse the declining net GHG removals by the EU's agricultural and forestry sectors, bolstering the LULUCF's contribution to the Union's increased climate ambition. The revision of the LULUCF Regulation sets a net GHG removal target of at least 310 million tonnes of CO<sub>2</sub>e by 2030.
- Alternative Fuels Infrastructure (AFI) – The proposed AFI Regulation, which will replace the AFI Directive, aims to expedite deployment of a dense, widespread network of alternative fuels infrastructure throughout the EU for refueling and recharging road vehicles, vessels and stationary aircraft. The proposal also aims to offer consumers a transparent, fair price structure and seamless payment.
- Stricter CO<sub>2</sub> emission standards for new passenger cars and light commercial vehicles – The proposal sets out a target to reduce CO<sub>2</sub> emissions from vehicles by 100 percent by 2035, meaning that, from 2035, placing ICE vehicles in the EU market will not be possible.
- Sustainable Aviation Fuels (SAF) – The proposed ReFuelEU Aviation Regulation aims to reduce the environmental footprint of the aviation sector by imposing a SAF blending mandate from 2025 for all flights taking off from an EU airport, regardless of destination.

- Greener fuels in shipping – The proposed FuelEU Maritime Regulation aims to stimulate the uptake of low-carbon maritime fuels and renewables and zero-emission technologies to curtail the GHG intensity of energy used by ships at European ports by up to 75 percent by 2050. This proposal applies to vessels arriving at, departing from, or staying within EU ports, regardless of their flag.
- Social Climate Fund – The proposal establishes a fund of EUR72.2 billion for an initial period from 2025 to 2032 to assist EU countries in mitigating the effects of expanding the ETS to include road transport and buildings. Social Climate Fund aims to provide specific funding for Member States to help citizens finance investments in energy efficiency, new heating and cooling systems and cleaner mobility.

Fit for 55 critical element is the introduction of a central emissions trading scheme that would place a burden on emissions from energy use in households and road transport. However, the increase in fossil fuel prices has significant social and distributional impacts that could disproportionately affect vulnerable households, micro-enterprises and transport users who spend the majority of their income on energy and transport and in some regions lack access to alternative, affordable mobility and transport solutions. The impacts on vulnerable groups will vary between Member States, and price impacts are likely to be stronger in Member States, regions and populations with lower average incomes. The main aim of the proposal is to force household operators to reduce their consumption (and therefore their carbon emissions) by artificially raising prices. The European Commission is insisting on the measure, despite the outbreak of the energy crisis, and Germany supports it. In addition to the environmental effects, the Commission is also interested in the new scheme because it would allow it to raise central revenues and thus to be financially independent from Member States' control.

Fit for 55 is expected to take years before it is in full effect, but governments and businesses are already starting to act in anticipation of the changes. Fit for 55 is now being discussed and debated in the EU. With that, businesses are already doing the transition for a more sustainable way of doing business.

## **2. Country-specific analyses**

### **2.1. Poland**

Carbon dioxide is the main GHG in Poland with the share of 80.7% in national emissions in 2020 (without LULUCF 303.52 million tonnes). The main CO<sub>2</sub> emission source is fuel combustion. The shares of the main subcategories in 2020 were as follows: energy industries (45.8%), manufacturing industries and construction (9.5%), transport (20.6%)

and others. Industrial processes contributed to the total CO<sub>2</sub> emission with 6.3% share in 2020 (UNFCCC, 2022a).<sup>1</sup> GHG emissions from industries covered by the EU ETS have not significantly changed compared to 2005.

Coal dominates Poland's energy sector, where it is the largest GHG emitter and a major employer. Although the country has expanded its renewable energy mix strongly over the last decade, its future role in energy supply needs to be clarified. According to the Energy Policy until 2040, the share of coal and lignite in electricity generation will fall from just under 80% in 2017 to 60% in 2030. The policy plan also prioritises long-term energy security, reducing greenhouse gas emissions and air pollution, increasing energy efficiency and decarbonising the transport system. Nuclear energy can play a significant role in the country's energy supply and the country plans to commission its first nuclear power plant (Ministry of Climate and Environment, 2021)<sup>2</sup>.

The production of electricity from coal in Poland decreased before the energy crisis. For the first time in the country's history, in 2020 coal's share in the generation mix dropped below 70%. Renewable sources have slowly started to play a more important role in the mix, as well as gas. In the midst of the pandemic, domestic production has fallen faster than demand, and this gap is filled by energy imports. Poland remains the most expensive electricity market in the region (Forum Energii, 2021a).<sup>3</sup>

One of the key element within Fit for 55 is the reform of the Emission Trading System (EU ETS) as well as Carbon Border Adjustment Mechanism (CBAM), which is a mechanism that adjusts the price of goods imported into the EU, in relations to the CO<sub>2</sub> emission that was necessary to produce them. The most important arguments of the Polish government is the injustice of the EU ETS system which sends a financial message indicating the producer should lower the carbon dioxide emissions immediately but the system should allow the investments.<sup>4</sup> The European Commission's new Social and Climate Fund is expected to have a budget of €72.2 billion for the period 2025-2032, with Poland being the biggest beneficiary, expected to receive €12.7 billion (this is 17.6% of the total budget) (Forum Energii, 2021b)<sup>5</sup>.

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<sup>1</sup> UNFCCC (2022): National Inventory Report 2022 Poland.

<sup>2</sup> Ministry of Climate and Environment (2021): ENERGY POLICY OF POLAND UNTIL 2040. Warsaw 2021. <https://www.gov.pl/attachment/62a054de-0a3d-444d-a969-90a89502df94>, download: 07.11.2022.

<sup>3</sup> Forum Energii (2021a): Energy transition in Poland 2021 Edition Report.

<sup>4</sup> <https://www.euractiv.pl/section/energia-i-srodowisko/news/fit-for-55-eu-ets-ets-cbam-european-commission-poland-coalexit-von-der-leyen-timmermans-european-green-deal/>, download: 07.11.2022.

<sup>5</sup> Forum Energii (2021b): Poland Electricity Production in 2021.



### 2.1.1. Transport sector

The basic goal of the Fit for 55 is just transition towards emission neutrality and eco-friendly transport. Achieving the goals implies developing a clean way of transportation, which means investing in public transport. It will help to combat transport exclusion, which is a major obstacle in many Polish regions, generating serious social problems and slowing down the development.

One way to reduce emissions in transport will be to decarbonise the new cars. It is assumed that in the EU passenger car manufacturers' portfolio, emissions should fall by 37.5% by 2030 compared to 2021 (2021: 95g CO<sub>2</sub>/km), while among vans by 31% (2021: 147g CO<sub>2</sub>/km) (icct, 2021)<sup>6</sup>. As transport emissions in Poland continue to grow, transforming this area is becoming increasingly important. Restrictive emission standards complement carbon pricing in transport. Due to the age structure of cars driving on Polish roads, changes in emissions will be slow. What is important, however, is that Poland plays a significant role in car supply chains, and cars and their parts are an important export commodity. The ability to take over the production of cars with new standards to replace the withdrawn lines of high-emission cars will be an incentive to develop new market niches.

The transport sector (road, maritime and air) has a major role to play in achieving carbon neutrality. From the perspective of transportation and aviation, the focus is on phasing out fossil fuels as soon as possible. While electrification is an important part of the solution for road vehicles (cars and vans), biofuels play an essential part in reducing emissions from existing fleets. Poland need to phase out fossil fuels and cut the emissions. Even though electrification has a lot of momentum, it will take time. Both to have the new electrified cars and vehicles on the roads and the infrastructure for charging them. There will be cars and vehicles with a combustion engine for a long time to come and for that biofuels are the perfect solution. In aviation Sustainable Aviation Fuel (SAF) is being adopted by more and more airlines<sup>7</sup>. This would also increase competitiveness and therefore raise costs for biofuels.

Fit for 55 sets targets to cut CO<sub>2</sub> emissions from cars by 55% and vans by 50% by 2030. Carbon dioxide emissions from transport in Poland significantly increased. In 2020, CO<sub>2</sub> emissions reached a record level of nearly 65 million metric tons (Statista, 2022).<sup>8</sup> There is of the largest passenger car markets in Europe by sales. In 2020,

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<sup>6</sup> icct (2021): CO<sub>2</sub> emissions from new passenger cars in Europe: Car manufacturers' performance in 2021. <https://theicct.org/wp-content/uploads/2022/08/co2-new-passenger-cars-europe-aug22.pdf> download: 07.11.2022.

<sup>7</sup> <https://journeytozerostories.neste.com/fit-for-55-and-transportation#ecbfc231> download: 08.11.2022.

<sup>8</sup> Statista, 2022: Carbon dioxide (CO<sub>2</sub>) emissions from transport in Poland from 1990 to 2020. <https://www.statista.com/statistics/1266965/poland-co2-emissions-from-transport/> download: 07.11.2022.

25,113,862 passenger cars were registered in Poland. There are more than 6.2 million medium and heavy commercial vehicles on EU roads. With 1,184,677 million medium and heavy commercial trucks, Poland has the largest fleet by far (ACEA, 2022).<sup>9</sup> Poland's passenger car fleet is currently dominated by combustion engine cars. In 2020, 44,8% of passenger cars were running on petrol, followed by diesel cars with a share of 40,2%. Hybrid electric vehicles accounted for 1% of the fleet and liquefied petroleum gas fueled vehicles (LPGs) shared of 13,8%. Only a small proportion of passenger cars (0,1%) were battery electric vehicles (BEVs) and 0% were plug-in hybrid electric vehicles (PHEVs) in 2020 (ACEA, 2022).

### 2.1.2. Industry

Poland is the number one manufacturer of Lithium-Ion batteries in the EU in 2022. The Ministry of Development decided that electric transport (both private and public) would be an area of economy that may constitute a driving force for further development of the country. The E-Bus project assumed implementation of more than 800 electric buses to transport systems of different Polish cities until 2020 (7% of all buses). However, the project fell through and at the end of 2020 there were only 416 electric buses in operation (Polom, 2021)<sup>10</sup>. Nevertheless, they have managed to become the first in European Union in producing and exporting electric buses in 2021. According to the Polish Department of Electromobility Development 707 electric buses were in operation in 2022 (CEE SEN, 2022)<sup>11</sup>.

The transition of the market towards zero-emission transport will change the Polish job market for nearly 215,000 employees from the automotive sector<sup>12</sup>, while an additional 60,000 will have to re-adapt in the service and maintenance sector of the EV models<sup>13</sup>. The near future also holds the enormous challenge of long-haul transport which will also have to be decarbonized to ensure the full transition of the automotive sector. This area is not only related to vehicles, but to the significant changes which need to take place in terms of high-powered charging infrastructure. This combined with the dire need of changing the Polish energy mix to RES-based solutions and grid investments shows that the number of ventures, projects and innovations crucial for these processes to succeed is on the rise.

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<sup>9</sup>ACEA – European Automobile Manufacturer's Association, VEHICLES IN USE EUROPE

2022 Report. <https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf> download: 07.11.2022.

<sup>10</sup> Potom, M. (2021). E-revolution in post-communist country? A critical review of electric public transport development in Poland. *Energy Research & Social Science*, 80, 102227. doi: 10.1016/j.erss.2021.102227

<sup>11</sup> CEE SEN, 2022: Polish electric buses the most exported in EU. <https://ceesen.org/en/2022/07/20/polish-electric-buses-the-most-exported-in-eu/> download: 08.11.2022.

<sup>12</sup> European Automobile Manufacturers' Association (ACEA) (2022):

The automobile industry, Pocket guide 2021/2022. [https://www.acea.auto/files/ACEA\\_Pocket\\_Guide\\_2021-2022.pdf](https://www.acea.auto/files/ACEA_Pocket_Guide_2021-2022.pdf) download: 07.11.2022.

<sup>13</sup> <https://ceenergynews.com/voices/cees-building-momentum-shaping-a-zero-emissions-transport-sector-in-poland/> download: 07.11.2022

### 2.1.3. Agriculture

Agriculture accounted for 9.6% of GHG emissions in 2020. Unlike many EU countries, Poland has grown its agriculture-based emissions between 2005-2020. This growth was quite significant at 7.4%.<sup>14</sup>

There are provisions in the EU's Fit for 55 package that will harm Polish agriculture. The Common Agricultural Policy Strategic Plan for 2023-2027 has a budget of €25 billion to support the sustainable development of Polish farms and the processing sector; improving living and working conditions in small rural towns.

Ensuring food security is a priority in Poland. Given the reliance on products produced by Polish farmers, access to food was not a problem under COVID-19. Agricultural yields depend on the quality of the environment. We cannot afford the narrative that appears in the EU that farmers do not care about the environment, on the contrary, this awareness is very high.

### 2.1.4. Energy

Despite some acceleration in recent years, Poland lags far behind when it comes to the use of RES in final energy consumption. Poland reduced the proportion of fossil fuels in energy production from 98% in 1990 to 82% in 2020 and increased renewable energy production from 2% to 18% at the same time. The largest progress has been made in the field of coal usage, the part of which decreased from 96% to 68%. At the same time, energy produced from natural gas grew from 0.1% to 11%, which questions the results achieved by Poland so far, as it is returning to former energy production methods to cope with the energy crisis.<sup>15</sup>

This will make it all the more difficult to achieve the 2030 targets. The Polish energy sector must cut emissions, otherwise energy production will become increasingly expensive. Industries particularly vulnerable to increases in allowance prices should be supported in their low-emission investments with money from the ETS system. All revenues from CO<sub>2</sub> allowances should be earmarked for industrial and energy transformation. During the transitional period, we should establish a social fund for households particularly exposed to sudden increases in energy prices<sup>16</sup>. Poland endeavours to banish coal from its energy sector. In the framework of two projects, the

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<sup>14</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR2Ekb3TtMouil9WuoOQvWQRYCJ\\_0bJCfop6sNFpwGMcFjWlb4U7desKYB4](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR2Ekb3TtMouil9WuoOQvWQRYCJ_0bJCfop6sNFpwGMcFjWlb4U7desKYB4) download: 07.11.2022.

<sup>15</sup> Eurostat Database

<sup>16</sup> Forum Energii, FIT FOR 55 - what will the package contain? <https://www.forum-energii.eu/en/blog/fit-for-55-co-znajdzie-sie-w-pakiecie> download: 07.11.2022

government has pledged to install six nuclear reactors with a projected combined capacity of 6-9 GW. The plan is to begin the construction of the first, 1 GW to 1.6 GW reactor in 2026 and get it online in 2033<sup>17</sup>. Considering the fact that even a 40% reduction in emissions seems problematic to be achieved by 2030, reaching 55% in the energy sector is not a realistic goal. The government's current objective is to cut back the usage of coal in energy production to between 11-28%. Furthermore, a third of Polish households is heated by coal, a number to be reduced by subsidies to replace heating systems in cities.<sup>18</sup>

In transport and heating, it means that more effort will have to be put into the production and use of biomethane and green hydrogen. For distributed technologies, on the other hand, complementary expansion of the grid and storage will be crucial. Major constraints will include the use of biomass (especially forest biomass), which may affect investment strategies in the heating and electricity sectors.

Poland's progress to date in improving energy efficiency also remains modest. To meet the 2030 targets, massive thermo-modernisation of buildings, investment in equipment with the highest energy classes and a strategy of sectoral pooling will be key.

Green energy and economic transformation is a considerable challenge for Poland. Fit for 55 – even though its implementation would be a huge task itself – may benefit to Poland and help with the changes they would have to implement one way or another.

Fit for 55 is about increasing the role of renewable energy sources, lowering the energy consumption – especially in buildings – or lowering the carbon dioxide emissions from transportation. Those measures will help us get rid of the air pollution problem, which still bothers Poland, even though we have been trying to minimise it for years now, including banning urban solid burning in the city of Krakow<sup>19</sup>.

The package gives an opportunity to speed up those actions and to do that in a way that lets us to reduce energy poverty, which could soon become a major global problem. The package implies, among others, thermal modernisation plans for buildings that anyone could afford, regardless of the income.

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<sup>17</sup> <https://www.world-nuclear-news.org/Articles/Poland%E2%80%99s-government-confirms-Westinghouse-for-nucl> download: 09.11.2022.

<sup>18</sup> <https://www.statista.com/statistics/1086235/poland-number-of-solid-fuel-heaters/>

<sup>19</sup> 19UCHWAŁA Nr XVIII/243/16 SEJMIKU WOJEWÓDZTWA MAŁOPOLSKIEGO z dnia 15 stycznia 2016 r. w sprawie wprowadzenia na obszarze Gminy Miejskiej Kraków ograniczeń w zakresie eksploatacji instalacji, w których następuje spalanie paliw, <https://bip.malopolska.pl/umwm/Article/get/id,1159347.html>

#### 2.1.4. Conclusions for Poland

The energy transition will be quite a challenge for Poland, but the European funds and the support mechanisms financed by the EU ETS will provide significant support. Poland will be one of their biggest beneficiaries. Used well, the money could enable Polish households to become resilient to further price rises, companies to make technological changes and find themselves in new market niches, and the government to mitigate social risks. By developing the renewable energy system, Poland could become more independent and they will not have to rely on spending lots of money for international deals with non-EU countries.

A reform of a European directive that concerns energy conditions for European buildings is also highly desirable. Poland need to ensure that the solutions proposed by the EU will prove successful and that their implementation won't create any unnecessary obstacles for European societies, especially the less affluent groups.

The Polish energy industry needs to reduce emissions, otherwise energy production will become increasingly expensive. Industries that are particularly sensitive to the rise in the price of allowances can use money from the ETS to support low-emission investments. In the case of Poland, all the revenues from the sale of CO<sub>2</sub> allowances should be used for industrial and energy restructuring. In the transition period, they can support households particularly vulnerable to the sudden rise in energy prices by setting up a social fund.

In Poland, the share of coal is very high, both in the energy sector and in residential heating. The unchanged introduction of the ETS 2 system results in the population returning to solid fuel instead of cleaner gas in both villages and towns.

The ETS mechanism can be an effective tool to mobilise emission reductions in the sectors concerned. However, for a country where one in three cars is over 20 years old and where the vast majority of homes are not energy efficient, factoring in the costs of emissions from transport and buildings is a major challenge. On the other hand, the EU ETS would serve to improve air quality, improve energy standards in buildings and develop electromobility. Poland should create separate emission funds for transport and buildings to avoid a drastic increase in the cost of coal-fired homes. It is important to develop biomass legislation. The situation of the poorest must be monitored and the necessary support provided to ensure that emission prices do not exacerbate fuel poverty. However, without investment, it will be impossible to meet environmental targets. Such investments could be financed by European funds, although it is worth

noting that the high cost of construction materials and the limited availability of skilled labour could be a risk factor.

Experts predict that meeting the more ambitious national and sectoral renewable energy targets will be difficult because Poland is still lagging behind the rest of Europe in the use of renewable energy in final energy consumption. In addition, the use of biomass (especially forest biomass) will be very limited, which could affect Poland's strategy. 2021 August's amendment to the Forest Act allows wood to be fired in power plant stoves. Tightening in this area could put an end to this practice and, as a consequence, could hit the profits of the state-owned company.

Due to the current energy crisis, Poland is not only postponing plans to close existing coal mines, but will also expand production and even open new facilities. Poland uses coal to generate 70% of electricity, by far the highest figure in the EU. The government's current energy plan foresees that falling to between 11% and 28% by 2040.<sup>20</sup> Additionally, one third of Polish households are heated by burning coal, a figure the authorities have also sought to reduce. Most of the coal burned in Poland is mined domestically. However, under an agreement with unions, the government announced plans in 2020 to close all Polish coal mines by 2049. The Polish government is currently finalising plans to build the country's first nuclear power plants, which will start operating in 2033 at the earliest, with no coal-fired power plants scheduled to be closed by then. By generating instead of shutting down coal plants, the question is how they will meet the Fit for 55 targets.

## 2.2. Czech Republic

CO<sub>2</sub> is by far the most abundant GHG produced in the country. All net GHG emission amounted to almost 126 million tonnes of CO<sub>2</sub> equivalent, 83% of which, or around 105 million tonnes came from CO<sub>2</sub> alone. 67% of these emissions were necessary to produce energy. Two of the main contributors within this category were: manufacturing industries and construction (8% of all emissions) and transport (14%). Other industrial processes and product use accounted for 12% of all emissions. Agriculture was a less significant contributor with 6%. Surprisingly enough, land use, land-use change and forestry was a net emitter sector, accounting for 10% of all emissions.<sup>21</sup>

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<sup>20</sup> [https://notesfrompoland.com/2022/11/07/poland-to-delay-coal-phaseout-and-open-more-mines-amid-energy-crisis/?fbclid=IwAR2RbctUO\\_QiltFeqipq6\\_9vDGX48v3KWE3yFd-KIBXAYttjEf9HG4SCV\\_U](https://notesfrompoland.com/2022/11/07/poland-to-delay-coal-phaseout-and-open-more-mines-amid-energy-crisis/?fbclid=IwAR2RbctUO_QiltFeqipq6_9vDGX48v3KWE3yFd-KIBXAYttjEf9HG4SCV_U) download: 07.11.2022.

<sup>21</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 07.11.2022.

The country has decreased its GHG emissions by slightly more than 10% between 2005 and 2020. A further 45% would be required to achieve Fit for 55 goals.<sup>22</sup> This seems especially challenging considering the fact that, land use, land-use change and forestry was a net absorber sector in 2005, which has changed to the contrary by 2020. The country will either have to decrease its emissions significantly, or increase its absorbing potential even more.

### 2.2.1. Transport sector

The energy consumption of transportation was 78 TWh in 2021, which equals 27% of the country's whole energy needs. 91% of the transport sector's energy demand was covered by petroleum in 2019. Biofuels accounted for 5% and electricity for a further 2%.<sup>23</sup> Czechia had more than 6.9 million motor vehicles in 2020: 6.1 million passenger cars, 600,000 light commercial vehicles, 185,000 medium and heavy commercial vehicles and around 20,000 buses.<sup>24</sup>

Road transport accounted for 96% of the national transport demand in 2018, while air transport and rail transport were more marginal.<sup>25</sup> Most common types of fuel are diesel (66% of demand) and gasoline (23% of demand). The high proportion of diesel might be explained by the fact that the Czech Republic is a transit country between Eastern and Western Europe and the trucks and vans mainly responsible for this transit mostly run on diesel. Alternative fuels in the country are liquified petroleum gas (LPG), biofuels and electricity. In 2020, both were used in around 0.1% of cars in the country, which is unimportant within the 6.1 million cars in Czechia.<sup>26</sup>

Among the four main sectors analysed here, transport is the only one where CO<sub>2</sub> equivalent emissions have grown between 2005 and 2020 by a not-so-marginal 2.3%, which figure also justifies, that Czechia still has a long way to go in greening its transport sector.<sup>27</sup>

### 2.2.2. Industry

Czechia is and traditionally has been an important industrial economy in Europe with a highly developed industry. The automobile, electrical, chemical and metallurgical

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<sup>22</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 07.11.2022

<sup>23</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), pp. 13-15.

<sup>24</sup> <https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf> download: 07.11.2022.

<sup>25</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), pp. 13-15.

<sup>26</sup> <https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf> download: 07.11.2022.

<sup>27</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 07.11.2022.

sectors are the main industrial drivers with light industry and agriculture being of lesser importance. More than a third of the production of goods and services are exports, making the Czech Republic a highly export-based country.<sup>28</sup> Czech Republic has the third share (13.8% in 2020) of direct automotive manufacturing jobs in the EU (ACEA, 2022)<sup>29</sup>.

Industrial CO<sub>2</sub> emissions (including manufacturing industries and construction, industrial processes and product use) have dropped by an astounding 25% between 2005 and 2020.<sup>30</sup> This is likely the consequence of energy efficiency improvement among others and a remarkable achievement considering the industrial past of the country.

### 2.2.3. Agriculture

More than half of the country's land (54%) or 4.2 million hectares are in agricultural use. Most of this, about 1 million hectares is grassland, with fruit orchards and vineyards also being remarkable. Moreover, 10 thousand hectares of hop field provides ingredients for the country's well-known brewing.<sup>31</sup> However, agriculture still accounted for less than 2% of Czechia's GDP in 2021, making it a largely non-agricultural country.<sup>32</sup>

What does make Czech agriculture remarkable is the high percentage of land in organic farming. The share of organic land within total land in agricultural use was over 15% in 2020, almost twice as high as the EU average.<sup>33</sup> This suggests that agriculture-induced CO<sub>2</sub> emissions are lower than the EU-average, as organic farming uses less fertilizers and chemicals, the production of which is an important contributor to emissions.

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<sup>28</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), pp. 13-15.

<sup>29</sup> European Automobile Manufacturers' Association (ACEA) (2022): The automobile industry, Pocket guide 2021/2022. [https://www.acea.auto/files/ACEA\\_Pocket\\_Guide\\_2021-2022.pdf](https://www.acea.auto/files/ACEA_Pocket_Guide_2021-2022.pdf) download: 07.11.2022.

<sup>30</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8)

<sup>31</sup> <https://europea.org/agriculture-in-the-czech-republic/#:~:text=Land,which%20individual%20crops%20are%20rotated.> download: 07.11.2022.

<sup>32</sup> [https://www.theglobaleconomy.com/Czech-Republic/share\\_of\\_agriculture/#:~:text=The%20latest%20value%20from%202021,138%20countries%20is%2010.03%20percent.](https://www.theglobaleconomy.com/Czech-Republic/share_of_agriculture/#:~:text=The%20latest%20value%20from%202021,138%20countries%20is%2010.03%20percent.) download: 07.11.2022.

<sup>33</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic\\_farming\\_statistics#:~:text=The%20countries%20with%20the%20highest%20shares%20of%20organic%20land%20farm,also%20had%20shares%20above%2010%20%25.](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics#:~:text=The%20countries%20with%20the%20highest%20shares%20of%20organic%20land%20farm,also%20had%20shares%20above%2010%20%25.)



However, organic farming alone probably cannot make up for the high emissions of the highly industrialized Czech economy, since agriculture accounted for only 6.2% of the country's CO<sub>2</sub> emissions in 2020.<sup>34</sup>

Nevertheless, the CO<sub>2</sub> emissions in agriculture have decreased by 3.5% between 2005 and 2020, which can be explained partly by the growth of organic farming.<sup>35</sup>

#### 2.2.4. Energy

According to the National Energy and Climate Plan, the Czech government set a target of reducing greenhouse gas emissions by at least 44 million tonnes of carbon dioxide equivalent (Mt CO<sub>2</sub>-eq), corresponding to a 30% reduction compared to 2005. The country is currently not on track to reach this goal, excluding emissions from land use, land-use change and forestry.<sup>36</sup> CO<sub>2</sub> emissions from the Energy industries sector decreased by 45% from 147 Mt CO<sub>2</sub> in 1990 to 81 Mt CO<sub>2</sub> in 2020.<sup>37</sup>

Fossil fuels, especially coal still have a leading role in Czechia's energy and electricity production, even though recent EU-level climate targets make coal less and less competitive in case of the Republic as well. The phase-out of coal use and mining also poses important economic and social challenges, which the government is currently addressing by providing support for the economic restructuring and fair transformation of mining areas.<sup>38</sup> The proportion of coal in the energy mix has reduced from 75% in 1990 to 38% in 2020, while nuclear has grown from 20 to 37% and renewables increased from 2 to 14%. Altogether, the amount of fossil fuel usage has decreased by 18%. The Czech Republic is moving forward with its plan to increase the share of nuclear energy. The state-controlled energy group ČEZ has issued a tender for the installation of a new reactor block at the Dukovany nuclear power plant. The contract must be signed in 2024, and construction is expected to begin in 2029. Electricity production in the new block must start in 2036.<sup>39</sup>

In the Czech Republic, there is a great potential for reducing energy intensity in buildings for housing as well as for state administration and local governments. Directive of the European Parliament and of the Council 2010/31/EU on the energy

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<sup>34</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvslm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvslm5lals62HAVMqa_WawSasSnd6cr8)

<sup>35</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvslm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvslm5lals62HAVMqa_WawSasSnd6cr8)

<sup>36</sup> <https://iea.blob.core.windows.net/assets/301b7295-c0aa-4a3e-be6b-2d79aba3680e/CzechRepublic2021.pdf> download: 07.11.2022.

<sup>37</sup> Czechia. 2022 National Inventory Report (NIR) <https://unfccc.int/documents/461895>

<sup>38</sup> <https://www.iea.org/reports/czech-republic-2021>

<sup>39</sup> <https://www.world-nuclear-news.org/Articles/Tender-launched-for-new-nuclear-plant-at-Dukovany> download: 10.11.2022.

performance of buildings has an impact on the construction, renovation and use of buildings. By 2030, implementation of the Directive should lead to emissions reduction per unit of the floor area of a building by 25 to 40% compared to 2010.<sup>40</sup>

### 2.2.5. Conclusions for the Czech Republic

As clearly visible, the Czech republic has decreased its GHG emissions overall and in case of most key sectors. The 10% shrink in emissions however does not yet seem enough to achieve a 55% cutback by 2030. This especially stands if we consider that transport is not getting significantly greener, in fact, its emissions have slightly increased. The transport sector must follow other large-emission sectors in cutting its emissions and adapting new solutions for greening. Moreover, land use, land-use change and forestry are not living up to their potential, as they are currently net emitters, even though they could be net absorbers and help the Czech Republic in reaching *Fit for 55* goals instead of hindering it.

As things stand right now, the highly industrialized Central-European country does not seem quite ready to reduce its emissions to 45% of the 2005 value by 2030. With the energy crisis cheap energy will become more and more valuable, which might set back even sectors, where great progress has been made. Overall, the redesigning of *Fit for 55* goals was justified before the energy crisis, and the energy crisis made this rethinking even more acute.

## 2.3. Slovakia

Total GHG emissions were 37002,71 kt of CO<sub>2</sub>-eq. in 2020, excluding LULUCF (-7593,17 kt CO<sub>2</sub>-eq LULUCF). The country's total CO<sub>2</sub> equivalent emissions without land use, land-use change and forestry fell by 27% between 2005 and 2020 (UNFCCC, 2022b; UNFCCC, 2007). Slovakia's forested area has been growing, and forests now cover 41% of the national territory.<sup>41</sup>

Combustion of fossil fuels, which account for about 76% of the total CO<sub>2</sub> emissions in the Slovak Republic (without LULUCF), represent the most important anthropogenic source of CO<sub>2</sub> emissions (UNFCCC, 2022b)<sup>42</sup>. Existing and envisaged policies, such as support of renewable and nuclear energy production, the closure of coal power plants,

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<sup>40</sup> The Climate Protection Policy of the Czech Republic

<sup>41</sup> European Parliament

(2021): Climate action in Slovakia. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS\\_BRI\(2021\)698767\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf)

<sup>42</sup> UNFCCC (2022b): National Inventory Report 2022 Slovakia. <https://unfccc.int/documents/461882>

investments in sustainable transport and building efficiency will contribute to further reductions in emissions but will likely fall short of what is needed to attain carbon neutrality by 2050.

The European Commission has approved two Slovak schemes with a total budget of over €1.1 billion to help companies subject to the EU ETS decarbonise their production processes and improve their energy efficiency. This budget could help Slovak industries to decarbonise their industrial processes and achieve greater energy efficiency. The measures could reduce the dependence on imported fossil fuels. The beneficiaries of the measures will be companies active in sectors subject to the EU ETS, which include, among others, energy-intensive industries i.e. refineries, steel works, and companies active in the production of heavy metals, construction and chemical products. The schemes are expected to avoid the release of 5.233 million tons of CO<sub>2</sub> annually which is more than 12% of Slovakia's 2030 target (40 million tons of CO<sub>2</sub> equivalent reduction compared to 1990) (European Commission, 2022b)<sup>43</sup>.

Slovakia supported the goals and the measures areas of the Fit for 55 package because this is crucial for achieving the strategic goal of independence from Russian gas and Russian fuels. Slovakia is one of the EU countries most dependent on Russian energy as 87% of its gas comes from Russia.<sup>44</sup>

Covid-19 pandemic impacts on transport, industry and services. Slovakia is not shying away from the green transition, but the pace is slower than in other EU member states. The main problems are in the heating sector, transport and industry. Decarbonisation of these three sectors while considering the issue of energy poverty and maintaining the current level of employment will be very challenging.

### 2.3.1. Transport sector

Transport is one of the segments where GHG emissions have not been reduced in recent years. While in the energy sector in Slovakia they have decreased by 32% since 2005 (2005: 36.222 kt CO<sub>2</sub>e; 2020: 24.608 kt CO<sub>2</sub>e), in transport it was a decrease of only 8% during the mentioned period (2005: 7697 kt CO<sub>2</sub>e; 2020: 7069 kt CO<sub>2</sub>e) (UNFCCC, 2007; UNFCCC, 2022b).<sup>45</sup> <sup>46</sup> The Fit for 55 proposal shows that the preferred way to reduce emissions is, in particular, electromobility, whether hydrogen and new internal combustion engines should end by 2035 at the latest.

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<sup>43</sup> [https://ec.europa.eu/commission/presscorner/detail/da/ip\\_22\\_6015](https://ec.europa.eu/commission/presscorner/detail/da/ip_22_6015) download: 07.11.2022.

<sup>44</sup> [https://www.euractiv.com/section/politics/short\\_news/slovakia-yet-to-plan-solution-to-lower-dependency-on-russian-energy/](https://www.euractiv.com/section/politics/short_news/slovakia-yet-to-plan-solution-to-lower-dependency-on-russian-energy/) download: 07.11.2022.

<sup>45</sup> UNFCCC (2007): National Inventory Report 2007.

<sup>46</sup> UNFCCC (2022b): National Inventory Report 2022 Slovakia. <https://unfccc.int/documents/461882>

Transport is a significant source of emissions in the energy sector, with 16% share in total GDP in the Slovak Republic. The proportion of transport is growing each year and the adopted policies and measures have no positive impact on increasing trend of emissions from transport. The share of rail and water transports is decreasing from year to year, while the share of air transport increased rapidly in previous years, especially due to the increasing activity of low cost airlines, but the trend is stabilised recently. Slovak transport policy started to support railways and other alternative mode of transport (public, car sharing, etc.), but the effect of investments will be visible later. Fugitive methane emissions from the extraction (0.3% share in GDP) and distribution of fossil fuels were important, as the Slovak Republic is an important transit country regarding the transport of oil and natural gas from the former Soviet Union countries to Europe. Raw materials are transported through high-pressure pipelines and distribution network and they are pumped in pipeline compressors. During previous years, massive investments were introduced into transmission network to reduce fugitive emissions and losses. Further improvements were implemented by the specific distribution companies of oil and natural gas to the pipeline system (exploration, transit, distribution, etc.) in line with the international requirements. Side effect of these changes caused reducing fugitive emissions in this sector (UNFCCC, 2022b). Within the energy sector, transport with 19.1% share on total emissions contributes significantly to the GHG budget (UNFCCC, 2022b).

As far as mobility is concerned, the Slovak RRP plans to implement several transport reforms – freight transport, public transport and alternative powertrains are the respective areas. In addition, the development of low-carbon transport infrastructure is being pursued. The largest investment will go to the railroad network – about 550 million euros for the modernization of the infrastructure and the overhaul of the service timetables. Furthermore, more than 100 million euros will be allocated to encourage bicycle mobility.

### **2.3.2. Industry**

The industrial processes and product use sector was the second important sector in 2020 with its 22% share in total GHG emissions, producing mainly technological emissions from processing mineral products, chemical production and steel and iron production. The reduction of emissions from technological processes is very costly and there exist specific technical limits, therefore the emissions have not been changed since the reference year as significantly as for other categories. Mostly the production volume in industrial processes influences their level.

Industrial production and use of fossil fuels are the source of 41% of all emissions produced and reducing industrial emissions remains the significant challenge in decarbonising the Slovak economy (European Commission, 2022).<sup>47</sup> The country's energy intensity was 70% above the EU average in 2020. Compared to 2000, the greenhouse gas intensity of Slovakia's energy consumption has decreased only by 17%.<sup>48</sup>

Slovakia has large industrial players in various industry sectors, such as fertilisers, aluminium, cement, steel and automotive. Having the largest steel producer in the region and four automotive companies with the announced fifth one. Slovakia has the highest share (16,2% in 2020) of direct automotive manufacturing jobs in the EU.<sup>49</sup>

Slovakian industry in need of decarbonization. In addition to the aforementioned figure regarding industry emissions 16 percent of the GHG emissions in 2019 came from manufacturing industries and construction. The US Steel plant of Kosice, in particular, is responsible for 18 percent of the whole country's GHG emissions. Decarbonization of industry covered by the EU ETS is being left to the market. Other sectors will be well-regulated by the national climate law, which is in the pipeline. But responsibilities of different ministries are vague and their readiness to implement the plan is highly questionable.

### 2.3.3. Agriculture

The Agriculture sector with more than 2% share in total GDP is the main source of methane and N<sub>2</sub>O emissions in the GHG emissions balance in the Slovak Republic. In 2020, the share of the agriculture sector on total GHG emissions was 7% (2579 kt CO<sub>2</sub>eq) and the trend in emissions decreased by 5.4% compared to 2005. In recent year, the increasing trend of services and other (non-industrial) activities on GDP is visible which has a positive impact on the emissions. The area of forest covers 41% of the territory and wood harvesting is historically an important economic activity. Since 2005, removals from the LULUCF sector have increased by 59%, accounting for 21% of total GHG emissions in 2020 (UNFCCC, 2022b).

On forests and forestry, the priority to promote sustainable forest management, including close-to-nature practices, particularly as part of the implementation of the new EU Forest Strategy for 2030. Slovakia will build on previous work on water issues,

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<sup>47</sup> European Commission (2022): 2022 Country Report – Slovakia. Brussels, 23.5.2022, SWD(2022) 627 final.

<sup>48</sup> EU Energy in figures 2020. Pages 122 and 125.

<sup>49</sup> European Automobile Manufacturers' Association (ACEA) (2022):

The automobile industry, Pocket guide 2021/2022. [https://www.acea.auto/files/ACEA\\_Pocket\\_Guide\\_2021-2022.pdf](https://www.acea.auto/files/ACEA_Pocket_Guide_2021-2022.pdf) download: 07.11.2022.

particularly on addressing drought and water scarcity, focusing, among others, on nature-based and nature-friendly solutions in drought management and finding the complex solutions concerning soil-water interactions, with reference to the development of the concept of soil as a carbon and water bank of the country.

#### 2.3.4. Energy

The energy sector (including transport) with the share of 65.5% was the main contributor to total GHG emissions in 2020 (UNFCCC, 2022b)<sup>50</sup>. The energy sector was used to be the largest contributor to GHG emissions but with the rising importance of nuclear power in electricity production, emissions from energy production significantly declined in the previous years in Slovakia. The gross domestic energy consumption decreased by almost 16% since 2010. The share of different fuels on the gross domestic energy consumption is as follow: natural gas 24%, nuclear fuel 23%, coal 20%, crude oil 22% and renewable sources (RES) more than 17% in 2020 (UNFCCC, 2022b). Based on the information provided by the Ministry of Economy of the Slovak Republic, share of carbon-free energy on total energy production in 2020 increased up to 14% (excluding nuclear).

Nuclear energy has always been a priority of the various governments in decarbonisation efforts. Although nuclear has been considered a domestic source, Russian invasion into Ukraine has opened also debates on dependence of nuclear fuel, which is, alongside natural gas and oil imported from Russia. Slovakia has two nuclear power plants in operation and all of them use Russian fuel. However, currently price is no longer the only criterium for the government, as there have been an intense debates over the need to diversify nuclear fuel and to get rid of energy dependence of Russia's imports. Slovakia has been struggling to finish two more units in Mochovce nuclear power plant. Currently nuclear accounts around 55% of electricity production and after commissioning two more units it will achieve around 75%, which means than almost all generated electricity will be based on nuclear or renewables (RES), mainly hydro energy. While the preference of the government to support nuclear in order to achieve climate goals is clear, the support for renewables is more complicated. The National Energy and Climate Plan even emphasizes that after putting two units in Mochovce in operation "it will be difficult, even impossible, to increase the RES share above the proposed RES target in the electricity generation sector".

Slovakia is still lagging behind in solar and wind energy. There is almost no wind energy production (there are just few wind turbines) and solar accounts for less than 3% in

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<sup>50</sup> <https://unfccc.int/documents/461882>

electricity production<sup>51</sup>. But the situation with high energy prices and also legislative changes led to the higher interest in photovoltaic installations of the households and companies. Moreover, there is an unexplored potential of use of geothermal energy in district heating system that would help not only with decarbonisation, but also to decrease country's dependence of gas imports.<sup>52</sup>

Contrary to the other countries in V4 region, such as Czechia or Poland, for Slovakia is not such a difficult task to phase-out coal. Domestic coal is uncompetitive and the sector is highly dependent on state subsidies. Year 2018 was a crucial milestone for Slovak coal mining industry, because Minister of Economy announced the end of state subsidies for coal mining in 2023, which was approved by the government resolution a year later.<sup>53</sup>

The discussion in Slovakia as well in other EU countries, especially in Central Europe is focused around cutting off Russian energy supply. This debate is twofold: firstly, the country is trying to diversify supplies and find alternative suppliers for natural gas and oil as well, as the main refinery Slovnaft has been processing Russian oil, and secondly, the new geopolitical situation has intensified debates on speeding up higher deployment of domestic renewables and energy efficiency measures. The role of natural gas in decarbonisation have been discussed also in previous years, but new reality calls also for short-term solutions of how to replace natural gas. There is a potential to develop geothermal and solar energy as well as biofuels and to speed up renovation of public buildings.

### **2.3.5. Conclusions for Slovakia**

Slovakia has several sectoral strategies aiming to decarbonize and lowering emissions, but there is poor coordination between ministries responsible for climate-related agenda and a missing clear vision of how to achieve climate neutrality. Slovakia declares a higher ambition for GHG emission reduction by 2030 as the other countries and proposes emission decrease of -20% instead of -12% set in NECP.<sup>54</sup>

Slovakia is short on fossil energy sources, which gives it the opportunity to painlessly apply climate-neutral technology. The country's energy supply relies on nuclear energy, so meeting the set climate goals is not a problem for it, however, the high proportion of nuclear energy already competition with renewable energy.

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<sup>51</sup> <https://www.energie-portal.sk/Dokument/kolko-elektriny-vyrabaju-slovenske-atomky-vodne-a-solarne-elektrarne-tu-su-cerstve-cisla-106931.aspx> download: 08.11.2022.

<sup>52</sup> <https://agendapublica.elpais.com/noticia/18063/slovakia-its-way-of-decarbonisation> download: 08.11.2022.

<sup>53</sup> <https://agendapublica.elpais.com/noticia/18063/slovakia-its-way-of-decarbonisation> download: 08.11.2022.

<sup>54</sup> <https://agendapublica.elpais.com/noticia/18063/slovakia-its-way-of-decarbonisation> download: 08.11.2022.

## 2.4. Hungary

CO<sub>2</sub> was by far the most overwhelming of the greenhouse gases emitted by Hungary in 2020, reaching over 40 million tonnes, accounting for 72% of all greenhouse gas effect in the country. Transport made up 22% of all CO<sub>2</sub> emissions, with industrial processes and product use at 14% and manufacturing industries and construction at 8%.<sup>55</sup> Agriculture had a relatively high proportion in GHG emissions and accounted for 13% of them. All of the above had a certain overlap with energy production, which altogether was responsible for 79% of the country's emissions.

Hungary decreased its CO<sub>2</sub> equivalent emissions by 21% between 2005 and 2020, thus 34% more is required to reach Fit for 55 goals by 2030.<sup>56</sup> For now, this might seem too ambitious, however, we must take into consideration that the absorption capacity of land use, land-use change and forestry has grown by 16% between 2005 and 2020. This sector was already a net absorber in 2005, but absorbed net 6.8 million tonnes of CO<sub>2</sub> equivalent in 2020. Moreover, ambitious goals are set to make the country's energy production and transportation greener. The expansion of German automobile industry might hinder the radical reduction of GHG emissions nonetheless.

### 2.4.1. Transport sector

In 2020, Hungary had more than 4.5 million motor vehicles: 3.9 million passenger cars, 485,000 light commercial vehicles, 94,000 medium and heavy commercial vehicles and 17,000 buses.<sup>57</sup>

Around 2/3 (65.3%) of passenger cars ran on petrol in 2020 with diesel being the second most common fuel (31.7%). 0.3% of cars were powered by electricity and the headcount of plug-in hybrids was about the same. 0.7% of cars ran on LPG (liquified petroleum gas), putting Hungary No. 7 in the EU.

Hungary is seriously aiming to green its largely fossil fuel-based transportation. In the National Electromobility Development Program launched in 2015 the country pledged to have 182,000 electric vehicles and more than 20,000 charging stations by 2030. In 2019 this plan was modified and now wants to achieve nearly 300,000 electric vehicles by 2025 and 500,000 vehicles with 53,000 charging stations by 2030. This goal seems slightly too ambitious considering the current figure of around 11,000. However, it

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<sup>55</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 08.11.2022.

<sup>56</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 08.11.2022.

<sup>57</sup> [https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf?fbclid=IwAR2qAepQzXMTDK8gk5B3G3Z\\_Id\\_F0pNxlrW55L7M2lxYtRDTQrwHEDhlyUI](https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf?fbclid=IwAR2qAepQzXMTDK8gk5B3G3Z_Id_F0pNxlrW55L7M2lxYtRDTQrwHEDhlyUI) download: 08.11.2022.



looks more achievable if we take the Green Bus Program into consideration. This program's goal is the greening of public transport by the purchase of electric buses, thus ensuring that 30% of all buses running on the roads of cities with a population of 25,000 and more is green. To achieve this, € 90 million have been allocated to support these purchases between 2020 and 2029.<sup>58</sup>

However, these projects are yet to achieve their goals, as transport-based CO<sub>2</sub> emissions have grown by 4% between 2005 and 2020.<sup>59</sup> This might be explained by the fact that there has been an 18% growth in the number of motor vehicles in Hungary during just a fraction of this timeframe (2016-2020) and the vast majority of these vehicles are still not electronic.<sup>60</sup>

For László Palkovics, Minister for Technology and Industry, the greening of transportation is crucial to reach climate neutrality by 2050.<sup>61</sup>

#### 2.4.2. Industry

Industry makes up about a quarter of the GDP and employs about a third of the working population, therefore it is safe to call it a key sector in the country's economy. The two main branches of Hungary's industry are car manufacturing and electronics. The former is mainly provided by German companies and is on its own responsible for more than 17% of the country's GDP. The latter accounts for 20% of the industrial output in Hungary. These two sectors are largely responsible for Hungary being an export-oriented country, as, along with medicines they provide the main exports.<sup>62</sup>

Industrial CO<sub>2</sub> emissions have decreased by 7% between 2005 and 2020, which shows a good direction. However, foreign investment is strong, especially from the part of German corporations, which might make the further greening of Hungarian industry difficult, thus calling for the greening of other sectors.<sup>63</sup>

#### 2.4.3. Agriculture

Hungary is a country with traditionally important role in agriculture, especially compared with its size. Almost half (47%) of the land is arable, and many agricultural

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<sup>58</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), p. 80.

<sup>59</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8)

<sup>60</sup> [https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf?fbclid=IwAR2sv-laoqXILivk4R93gtp5xazjgPmoSZNds\\_8glWpgY--tpDgDQf55\\_-8](https://www.acea.auto/files/ACEA-report-vehicles-in-use-europe-2022.pdf?fbclid=IwAR2sv-laoqXILivk4R93gtp5xazjgPmoSZNds_8glWpgY--tpDgDQf55_-8) download: 09.11.2022.

<sup>61</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), p. 80.

<sup>62</sup> Mazur et al: Review of Climate Policies of Selected European Countries (2022), p. 74.

<sup>63</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW\\_tpvxlm5lals62HAVMqa\\_WawSasSnd6cr8](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKULaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR0t3Qp2mwffxFDsvf-EvhMW_tpvxlm5lals62HAVMqa_WawSasSnd6cr8) download: 09.11.2022.

products are among the country's important exports.<sup>64</sup> This trend is visible in GHG emissions as well: 13% of the nation's CO<sub>2</sub> emissions came from agriculture in 2020. The figure is growing significantly: agriculture-induced GHG emissions were 19% higher in 2020 than in 2005, totalling 7.3 million tonnes of CO<sub>2</sub> equivalent.<sup>65</sup>

This growth might be partly due to the country's low activity in organic farming. Even though growth is significant, only 6% of all cultivated land was under organic farming in 2020, the EU average being 1.5 times higher.<sup>66</sup> With further support for organic farmers, GHG emissions in agriculture could be more efficiently reduced. In case of Hungary, they are not marginal, even compared to the whole.

#### 2.4.4. Energy

In Hungary, the energy system has been transformed to a great extent over the past 20 years. The use of coal fell to 43%, which was compensated by the doubling of the proportion of natural gas.<sup>67</sup> The proportion of carbon dioxide-free electricity production in Hungary will rise to 90% by 2030. The key to this is maintaining nuclear capacities and encouraging production from renewable sources. Almost half of Hungary's electricity production comes from carbon dioxide-neutral nuclear energy. In the 2030s, the four reactor blocks currently in operation will be shut down after 50 years, but the government is keeping the possibility of extending the operating time for another 20 years on the agenda. With the Paks 2 investment to be completed by 2030, the proportion of nuclear energy will be sustainable in the long term.

With the approximately five-fold increase in photovoltaic capacity that has taken place since 2018, Hungary shares the second largest growth within the EU with Finland, surpassed only by Poland's 26-fold increase from a low base. Renewable production is often connected to low- or medium-voltage distribution networks.<sup>68</sup> Hungary currently has 3,700 MW of installed solar capacity, roughly two-thirds of which is for commercial purposes, and one-third (1,390 MW) is made up of household-sized power plants. Solar farms represent a 21.3 percent share of domestic power plant capacity. The result of the above is that nearly two-thirds of the energy produced in Hungary is partially carbon-free, but 25-30 percent of the electricity used is regularly imported.<sup>69</sup>

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<sup>64</sup> <https://www.macrotrends.net/countries/HUN/hungary/arable-land> download: 09.11.2022.

<sup>65</sup> [https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1\\_GsILW5rVJirAvaVg7MQwgaN50o\\_2mlqN4m7P680aAnzEEALw\\_wcB&fbclid=IwAR1YgArLRs6ddOQTrFV8c5bWtqI9GN1HeCXqhuHrhU07QuuHdEITjkGYwXI](https://unfccc.int/ghg-inventories-annex-i-parties/2022?gclid=Cj0KCQiAmaibBhCAARIsAKUlaKQVbiESEIAf0G1_GsILW5rVJirAvaVg7MQwgaN50o_2mlqN4m7P680aAnzEEALw_wcB&fbclid=IwAR1YgArLRs6ddOQTrFV8c5bWtqI9GN1HeCXqhuHrhU07QuuHdEITjkGYwXI) download: 09.11.2022.

<sup>66</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic\\_farming\\_statistics#:~:text=The%20countries%20with%20the%20highest%20shares%20of%20organic%20land%20farm,also%20had%20shares%20above%2010%20%25.](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Organic_farming_statistics#:~:text=The%20countries%20with%20the%20highest%20shares%20of%20organic%20land%20farm,also%20had%20shares%20above%2010%20%25.) download: 10.11.2022.

<sup>67</sup> Eurostat Database

<sup>68</sup> <https://www.portfolio.hu/uzlet/20221103/napenergia-igy-kerultunk-par-ev-alatt-a-semmibol-az-eu-elmezonyebe-575961> download: 10.11.2022.

<sup>69</sup> MAVIR

The vigorous investment boom in solar power plants in Hungary in recent years reached such a point that in 2021, we already had the highest share of solar power plants in electricity production in the EU-27, at 11.1 percent, ahead of the Mediterranean countries as well.<sup>70</sup> Therefore, a prerequisite for the rapid growth of renewable penetration is the preparation of the transmission and distribution network to deal with the challenges arising from the decentralized and highly weather-dependent production structure.

The natural gas consumption of the power plant sector may exceed the current level in 2030 due to the conversion of the lignite-fired Mátrai Power Plant to a combined cycle power plant, but by 2040 it may drop below 1 billion m<sup>3</sup> per year. Hungary's total consumption will thus decrease from the current 10 billion m<sup>3</sup> per year to nearly 8.7 billion m<sup>3</sup> by 2030, and may fall below 6.3 billion m<sup>3</sup> by 2040. In order to reduce the demand for natural gas and store renewable energy, Hungary is thinking about various green hydrogen projects. The domestic biogas potential provides realistic opportunities to replace 1% of our natural gas consumption by 2030, which means 85 million m<sup>3</sup> per year. Further growth is expected by 2040, so the domestic biogas potential will reach 100 million m<sup>3</sup>.

In 2020, 70% of residential properties and 90% of public buildings were built before 1990. In the 2011-2018 period, an average of 10,122 new apartments were added to the market each year, while an average of 2,007 apartments were demolished. The main reason for the demolition of apartments is that the buildings to be demolished have reached the end of their service life. 0.63% of the buildings are renewed every year.<sup>71</sup>

#### 2.4.5. Conclusions for Hungary

Hungary's achievements in reducing its GHG emissions since 2005 (a timeframe that can no longer be explained by the cutback of heavy industry at the beginning of the 1990s) are remarkable. 21% is significant in 15 years, however, 1.5 times this much must be reached if the country is to complete its *Fit for 55* plans.

Even with the government's programs on greening transport and energy production this goal seems too ambitious. Like in the case of other V4 and other EU countries, the energy crisis calls for the appreciation of *cheap* energy, and this request would hinder even less ambitious short-term climate goals. Hungary is well on its way to meeting its 2030 climate goals in Energy sector, however, in order to achieve complete climate

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<sup>70</sup> [http://www.mekh.hu/download/d/ca/11000/vill\\_eves\\_2021.pdf](http://www.mekh.hu/download/d/ca/11000/vill_eves_2021.pdf) download: 10.11.2022.

<sup>71</sup> <https://klimapolitikaiintezet.hu/cikk/ujat-epiteni-vagy-felujitani-a-regit> download: 10.11.2022.

neutrality, energy renovation of buildings and energy storage are unsolved tasks. Hungary is greening and not only compared to 1990. Within the next few years however quick and irresponsible greening is not desired, as it would make energy even more expensive and financially vulnerable groups of people even more vulnerable.

When Fit for 55 is reshaped however, Hungary must broaden its current greening programs, to reduce GHG emissions in agriculture and keep industries on the way of greening, even if more and more high emitter corporations invest in the country.

### 3. Conclusions for the V4

Hence, some of the goals presented by the EU legislation, especially the Fit for 55 package, may be achieved quite easily for leading e-mobility markets like the Netherlands, Belgium, Germany, Denmark or Scandinavian markets. However, they are very ambitious and difficult for the V4 countries.

The region offers immense potential for investors in the innovation and new tech areas related to sustainable transport and e-mobility sectors. For e-mobility, this will include market segments aligned with the industry, such as EV maintenance, EV charging infrastructure manufacturing and maintenance; software for EVs, chargers and lithium-ion battery monitoring related to new EU requirements; recycling technology, IT technology related to sensors and heat monitoring for batteries; grid management.

Alongside energy production, transport is responsible for most of the V4's carbon emissions. Reforming transport is an essential element of Fit for 55. The number of passenger cars are increasing in the Visegrad countries. In the V4, there are 37.6 million passenger cars in circulation in 2020 (ACEA, 2022). In the EU, there are a total of 246 million passenger cars (2020 figure), with an average age of almost 12 years. The number of battery electric cars in the Czech Republic is 0.1%, in Slovakia 0.1%, in Poland 0.1% and in Hungary 0.3% in 2020. One year later, in 2021, the number of new battery electric cars on the road increased (Czech Republic 1.3%, Slovakia 1.5%, Poland 1.6%, Hungary 3.5% of newly purchased cars).<sup>72</sup> This means that if synthetic fuels were to give internal combustion engines no chance of survival, the assets of many European households would start to depreciate slowly as the 2035 target date approaches. The green switchover will hit European car manufacturers hard. The V4 is lagging behind its competitors in a number of key areas (digitalisation, space, navigation systems, 5G, content delivery, etc.), but the car industry is holding its own. It is also important for us Hungarians. According to Péter Szijjártó, the value of Hungarian automotive production

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<sup>72</sup> icct (2021): CO2 emissions from new passenger cars in Europe: Car manufacturers' performance in 2021. <https://theicct.org/wp-content/uploads/2022/08/co2-new-passenger-cars-europe-aug22.pdf> download: 07.11.2022.

is around HUF 10,000 billion a year, and the sector provides around 150,000 jobs. Today, when we do not even know which battery technology will be the winner in the race for energy storage, to commit ourselves completely to electric drive would be too great a risk for both manufacturers and customers. Not to mention that the network for charging electric cars is nowhere to be found. Unilaterally favouring electric cars could lead to a situation with unforeseeable consequences, causing super-inflation in the car market.

All countries expect the greening of the energy sector from a high share of nuclear energy, which is why greater European support for the construction of new reactors would be necessary. Together with the V4 partners will seek opportunities for developing regional energy infrastructures and the effective deployment of clean technologies, including hydrogen and renewable energy sources.

Agriculture is also a sector where great progress must be made. While Czechia and Slovakia have managed to reduce their agriculture-based emissions between 2005 and 2020, the two major agricultural powerhouses of the V4 have increased them significantly. All V4 countries, but mainly Poland and Hungary have to green their agriculture through innovation, technological development and organic farming.

Contrarily to common misconceptions, agriculture does not have a marginal role in overall emissions. In the case of Poland, it was 9.6% of all emissions, while in Hungary it made up 13%. While agriculture alone cannot enable countries to reach their climate goals, the V4 countries could get much closer to *Fit for 55* goals through the greening of agriculture. As noted before, *Fit for 55* goals do not seem attainable by 2030, especially with the war and energy crisis, however agriculture could play a key role in achieving them in the further future.

# **II.**

## **V4: not ready for „Fit for 55”**

**dr Tomasz Teluk**

**President of the Globalization Institute Poland**

## 1. Introduction

The reduction of greenhouse gas emissions is a mandatory provision in EU law. The new regulations are to make the European Union neutral to the climate by 2050. The "Fit for 55" package is a set of laws and legal initiatives aimed at reducing emissions by 55% by 2030 compared to 1990.<sup>73</sup>

The EU plans amaze with their radicalism. The emission reduction target for 2030 in some areas has been set at as much as 61% compared to 2005. This is to be done as part of the reform of the EU Emissions Trading System (ETS) by phasing out free allocation for aviation and other sectors of the economy and extending allocation systems to the construction, maritime and road transport sectors.

Fig. 1 What is included in the "Fit for 55" package

Source: Council of the European Union, European Green Deal



<sup>73</sup> <https://www.consilium.europa.eu/pl/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/>

The new mechanism is to be the adjustment of limit prices taking into account CO2 emissions (CBAM). It will operate in parallel with the ETS. In other sectors that are not regulated, it is recommended to increase the reduction from the current to 29% up to 40 %. A positive factor is the enhancement of forest carbon absorption through the change in land use and forestry (LULUCF) mechanisms.

The most radical idea of the "Fit for 55" package is 100% reduction of CO2 emissions in the passenger car and delivery vehicle sector by 2035. This means a real ban on the production and registration of vehicles with car and diesel engines. The restrictions will also affect the transport sector. Air traffic is expected to shift to biofuels and e-fuels. On the other hand, in sea shipping, the level of greenhouse gas emissions is to be reduced by 75% by 2050.

Alternative fuels are to be preferred. All these changes mean a revolution for the construction industry, transport, and above all for households and small and medium-sized enterprises, which will have to bear the enormous costs of EU regulations.

Increase in the mandatory share of renewable sources from the existing level of 32% to at least 40% will increase the costs of electricity's production and sale, which is practically felt today. The costs are to be reduced by increasing the energy efficiency of buildings in the public and private sectors. By 2030, all newly built buildings are to be zero-emission, and by 2050 the remaining existing buildings must be modernized. Additionally, production and energy resources will be taxed. This is particularly true for hydrocarbons, but the requirement to reduce methane emissions will force changes in the livestock, waste management, mining and agricultural sectors.

## 2. Poland

From the very beginning, our country's position on the project was critical, drawing attention to the ideological roots of these regulations. The father of the package is Frans Timmermans, and his ideas are considered controversial and harmful. Former Prime Minister of the Republic of Poland Beata Szydło noted that "This noble goal is to be achieved through the degradation of the European economy, loss of jobs, skyrocketing poverty among millions of Europeans and degradation of entire regions," - she said in the European Parliament<sup>74</sup>.

Trade unions were also critical of the project. The National Commission of NSZZ Solidarność proposed that the "Fit for 55" program should be simply blocked<sup>75</sup>. "The EU countries of Central and Eastern Europe, such as Poland, will be most severely

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<sup>74</sup> <https://www.tvp.info/55853905/fit-for-55-beata-szydlo-stanowczo-do-fransa-timmermansa>

<sup>75</sup> <https://www.solidarnosc.org.pl/aktualnosci/wiadomosci/kraj/item/20789-komisja-krajowa-fit-for-55-stanowi-gigantyczne-zagrozenie-dla-gospodarki-nalezy-go-zablokowac>



affected by its negative effects. "Fit for 55" will have an extremely detrimental effect on almost all sectors of the economy and on the daily lives of citizens, "she wrote in a statement. "We also call on the Polish government to intervene as soon as possible on the forum of the European Union regarding the necessary changes to the EU-ETS. The recently observed sharp increase in the prices of CO2 emission allowances is an extremely dangerous phenomenon for the economy. At the beginning of 2018, the cost of purchasing a permit for the emission of 1 ton of CO2 in the EU-ETS system was around €8. It is currently over €60. The prices of emission allowances started to rise rapidly from the moment the European Commission granted them the status of a financial instrument, "appealed trade unions".

Our country pointed to the need to reform the ETS. The new system will apply from 2026. Reducing emissions in transport means an almost immediate increase in prices. The next levy must result in hyperinflation, which is already happening. According to the Polish Economic Institute, the "Fit for 55" package will result in a 20% increase in energy expenditure for the poorest, the costs of transport will increase by 44%, and the costs of heating buildings by up to a half<sup>76</sup>.

The Timmermans package, announced on July 14, 2021, will become onerous mainly for the economically weaker, regardless of where they live. It can be argued that it will mainly hit the countries of Central and Eastern Europe, as this is where the relatively highest percentage of low-income households is located. It is estimated that in the case of Poland, the reduction targets will increase by as much as fourfold. This means an increase in investment outlays. While the largest companies are efficient in the environment of changes and public subsidies, the average citizen who drives an old car and lives in a flat with low energy efficiency will feel it strongly in his wallet.

### Sectoral economic effects

The analysis of the effect of introducing the package for the heating sector was presented by the team for the assessment of the effects of the transformation of the Polish Society of Professional Combined Heat and Power Plants in the document "Decarbonisation of system heating in Poland in the light of the Fit for 55 package"<sup>77</sup>.

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<sup>76</sup> <https://www.euractiv.pl/section/energia-i-srodowisko/news/fit-for-55-europejski-zielony-lad-frans-timmermans-ursula-von-der-leyen-eu-ets-cbam-polska/>

<sup>77</sup>

[http://ptez.pl/files/news\\_attachment/364/dekarbonizacja\\_cieplownictwa\\_systemowego\\_w\\_polsce\\_w\\_swietle\\_pakietu\\_fit\\_for\\_55.pdf](http://ptez.pl/files/news_attachment/364/dekarbonizacja_cieplownictwa_systemowego_w_polsce_w_swietle_pakietu_fit_for_55.pdf)

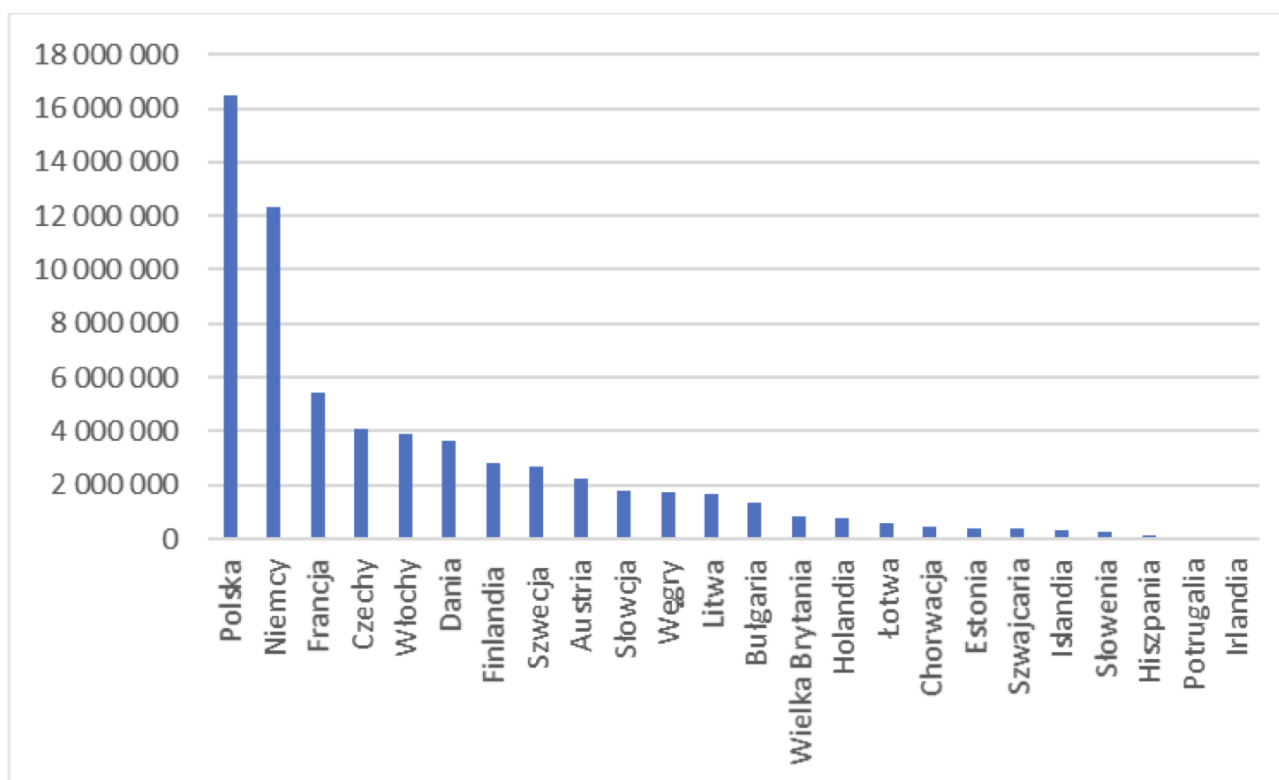


Chart 1. Number of system heat consumers, 2017

Source: Decarbonisation of district heating in Poland in the light of the "Fit for 55" package, Polish Society of Professional Heat and Power Plants, April 2022

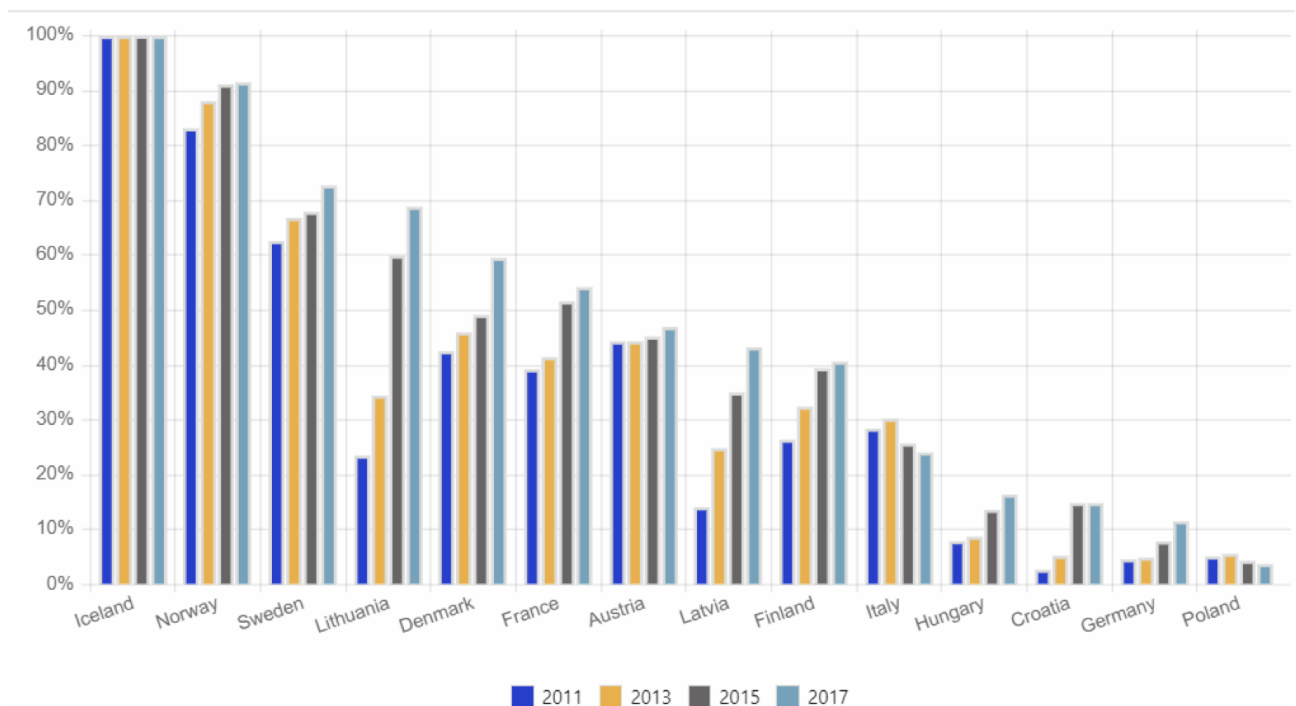
The analysis includes the EED, RED III and EPDB directives, along with forecasts for the period 2022-2050, for various variants of the ordered power from <20MW to> 500 MW. Thus, various variants of solutions for the heating market were created. To sum up, the changes will consume PLN 277-410 billion of investment outlays by 2045. PLN 145-260 billion must be spent already by 2026. The costs are in the range of PLN 95-170 billion outlays on production infrastructure, PLN 76-100 billion in industrial and distribution infrastructure investments and PLN 106-140 billion on the modernization of receiving installations.

The authors of the document point out that individual investments would have to be already at an advanced level, because such a scale of projects is not possible to be implemented at the same time.

It is worth noting that the Polish heating market is the second largest, after Germany, in Europe when it comes to selling district heat to customers, but it has the largest number of customers, the number of which exceeds 16 million. At the same time, we have the lowest share of renewable energy in system heating. For comparison, the Czechs have

approx. 4 million customers, while Hungary has less than 2 million. Poland has transmission networks with a total length of over 20,000. km, more than three times longer than the Czechs and almost ten times longer than Hungary. Hungarians, on the other hand, have the largest share of renewable energy in the system at the level of several percent, with only a few percent in Poland.

Diagram 2. The share of renewable energy in district heating



Source: Decarbonisation of district heating in Poland in the light of the "Fit for 55" package, Polish Association of Professional Heat and Power Plants, April 2022

Therefore, in order to meet the requirements of the heating package, it is recommended to create modern hydrogen heating plants and increase the share of biomass in existing installations. A necessary requirement for the heating safety of the country is the reduction of the necessary levels of RES share and admitting heat from cogeneration to the balance, regardless of the fuel.

The broadest analysis of the impact of the "Fit for 55" package for Poland was presented by the analysts of Bank Pekao SA in the document "Impact of the Fit for 55 package on

the Polish economy". The balance of costs and revenues is negative, ranging from EUR €-234.4 billion to EUR -308 billion by 2030. Therefore, these are gigantic costs for the entire economy.

Tab. 1 Costs and revenues of the "Fit for 55" package for Poland

**Dodatkowe koszty do 2030 r, mld €**

		Scenariusz Fit for 40	Scenariusz Fit for 55	Różnica
<b>Energetyka</b>				
a) wytwarzanie prądu	koszty ETS	33,2	85,3	52,1
b) wytwarzanie ciepła	koszty ETS	10,0	24,0	14,0
łącznie	niezbędne inwestycje	186,0	226,0	40,0
<b>Przemysły energochłonne</b>				
	koszty ETS	9,1	25,6	16,5
<b>Sektor transportu drogowego</b>				
	Koszty ETS	-	5,6	5,6
<b>Gospodarstwa domowe</b>				
a) transport indywidualny	koszty ETS	-	10,4	10,4
b) emisje z budynków	koszty ETS	-	8,4	8,4
c) wzrost efektywności energetycznej	niezbędne inwestycje	99,6	142,2	42,6
<b>Budynki niemieszkalne</b>			1,6	1,6
<b>Łącznie</b>		338,0	527,5	189,0

Niezbędne inwestycje związane z *Fit for 55* generują nie tylko koszty lecz także oszczędności (rozłożone w czasie poza 2030 r.). Pakiet ten generuje też nowe przychody dla budżetu państwa.

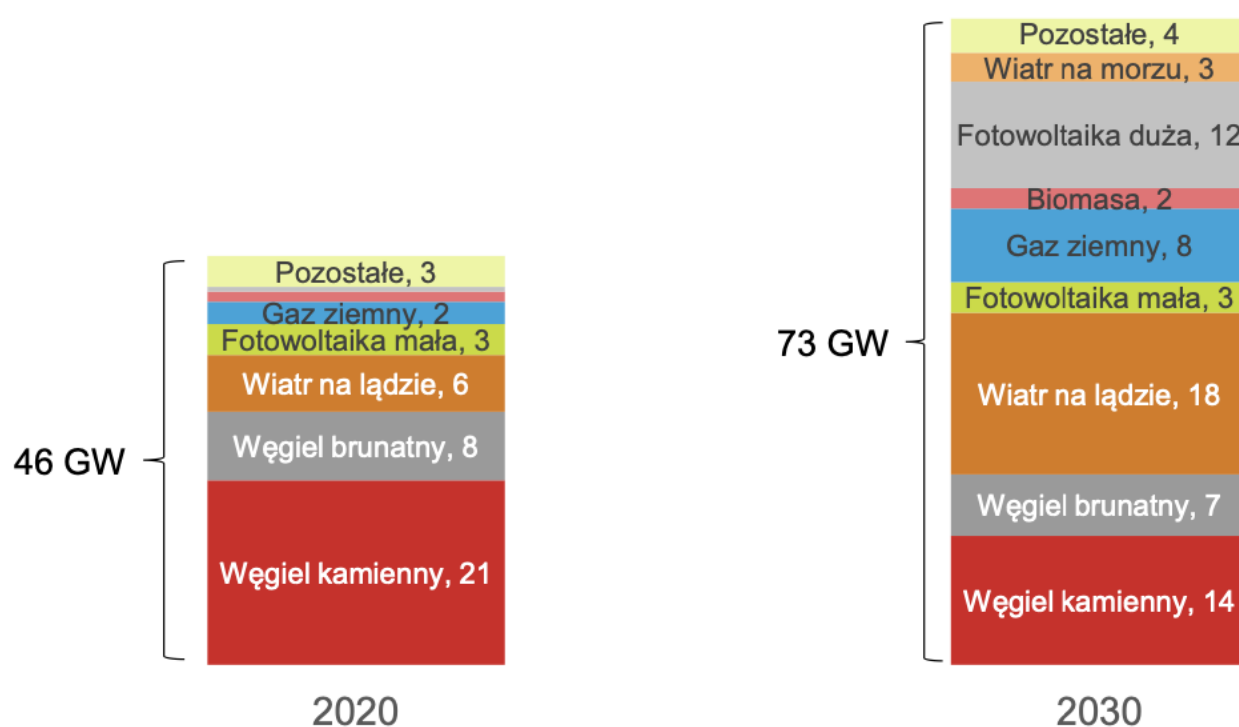
**Dodatkowe przychody do 2030 r, mld €**

		Scenariusz Fit for 40	Scenariusz Fit for 55	Różnica
Budżet państwa	Wartość uprawnień do emisji ETS Energetyka i Przemysł	37,6	104,0	66,4
	Wartość uprawnień do emisji ETS Transport i Budynki	-	20,1	20,1
	Wsparcie z Funduszu Odbudowy Unii Europejskiej	-	29,4 (granty) + 34 (pożyczki)	29,4 34,0
	Wsparcie z Funduszy UE z budżetu na lata 2021-2027	66,0	66,0	-
<b>Łącznie</b>		103,6	219,5 +34,0	115,9 +34,0

Source: "The impact of the Fit for 55 package on the Polish economy", Bank Pekao SA, December 2021

The bank's analysts point out the weakness of the transformation system based on the ETS mechanism. The trading of allowances is speculative and their limited supply guarantees a steady rise in prices. In the case of energy and industry, they are projected to grow from EUR 20 per ton of CO<sub>2</sub> to EUR 120 in 2030. This represents a six-fold increase, which translates into energy prices, as well as an overall increase in prices. Transformation is the greatest challenge facing the energy sector. It has to cope not only with the constant increase in demand for electricity, but also with an emphasis on the diversification of generation sources. Despite significant reductions in greenhouse gas emissions, the power industry will struggle with additional investment costs.

Fig. 2 Powers installed in the power industry by generation sources



Source: "The impact of the Fit for 55 package on the Polish economy", Bank Pekao SA, December 2021

The bank's analysts emphasize that higher allowance prices will translate into a significant increase in the costs of energy-intensive industries. Decarbonisation will be costly, and replacing, for example, coke with hydrogen in metallurgy is a real revolution. New industries covered by the ETS will soon have to face similar problems. Road transport in Poland is almost half of all emissions in the energy sector. Polish transport companies are among the most competitive in Europe and it will be increasingly difficult to maintain this position. At the moment, it is difficult to imagine, for example, fully electric trucks, given the poor ranges and technical limitations of electric cars.

Households will have to face significant rise of costs. Increasingly stricter exhaust gas standards, as well as pressure to buy hybrid and electric models, have already caused a significant increase in car prices, which in the coming years will become less and less affordable for the low-income consumer. The situation is similar with the housing market, which, due to the introduction of emission standards for energy efficiency, will require large investments. Energy and heating costs will also increase due to the need to abandon high-emission fuels.

The representatives of the industrial sector are concerned about the new regulations. In the study "Zero-emissions in industry. Are Polish companies ready for Fit for 55 ", carried out in October 2022 by DB Energy<sup>78</sup>, representatives of large industrial companies admitted that they are not prepared for such a drastic version of the package as proposed by the European Union. Only less than 1/3 of companies have a zero-emission strategy, while 22.9% do not intend to prepare it at all (sic!). Nearly half of the companies indicate the lack of financial resources as the greatest difficulty in implementing such a strategy. As consequences of the package, the companies indicate for themselves a decline in profitability, a reduction in development investments and a decline in competitiveness. Companies do not see the possibility of achieving zero emissions without worsening the financial conditions of the company. This is why the only motivation for its implementation is the compulsion resulting from the imposed EU regulations.

40% of the surveyed companies hope for a 20% reduction in their emissions by 2030. On the other hand, nearly half are skeptical that Poland will achieve its goals. As much as 80% of large companies would like the EU to extend the implementation period for each phase of the package. Three-fourths of companies already expect a significant increase in energy prices and see no possibility of their decline in the future. Overall, the approach to the package is pessimistic.

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<sup>78</sup> <https://www.dbenergy.pl/files/media/raport-zeroemisynosc-w-przemysle.pdf>

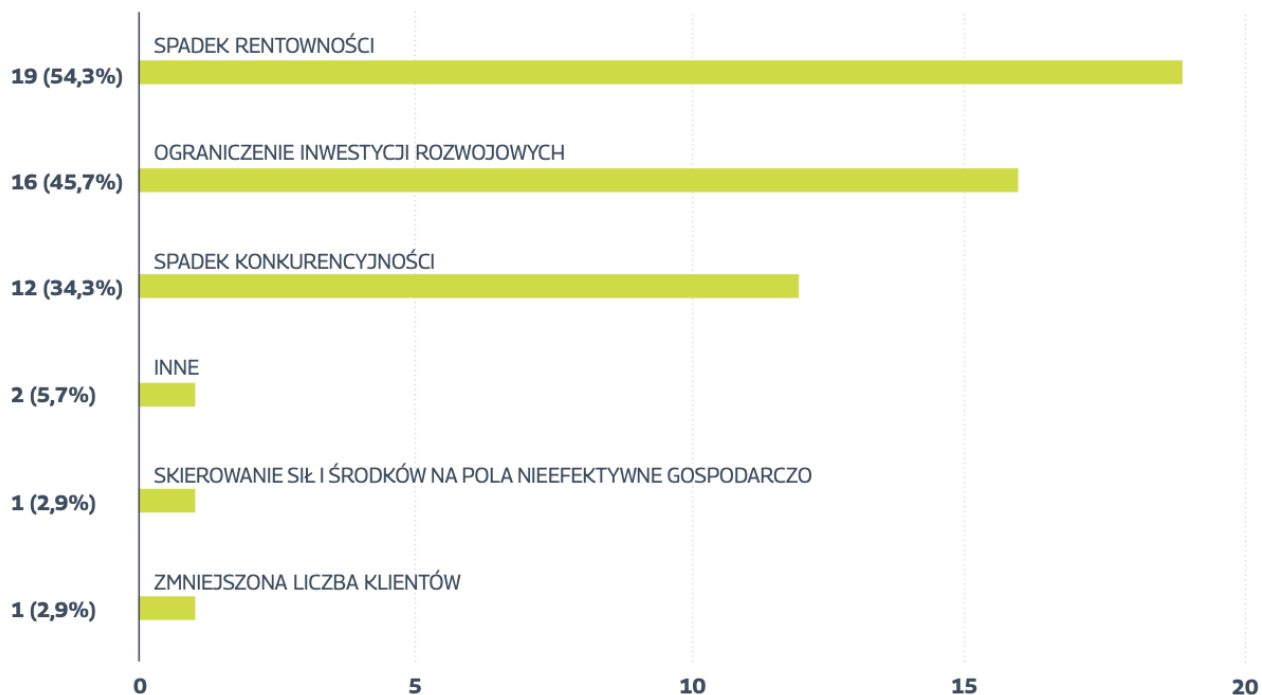


Chart 3. Expected consequences of implementing a zero-emission strategy for companies.

Source: "Zero-emissions in industry. Are Polish companies ready for Fit for 55 ", DB Energy, October 2022

### 3. The Czech Republic

Czech politicians share Poland's skeptical position on the "Fit for 55" package. Right from the start, MEP Ondřej Kovařík said that "If we come up with too radical proposals and we want to implement them too quickly, we run the risk of fierce resistance. For example, in the Czech Republic, transformation will require greater investment in gas, which is considered a fossil fuel. If we impose a higher tax on gas, it will hit those who plan to use gas as a temporary source "-he told euractiv.cz<sup>79</sup>

As in Poland, entire industries are afraid of new regulations. I. Souček, J. Reiss, J. Suchý, D. Behenský from the Chemical Industry Union of the Czech Republic believe that since 1990 the European chemical industry has already reduced half of the greenhouse gas

<sup>79</sup> <https://www.euractiv.pl/section/energia-i-srodowisko/news/czechy-kovarik-unia-europejska-parlament-europejski-fit-for-55-energetyka-prad-gaz-emisje/>

emissions to the atmosphere. However, due to new regulations, this sector is one of the most disadvantaged. "Conscious of the further development of European legislation, in particular the Fit for 55 package on decarbonisation in the EU, inspiring the rest of the world, the chemical industry is one of the sectors most affected. This is mainly due to the position of the chemical industry as an energy-consuming sector"<sup>80</sup> - uważają eksperci.

They consider access to cheap hydrogen and biomass to be the key challenges for their area. In the case of electrification of the chemical industry, the energy demand would increase from the current 4 TWh to 12-15 TWh. Currently, a third of the electricity in the Czech Republic comes from coal, so in order to meet these requirements, the Czechs would have to think about another nuclear power plant.

Representatives of the chemical industry are not delusional. They forecast "a decline in the competitiveness of chemical production, general poverty in access to electricity and instability of energy supply are expected". They see an opportunity for themselves in the use of hydrogen, especially self-produced hydrogen. The situation may force a greater use of raw materials in a closed cycle, also in the case of biomass, plastics and others. Companies will have to pay more attention to material recycling. However, in this regard they expect support from public institutions, fearing that they will not be able to bear the burden of transformation on their own.

The conservative government of Petr Fiala is skeptical about the policy of the Green Deal. He is a supporter of nuclear energy as an element of reducing the emission intensity of industry and energy security of the state. Fiala in this area is closer to Vaclav Klaus than Andrej Babiš. The Prime Minister agrees that the transformation in the Three Seas countries will be much more difficult than in the countries of Western Europe due to the delays in social and economic development. In the Czech Republic, mining continues to play a leading role in the energy mix, and sectors such as the automotive industry are facing epic changes. Therefore, like Poland, the Czechs want a model of transformation that takes into account the specificity and needs of the country and at the same time will not be lethal for industry. In the provisions of the National Energy Strategy of 2015, it is still valid to increase the share of nuclear energy in the energy mix from the current 1/3 to over half. Interestingly, the Czechs were usually exporters of electricity and will soon become importers. Many questions will be answered by the new National Energy Strategy, the announcement of which can be expected next year.

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<sup>80</sup> <https://www.journalgeneraldeleurope.org/en/2022/02/07/english-opportunities-and-challenges-brought-by-fit-for-55-to-the-chemical-industry-the-czech-example/>

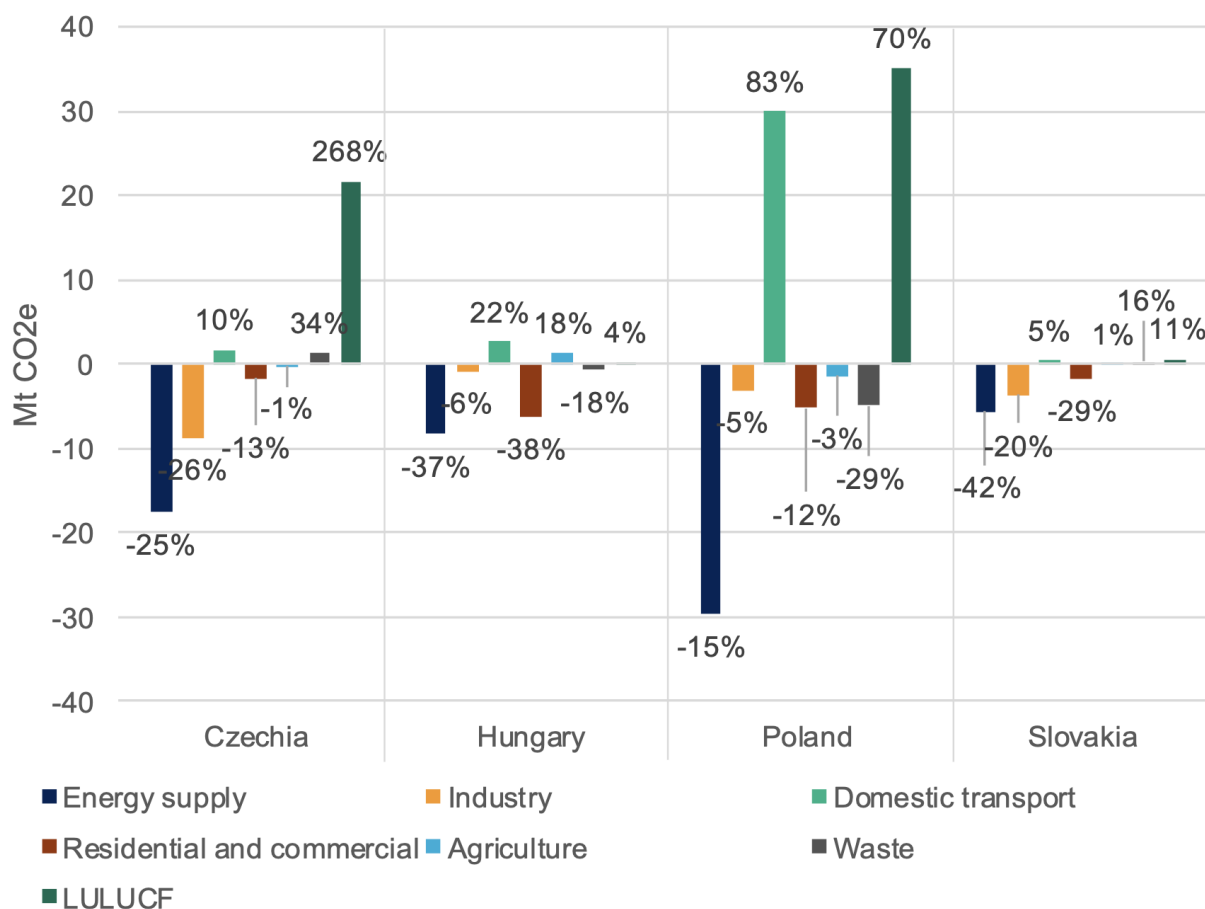


			CZECHIA						EU		
			2015	2016	2017	2018	2019	2020	2018	2019	2020
Fiscal and financial indicators	Environmental taxes (% of GDP)	% of GDP	2.1	2.1	2.0	2.0	2.0	1.9	2.4	2.4	2.2
	Environmental taxes (% of total taxation)	% of taxation <sup>(3)</sup>	6.0	6.0	5.7	5.4	5.7	5.4	6.0	5.9	5.6
	Government expenditure on environmental protection	% of total exp.	2.65	1.88	2.06	2.10	2.03	1.91	1.66	1.70	1.61
	Investment in environmental protection	% of GDP <sup>(4)</sup>	1.13	0.64	0.71	0.76	-	-	0.42	0.38	0.41
	Fossil fuel subsidies	EUR2020bn	1.03	1.13	1.40	1.10	1.41	-	56.87	55.70	-
	Climate protection gap <sup>(5)</sup>	score 1-4	1.9 out of 4 (slight increase from historical level of 1.8). This is a low/medium risk category (4 being a high risk).								
Climate	Net GHG emissions	1990 = 100	65	65	66	65	62	60	79	76	69
	GHG emissions intensity of the economy	kg/EUR'10	0.68	0.68	0.64	0.62	0.57	0.59	0.32	0.31	0.30
	Energy intensity of the economy	kgoe/EUR'10	0.24	0.24	0.23	0.23	0.22	0.22	0.12	0.11	0.11
Energy	Final energy consumption (FEC)	2015=100	100.0	102.6	105.4	104.7	104.4	101.2	103.5	102.9	94.6
	FEC in residential building sector	2015=100	100.0	104.7	106.4	104.0	102.9	105.6	101.9	101.3	101.3
	FEC in services building sector	2015=100	100.0	103.8	106.8	105.1	107.2	100.3	102.4	100.1	94.4

Tab. 2. Macroeconomic indicators of the Green Deal in the Czech Republic

Source: European Commission Report 2022

So far, the Czech Republic has made enormous progress in reducing greenhouse gas emissions. "Fit for 55", however, presents further challenges. This country still has the second largest share of coal in the energy mix in Europe, after Poland. Reducing its share will be by far the greatest challenge for our southern neighbor. When analyzing changes in greenhouse gas emissions for the entire Visegrad Group V4, it can be noticed that the region is struggling with similar problems. Transport, whose emissions are rising, remains a challenge and all countries are doing very well in reducing emissions in the industrial and energy sectors.



Wykres 4. Zmiany emisji gazów cieplarnianych w krajach V4.

Source: Long-Term Strategies Assessment of the Visegrad Group Countries, WiseEuropa, January 2022.

#### 4. Slovakia

Slovakia is gradually reducing greenhouse gas emissions to the atmosphere. 2019 carbon dioxide emissions were 1/4 lower than in 2005. The energy and industry sectors experienced significant reductions. The country's energy mix is diverse, as it includes both nuclear energy and renewable sources such as hydroelectric power plants. This places Slovakia in a good starting position in terms of further changes.

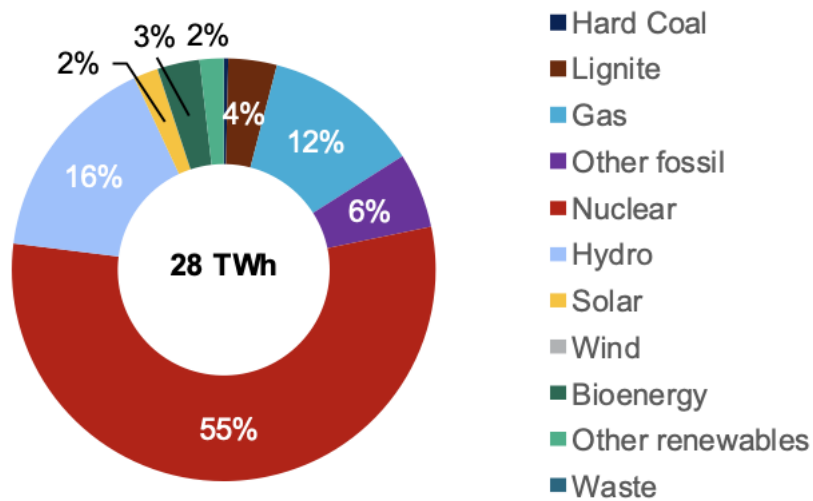


Chart 5. Energy sources in Slovakia in 2020

Source: WiseEuropa

Slovakia has adopted a number of documents aiming at the country's climate neutrality by 2050. By 2030, the main goal is to reduce greenhouse gas emissions in the ETS by 43%. Bratislava also wants to increase the thermal efficiency of buildings in the public, industrial and private sectors. It is estimated that the Slovaks had up to 350,000. solid fuel furnaces to be replaced, of which 120 thousand. of them were more than 30 years old.

The share of biofuels in transport is expected to increase to 3.5%. in 2030 with 0.5% now. Wind and solar energy is still less than 3% of domestic energy production, but this volume is also expected to increase. In the medium term, the share of renewable energy in the energy mix is expected to reach 20% and greenhouse gas reductions will be reduced by the same amount by 2030.

However, all the changes will have enormous costs, which are estimated at nearly EUR 200 billion by 2050. It is estimated that Slovakia may spend up to 4.2 % on modernization your GDP per year. It will be a heavy burden for the budget, economy and consumers. Currently, the challenge for the government in Bratislava is to become independent from the import of Russian raw materials. For this purpose, investments in

border interconnectors are being developed in order to ensure the country's energy security in the long-term perspective. Slovaks will indirectly use gas terminals in Świnoujście and Croatian Krk.

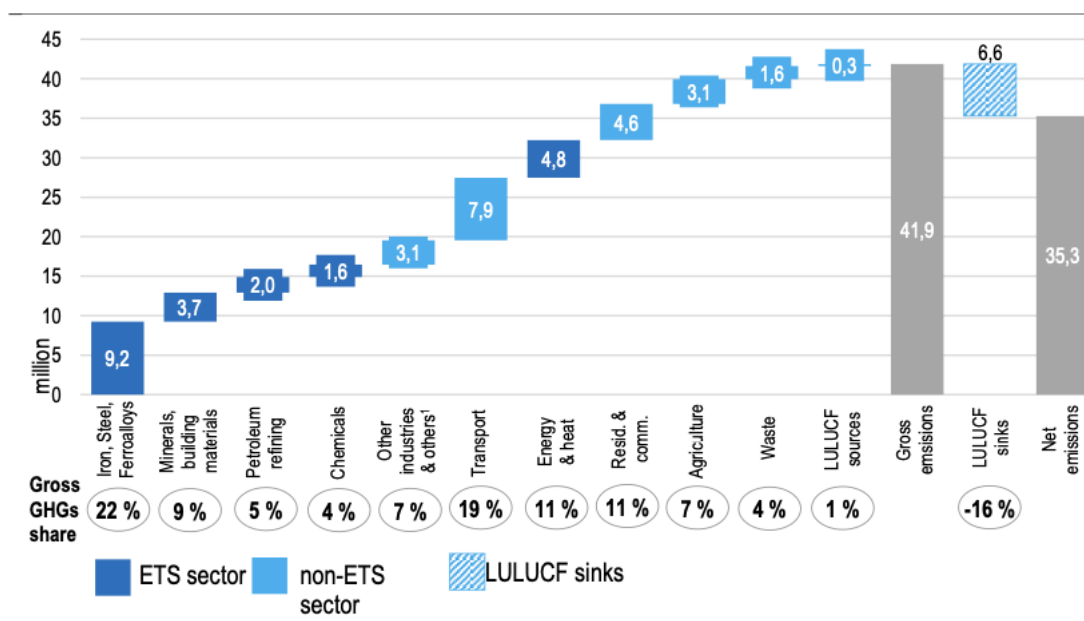
Further investments in nuclear energy, hydrogen and renewable energy sources are being considered, also together with other partners of the Visegrad Group<sup>81</sup>. Particular hopes are attached to the hydrogen market as part of the Package for the Decarbonisation of the Hydrogen and Gas Markets proposed by the European Commission. Transport investments are also planned, including intermodal transport within the V4 group. Slovaks are also facing solutions to the problem of waste management and recycling. Transformation under the Green Deal requires increased funding and the introduction of protective mechanisms for the population, resulting from the EU's climate policy. Cooperation within the Visegrad Group will certainly help in coping with the challenges of the "Fit for 55" package.

Among the difficulties faced by the government is the poor coordination of activities between individual ministries responsible for implementing the climate agenda. Another problem is the import of fuel for nuclear power plants from Russia. Slovakia has two nuclear power plants. Four reactors are located in Jaslovské Bohunice and two more in Mochovce. The public tender for the supply of fuel in 2018 was won by the Russian company TVEL, which is to deliver enriched uranium until 2026 with an option to extend the contract until 2030. Now the Slovaks will probably have to return to negotiations with the Americans from Westinghouse.

Two additional units of the Mochovce nuclear power plant are planned to be commissioned, although the old power plants were supposed to be shut down long ago. The biggest challenge for the economy is therefore the electrification of entire industries, such as steel.

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<sup>81</sup> „V4 Future”: prezydencja Słowacji w Grupie Wyszehradzkiej w cieniu wojny rosyjsko-ukraińskiej, Łukasz Lewkowicz, Instytut Europy Środkowej, Lipiec 2022



Wykres 6. Średnie emisje gazów cieplarnianych w rozbiściu na sektory (2016-2019)  
Source: Decarbonisation of the Slovak economy by 2030, Ministry of Finance of the Slovak Republic, May 2022.

## 5. Hungary

Budapest is a specific case in the Visegrad Group because, on the one hand, it is dependent on supplies from Russia, which became toxic after the outbreak of the war in Ukraine. On the other hand, the government of Viktor Orban is on a collision course with Brussels. Therefore, shortly after the publication of Timmermans' proposal, the head of Prime Minister's cabinet, Gergely Gulyás, announced that the package was unacceptable and that Hungary would block its adoption. He also referred to expert findings that indicated that the environmental benefits of the new law were low and the costs were high.

Hungary's collision course, as well as Orban's independent and relentless government, which does not adapt to the unfavorable regulations imposed by Germany and the European Union, have caused Brussels to launch a campaign in which Hungarians are denied the right to democracy. It is a mechanism analogous to the one in Poland, in which officials support the social democratic opposition in its return to power. As a result, the European Commission proposes to suspend 2/3 of the cohesion funds in the amount of EUR 7.5 billion, which were to contribute to the budget until 2027. The heaviest accusation against Hungary is that the country is no longer to be a democracy but a "hybrid regime of electoral autocracy", whatever that means. In order not to lose funds, Budapest passed an anti-corruption law, an amendment to the Criminal Code that puts public procurement procedures under judicial review. The European Union accused Hungary of irregularities in 4% disbursed funds from EU funds.

Importing Russian fossil fuels currently costs Hungary as much as EUR 19 billion a year. This is a nearly five-fold increase compared to the prices that were still in force in 2019.<sup>82</sup>

The government in Budapest has found itself in an energy trap. Therefore, disregarding environmental regulations, it decided to increase the domestic production of lignite and extend the operation of coal-fired power plants, including the Mátra power plant, which is responsible for almost half of the emissions of the energy sector in Hungary and is responsible for the production of 11% electric energy. It is therefore a reversal of the strategy to abandon coal announced in 2021. According to the current plans, the power plant will operate at least until 2030.

Thus, Hungary again came into conflict with the EU. This time it is about money from the Just Transition Fund. EUR 270 million was available to the government if it would withdraw from coal by 2025, but in the current geopolitical situation it seems impossible. In general, the EUR 4 billion that Hungary could receive by withdrawing from the carbon-intensive energy sector is at risk, but now every government in Europe faces a dilemma - how to provide citizens with cheap electricity, gas and heating. Hungarian energy policy based on supplies from Russia was bad and short-sighted. Solar energy supplies only a few percent demand and its target share in the energy mix will increase to nearly 15%.

The National Energy Strategy 2030 assumes 40% reduction of greenhouse gases by 2030 compared to 1990.<sup>83</sup> Another document - the National Green Development Strategy for 2020-2050 assumed ambitious investment goals, reducing environmental

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<sup>82</sup> <https://www.euractiv.com/section/energy/opinion/hungary-risks-billions-in-eu-funds-if-it-goes-ahead-with-investments-in-coal/>

<sup>83</sup> vide: <https://zoldbusz.hu/files/NE2030m.pdf>

pollution and developing green jobs. Much emphasis was placed on increasing the energy efficiency of public, industrial and residential buildings. On the one hand, taking into account the friendly climate, it will allow the achievement of good results at relatively low costs and on the other hand, it requires a lot of investments. In the case of households responsible for 48% of energy consumption in this country, it is estimated that savings by 2030, compared to 2015, may come to as much as 32 %.<sup>84</sup> When it comes to heating buildings, there is a transformation from gas heating to renewable technologies, biofuels and electricity. The ecological change concerns both households and service premises. When it comes to heating buildings, there is a transformation from gas heating to renewable technologies, biofuels and electricity. The ecological change concerns both households and service premises

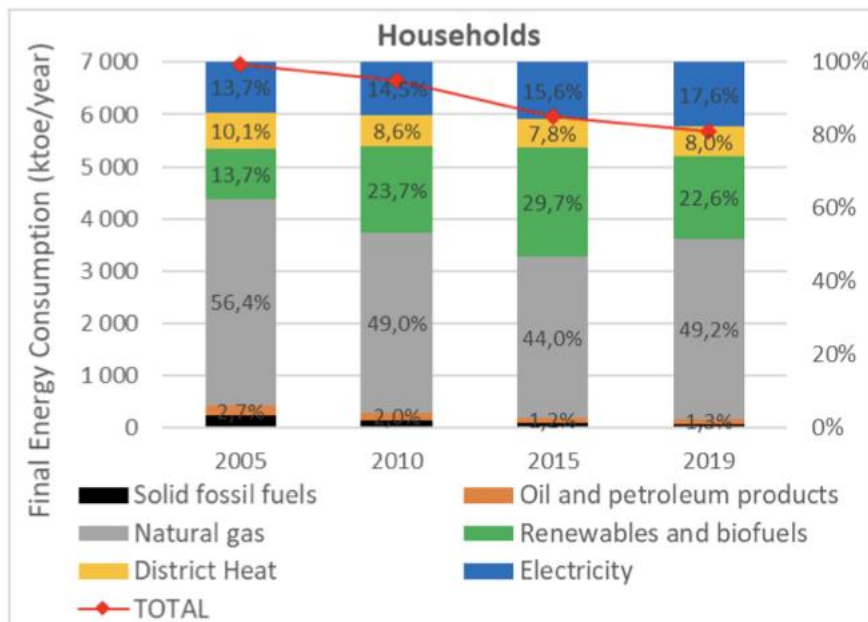


Chart 7. Trends in heating sources of households in Hungary

Source: Eurostat

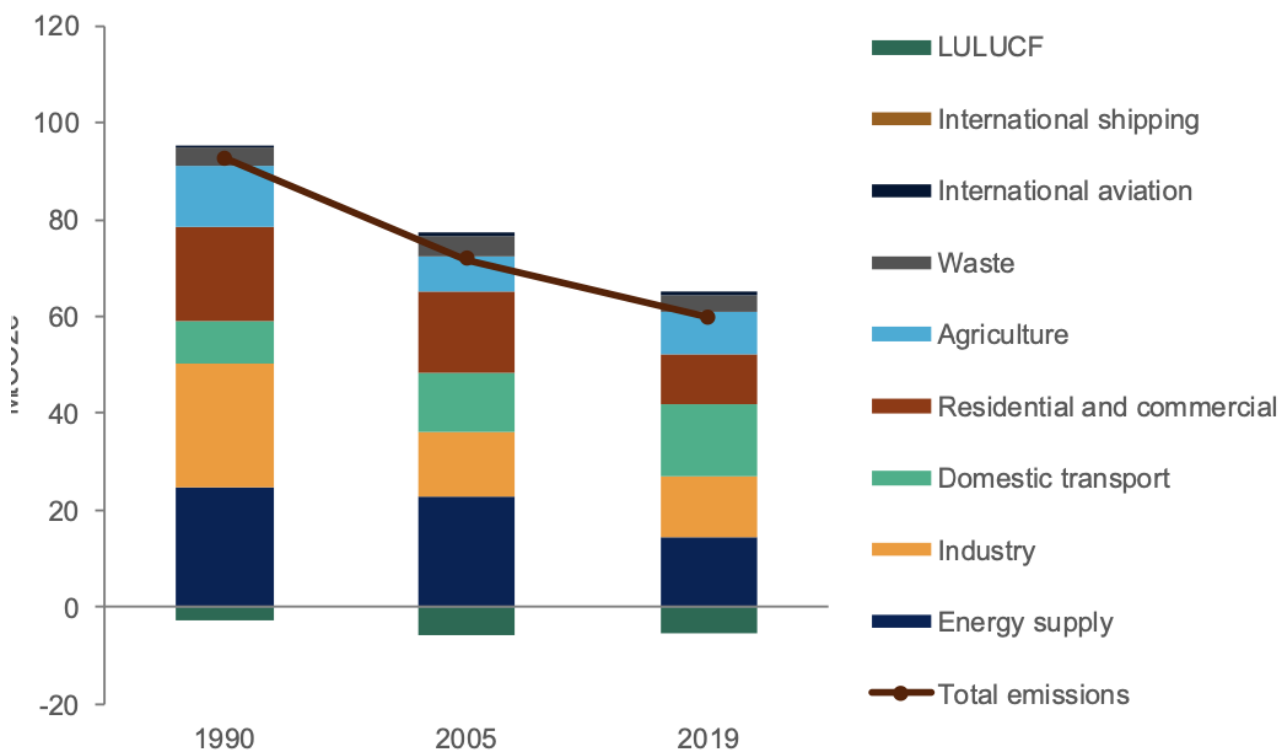
Overall, the Hungarian gas-based energy system will have to undergo mandatory supply diversification. It will be very costly for the country. However, a diversified energy mix, including nuclear energy, biogas, biomass, solar and geothermal energy and a relatively low dependence on coal, will help to reduce the costs of the package for end users - households and industry.

<sup>84</sup> „Fit for Energy Efficiency First?”, Enefirst, lipiec 2022, s. 40

Hungary's biggest problem is that when industrial emissions decrease, they also increase in sectors such as transport and agriculture. The biggest advantage of the Hungarian energy system is nuclear energy, which provides nearly half of the electricity demand, the weakest - gas imported from Russia, which will have to be replaced with imports from other directions.

The goals are ambitious. 40% reduction in emissions, increasing the share of renewable sources to 21% will entail costs in excess of € 100 billion, although official figures appear to be underestimated in this case.

Chart 7. Changes in greenhouse gas emissions in Hungary 1990-2019



Source: WiseEuropa



## 6. Conclusions

Russia's aggression against Ukraine in February this year corrected the "Fit for 55" agenda. Environmental dogmas have been put in parentheses. Europe faced the challenge of scarcity of natural gas and electricity, and was also struggling with the threat of hyperinflation. An antidote to the lack of gas was found to increase the combustion of coal, including its most emissive form - lignite and low-efficiency equivalents imported from outside the EU.

Particularly glaring is the fact that the return to coal energy was announced by the country that indirectly supported the most radical ecological restrictions, i.e. Germany. In the summer, the federal government re-incorporated two coal-fired power plants into the system. Although coal-fired power plants are to operate temporarily, it is not known how the war in Ukraine will unfold and how long the crisis on the energy market will last.

Among the countries of the Visegrad Group, Poland is the loudest in wanting to abandon the "Fit for 55" package. Already in March this year, the Ministry of Climate and Environment called for the suspension of the ETS. "The situation related to the invasion of Ukraine may exacerbate the crisis related to energy prices even more. In this situation, we must go further than the proposals contained in the toolbox presented by the European Commission. We are calling for the suspension of the ETS until the normalization of energy prices and the way out of the crisis, explained Minister Anna Moskwa during the meeting of the EU Energy Council<sup>85</sup>.

Subsequently, Poland demanded a profound reform of the ECJ. Prime Minister Mateusz Morawiecki proposed to freeze the prices of carbon dioxide emission permits so that they would not be subject to speculation and would not raise energy prices. According to the Polish government, the optimal price per unit would oscillate between EUR 20 and EUR 30. According to calculations by Solidarna Polska, the average Polish family pays 1,800 zlotys a year for the operation of the system.

Our country is building a coalition of countries, mostly from the Three Seas region, which could jointly push through the reform of the system. However, changes to the "Fit for 55" package would require a broader political consensus across the EU, which would have to be associated with a departure from the hegemony of Germany and France. The victories of the right-wing and conservative parties in Scandinavia and Italy, as well as the expectations of elections in Poland and Spain, may consequently bring Europe closer to the turning point and initiation of the necessary reforms.

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<sup>85</sup> <https://smoglab.pl/czy-wojna-w-ukrainie-oznacza-koniec-unijnego-pakietu-fit-for-55-resort-klimatu-chce-zmian/>

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**III.**

# **Gas from Russia and the energy security of the Visegrad Group**

**prof. Przemysław Żurawski vel Grajewski  
Chairman of the Security and Defense Council  
to the President of the Republic of Poland**

The massive Russian aggression against Ukraine has brought the spectre of an energy crisis to the whole of Europe, including the Visegrad Group of countries, as a result of the cut-off of Russian gas supplies. However, the Russian invasion, which began on 24 February 2022, was not the beginning of the war, but its new phase, differing from the previous one – which has been ongoing since 2014 – in a sharp increase in the scale and intensity of the fighting. The Russian annexation of Crimea and the attack on Donbass, although it was the beginning of military operations, was also not the moment when the threat of the loss of gas supplies from Russia by its customers first appeared. Gas blackmail as an instrument of Russian foreign policy became an element of it at the time of the Soviet Union collapse. The situation in which the Visegrad Group countries find themselves today in terms of the security of natural gas imports has long been predictable. Warning signs have been coming to us for 30 years. Some of these countries – such as Poland – have accurately read these signs and built on time an effective system of security (although not without fluctuations and turmoil) by providing themselves infrastructurally with alternatives to the Russian directions of blue fuel supplies. Others, like Hungary, have deepened their dependence on Russia rather than reduced it. They pay and will pay the price. The Czech Republic and Slovakia are in an intermediate position. This was determined by both objective factors – such as access to the sea, which only Poland has among the V4 countries and which greatly facilitates the diversification of directions of imported gas supplies (although it does not determine it), as well as decisions made by specific people, in specific conditions, resulting in an increase or decrease in dependence on supplies from Russia.

This article is a study of the Visegrad Group countries' gas policy's evolution in the face of the fact, that they were dependent on Russians blue fuel imports – a state inherited by all of them after the times under the domination of the USSR during the communist era. We will follow this evolution from the starting point to the present day and try to answer the question about the causes of the Visegrad Four countries's current situation in terms of security of natural gas supply, sources of diversity of the situation in which individual Visegrad countries found themselves in and about the importance of their membership in the European Union for the legal regulations adopted and the orientation of their own energy policy, projects to cope with the gas challenge and the prospects that these countries have in this respect.

## **1. Starting point**

The idea of using the energy dependence of the former Soviet's block countries as an instrument for maintaining Moscow's influence in them, despite the collapse of the USSR itself, was born during the period of the Soviet's empire collapse. At the turn of 1990-1991, under the direction of members of the Central Committee of the CPSU,

Valentin Falin<sup>86</sup> and Julij Kwieciński, conceptual work was undertaken on the principles of the new Soviet policy towards Central Europe. As a result, in April 1991, a secret document of the Foreign Department of the Central Committee of the CPSU was created, later approved by the party's secretariat as a political strategy of the USSR towards the former block's members. The concept contained in it, known from the names of its creators as the Falin-Kwieciński doctrine, was based on the assumption that at the moment of losing the strategic advantage of the USSR over Europe, the only effective instrument for pushing through its own goals in foreign policy, which remained in the hands of Moscow, is the skilful use of energy resources.<sup>87</sup> Kwieciński was once a counselor at the USSR Embassy in Bonn and as such must have been aware of the old Soviet ideas of the early 1970s to make Germany/Europe dependent on Russian gas supplies. Then they were picked up by Willy Brandt<sup>88</sup> and at the beginning of this century by Gerhardt Schröder. However, the thing was not new or completely unknown.

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<sup>86</sup> Walentin Falin – a member of the Central Committee of the CPSU, head of the international department of the CPSU, long-time ambassador of the USSR in Bonn. In 1991 he stated: "Eastern European countries have a vital interest in energy supplies from the USSR. It is not in our interest to weaken these ties because of the supplies suspension. The issue of energy exports to Eastern Europe must be seen as a very important instrument of our overall strategy in this region." This view became the basis of the doctrine named after him. Quote for: J. Strzelczyk, *Doktryna Falina*, „Życie”, 05.05.2000, [http://www.joannastrzelczyk.pl/publicystyka\\_doktryna\\_falina.html](http://www.joannastrzelczyk.pl/publicystyka_doktryna_falina.html)

<sup>87</sup> More on the doctrine of Falin-Kwieciński see: J. Strzelczyk, *Ucieczka ze Wschodu. Rosja w polskiej polityce zagranicznej 1989-1993*, Warsaw 2002, p. 198-200.

<sup>88</sup> M. Marszałkowski, *Pół wieku współpracy energetycznej Niemiec i Rosji*, „Biznes Alert”, 5 February 2020, <https://biznesalert.pl/niemcy-rosja-energetyka-gaz-nord-stream-2/>.

During the presidency of Boris Yeltsin, Russians very often resorted to gas blackmail. This is how they tried to influence Lithuania in 1991, where the first electoral victory of the Lithuanian Social Democrats took place in unheated rooms, because Russia, wanting to force Lithuanians to support political forces favorable to Moscow, cut off gas supplies to this country<sup>89</sup>.

The Falin-Kwieciński doctrine harmonized with the concept of a "liberal empire" proclaimed by Anatoly Chubais - a former reformer from the 1990s, and during Putin's rule the head of the Russian state electricity monopoly RAO JES. It was to consist in a state-supported aggressive policy of economic expansion abroad, which was to be followed by political influence. This idea gained Putin's recognition, who further sharpened its overtones<sup>90</sup>. In its essence, the strategy included in the Falin-Kwieciński doctrine was in force until February 24, 2022<sup>91</sup>. The massive Russian invasion of Ukraine destroyed the remains of trust in Russia, necessary for its success and at least inhibited for a long time Russian energy expansion in Europe, if not definitively ending it.

## **2. The problem of Russian gas supplies to the Visegrad Group countries during their accession process to the European Union**

A decade later, Russia continued to use gas blackmail, but almost exclusively against its customers from the CIS. Before 2006, this was not noticed by the European Union although when Gazprom on 1-4 January 2001 cut off gas supplies to Georgia without warning<sup>92</sup>, in the Western press there were comments emphasizing that the Russian Federation in the eyes of the European Commission has a reputation as a reliable supplier and should take care of it and not undermine its reputation with this type of action<sup>93</sup>. Criticism of Russia on this occasion was also made by the then EU Commissioner for External Relations, the last British governor of Hong Kong, who had a more sober view of Russia's post-communist policy - Chris Patten<sup>94</sup>. However, this

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<sup>89</sup>Kwestionariusz Maruszczyk - *Cena za niepodległość*, interview between Anna Maruszczyk and Bartłomiej Sienkiewicz, „Ozon”, 5-11 January 2006, p.8.

<sup>90</sup>The takeover of the Chubais concept by Putin took place in 2005, officially at the December meeting of the Security Council of the Russian Federation, and therefore in a period that goes beyond the chronological framework of this work. The Russian president announced his intention to transform the Russian Federation into a world leader in energy, not only in the field of extracting energy resources, but also in the field of new energy generation technologies, for example by producing hydrogen fuel. The president has tasked the government with a more active defense of the interests of Russian resource companies in the international arena. The vision of "energy imperialism" presented by him is to be an instrument for Moscow to regain its superpower status. As he himself stated: "There is really no other area where Russia could claim leadership." Quoted after: A. Rybczyński, *Rosja. Energetyczny imperializm*, „Gazeta Polska”, issue 8(657), 22 February 2006, p.16.

<sup>91</sup> On the modern version of this doctrine see: *Doktryna Falina 2.0 ma uzależnić Zachód od gazu i zmusić do politycznych ustępstw wobec Kremla*, „Trójmorze”, 1 May 2022, [https://trimarium.pl/think\\_tank/doktryna-falina-2-0-ma-uzaleznic-zachod-od-gazu-i-zmusic-do-politycznych-ustepstw-wobec-kremla/](https://trimarium.pl/think_tank/doktryna-falina-2-0-ma-uzaleznic-zachod-od-gazu-i-zmusic-do-politycznych-ustepstw-wobec-kremla/).

<sup>92</sup>A. Wendlandt, *Russia resumes Georgia gas supply*, „Financial Times”, 5 January 2001, p.16.

<sup>93</sup>*Russian gas*, „Financial Times”, 8 January 2001, s.16.

<sup>94</sup>A. Jack, *Patten hits at Russia over Georgia*, „Financial Times”, 19 January 2001, s.3.

did not stop Moscow from cutting off gas supplies to Ukraine at the same time<sup>95</sup>. Soon, however, this memento was forgotten for a few years, and the European Union, increasingly dominated by Germany, linked to Russia by gas interests, influenced its member states, including the Visegrad Group, to ignore the threat from Russia and not to prepare to face it.<sup>96</sup>

With regard to the former states of the USSR – new members of the EU, the Kremlin's playing the gas card was a bit more subtle than in the CIS area. In its gas policy towards Central Europe, and thus the Visegrad Group countries (Let us note, however, that the V4 was not a criteria for Moscow to separate its member states into a separate category of countries covered by some specific policy, which was only directed to them), Russia pursued two main goals:

1. Diversification of gas transmission routes, i.e. to become independent of transit countries (mainly Ukraine, but in relation to the V4 also Poland and the Czech Republic, and above all Slovakia, through which about 70% of Russian supplies to the West were sent via the Ukrainian route), which was to be served by the construction of Nord Stream 1 and 2 – let us add that both lines of the Nord Stream pipeline were not built with the intention of increasing the export of Russian gas to Germany and other countries of the "old EU", but precisely in order to change the routes of its transmission;
2. Maintain its monopoly as the main supplier of natural gas and bind the countries of the region with long-term contracts for its purchase.

Gazprom's tactic was to create a dominant position with the local gas pipeline operator, which monopolises the transit and usually also the import of Russian gas in a given area, and then to obtain a dominant position in it gradually, by means of formal actions (provisions in contracts) and informal (personal relationships)<sup>97</sup>. This is how the Russian company in 2002, with the help of the German Ruhrgas and the French Gaz de France, Gazprom won a tender for the purchase of a 49% stake in the Slovak Gas Company SPP (Slovensky Plynarensky Priemysel) – a monopolistic operator of the Slovak gas pipeline network<sup>98</sup>. At that time, Gazprom also concluded several strategic alliances with such European companies as Gazunie, ENI<sup>99</sup>, OMV, Ruhrgas, Gaz de

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<sup>95</sup>C. Clover, *Russia cuts off supplies of gas to Ukraine*, „Financial Times”, 17 January 2001, p.3.

<sup>96</sup>For more on the EU's energy policy towards Russia, see: P. Żurawski vel Grajewski, *Polityka Unii Europejskiej wobec Rosji a interesy Polski 1991-2004*, Cracow 2008, p.438-577.

<sup>97</sup>E. Paszyc, *Polityka Energetyczna Rosji*, [w:] *Kłopotliwe bogactwo – sytuacja i perspektywy sektorów ropy i gazu na obszarze byłego ZSRR*, „Prace OSW”, nr 12, grudzień 2003, p.22-23.

<sup>98</sup>S. Popowski, *Raport o polskiej zależności*, „Rzeczpospolita” (Dalej: „Rz”), issue 92(6775), 19 April 2004, p.B3.

<sup>99</sup>The Gazprom-ENI agreement was actively supported by Yeltsin himself and became the subject of his talks with the Italian government during the official visit of the Russian president to Italy on February 9-11, 1998, and during the visit of Italian Foreign Minister Lamberto Dini to Moscow (29-30 X 1998). *Россия - Италия Визит Б.Н. Ельцина в Италию*, ОМ, „Журнал «Дипломатический Вестник»” (Dalej: Ж«ДВ»), март 1998 год. Por.: *Россия – Италия. Визит Л. Дини в Россию*, ОМ, „Ж«ДВ»”, декабрь 1998 год.



France<sup>100</sup> and Shell, which significantly strengthened its position on the European market, including the Visegrad.

#### Tabels 10.

**Dependence of the Visegrad Group countries on natural gas imports and the level of diversification of supplies at the time of their accession to the European Union in 2004 compared to the EU average**

Country	Consumption in billion m <sup>3</sup>	Import in billion m <sup>3</sup> (share in %)	Imports from individual countries in billion m <sup>3</sup> (share in total consumption)		
			Russia with deliveries through Russian gas pipelines from Central Asia billion m <sup>3</sup> (share in %)	Algeria billion m <sup>3</sup> (share in %)	European Economic Area billion m <sup>3</sup> (share in %)
Poland	13,2	9,1(69)	7,9(60)	-	1,2(9)
Czech Republic	8,8	8,8(100)	7,2(81,8)	-	1,6(29,5)
Slovakia	6,8	7,3(107)	7,3(107)	-	-
Hungary	13	11(84,6)	9,3(71,5)	-	1,7(13)
UE (25)	466,9	215(54,5)	124(26,5)	34(7,2)	74,9(16)

Imports of liquefied natural gas (LNG) mainly from Algeria, Nigeria and Oman are not included in the table. In 2004, its imports by the leading EU countries in billions of cubic meters were as follows: France – 7.6, (17.2% of annual gas demand), Italy – 5.9 (8%), Spain – 17.5 (64%).

Source: E. Wyciszkievicz, Perspectives of the Common Energy Security Policy of the European Union, "Polish Diplomatic Review", No. 1(29), January-February 2006, p.54.

<sup>100</sup> During the EU-Russia summit in Paris in October 2000, with intensive support from Putin, Gazprom and Gas de France signed a cooperation agreement providing for the commitment of \$1-2 million in joint projects. This was supposed to double the sale of Russian gas to France in exchange for an intensification of the inflow of investments to the Russian energy sector. J.M. Newton, *Russia, France, and the Idea of Europe*, Houndmills, Basingstoke, Hampshire 2003, p.244.

In 1995, the EU expanded for the first time to include countries (Finland and Austria) for which Russia was a monopolistic supplier of natural gas. In 2004, the category of EU Member States dependent on supplies of Russian blue fuel was expanded to include four visegrad Group countries. In this way, the V4 has become, both due to its territorial compactness, its location on the transit routes of Russian gas from Russia to Europe, and the scale of its dependence, the core of the EU member states of this category<sup>101</sup>.

An additional factor shaping this situation was the fact that although the V4 countries did not monopolize the routes for transporting Russian gas to the west (this state of affairs would only be achieved through the possible unification of the policies of Poland and Ukraine, which control the territorial strip between the Baltic Sea and the Black Sea), through the territory of the most important transit gas pipelines from Russia to the European Union ran through the V4 countries. Russian gas supplies to Western Europe were carried out along three basic routes: running through Ukraine and Slovakia and further branching into Austria and Hungary as well as the Czech Republic and Germany (capacity in the peak period before the commissioning of Nord Stream 1 - approx. 100 billion m<sup>3</sup>)<sup>102</sup>; the Yamal - Western Europe route (Yamal gas pipeline) running from Western Siberia through Belarus and Poland to Germany (20-25 billion m<sup>3</sup>) and the southern route - the only route that bypasses the territory of the V4 and runs through Ukraine, Romania and Bulgaria to Turkey (approx. 20 billion m<sup>3</sup>). Smaller amounts of blue fuel were pumped through auxiliary gas pipelines to Finland and the Baltic States, but these, for obvious geographical reasons, did not extend further to the west and in this sense were "dead ends", unsuitable for transit. For Poland, the Yamal gas pipeline was of key importance, while for Slovakia, the Czech Republic and Hungary, the "Brotherhood" gas pipeline. In the middle of the first decade of the 21st century, less than 25 billion m<sup>3</sup> of gas per year was pumped to the former, which meant that about 15% of the gas exported from Russia to Europe was transited to the West through it<sup>103</sup>. The main route ran through Ukraine, Slovakia and the Czech Republic.

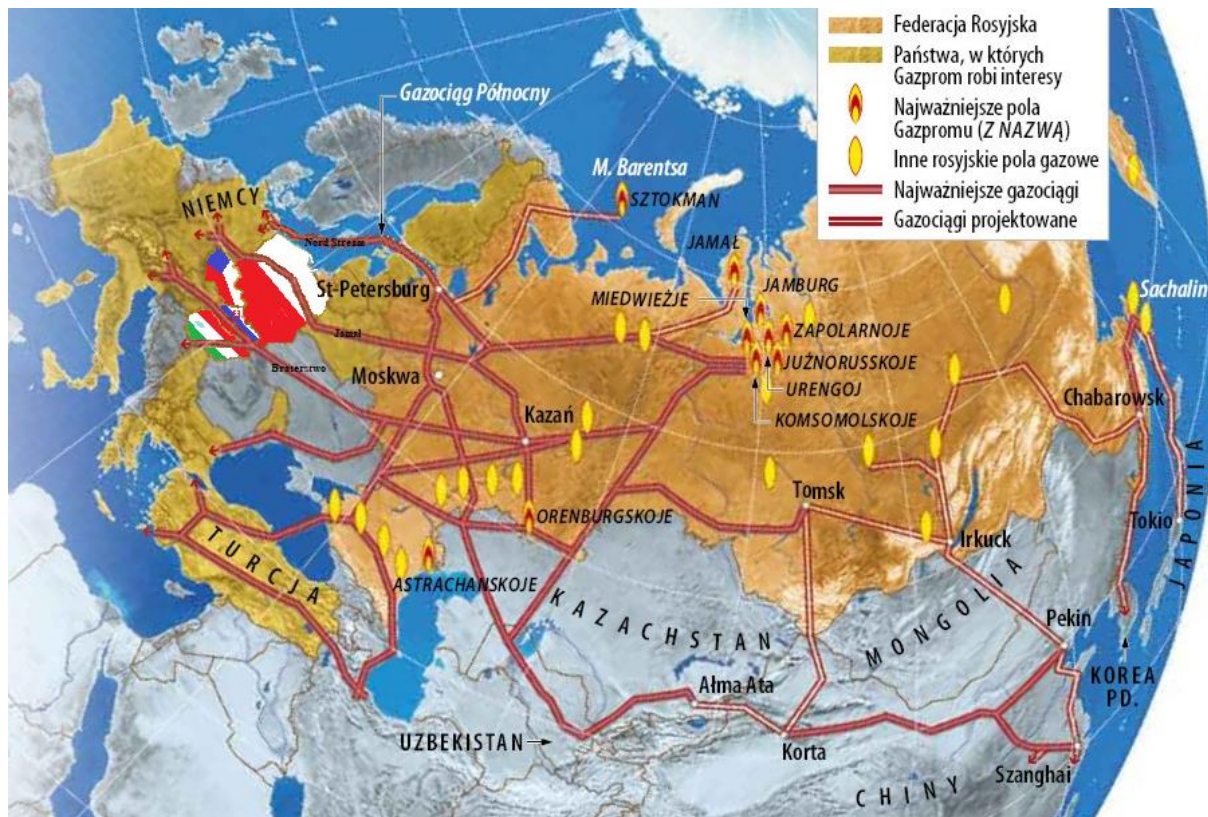
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<sup>101</sup> K. Pełczyńska-Nałęcz, E. Paszyc, W. Paczyński, *Kondycja i perspektywy rosyjskiego sektora gazowego/Russian gas industry - current condition and prospects*, „Prace OSW/CES Studies”, 1 April 2001, p.6.

<sup>102</sup> A. Łoskot, *Bezpieczeństwo dostaw rosyjskiego gazu do UE - kwestia połączeń infrastrukturalnych*, OSW, Warsaw February 2005, p.6 - states that approximately 90% of Russian gas supplies to Europe are transported via the route through Ukraine and Slovakia, but this does not correspond to the absolute values quoted here. Regardless of the outcome of these discrepancies, there is no question that the "Brotherhood" gas pipeline is of key importance for the transit of blue fuel from Russia.

<sup>103</sup> M. Bodio, *Stosunki między Unią Europejską a Federacją Rosyjską (stan i perspektywy rozwoju)*, Warsaw 2005, p.134.

Map No. 1. The main Russian gas transmission routes through the territory of the Visegrad Group countries against the backdrop of the Russian gas pipeline system



Source: Own study based on: Structure of the Polish gas market, „RynekGazu.pl”,  
<http://www.rynekgazu.pl/index.html?id=84>

Among the Central European countries, Czechoslovakia was the earliest, in 1991, to take steps to become independent of the monopoly of Russian energy supplies, but focused its efforts on getting rid of dependence not on Russian gas, but on Russian oil. At that time, the construction of the Kralupy-Ingolstadt pipeline was started, which was to secure alternative supplies of "liquid coal" to the Czech Republic. On March 14, 1996, the oil pipeline was ceremonially opened, symbolizing Prague's independence from Russian supplies, although Russian oil even after that accounted for 75% of Czech consumption of this raw material. After the summer of 1994's scandal, when the Minister of the Interior of the Czech Republic, Jan Rum, referring to materials provided by BIS (Czech counterintelligence), declared that Russia was interested in gaining wide influence in the petrochemical industry of Central European countries, no agreement was for the participation of Russian investors in the privatization process of the Czech petrochemical sector<sup>104</sup>. The effectiveness of Prague's energy policy, at least in relation to Slovakia, was weakened by the disintegration of the state shared with the Czech

<sup>104</sup> A. Grajewski, *Polityka Rosji wobec Czech i Słowacji. Wybrane zagadnienia*, [w:] "Poland and Russia. Strategic Contradictions and Possibilities of Dialogue", edited by A. Magdziak-Miszewska, CSM, Warsaw 1998, p.196-197.

Republic (1 I 1993) and the concept of Slovakia as a "bridge" between the EU and Russia, promoted by Bratislava in the era of Mečiar, in which the role of Slovak territory was as a transit route for Russian oil and gas to the west. The Russians at that time, however, preferred the construction of new pipelines through Poland and Bulgaria. Therefore, investments in Slovakia were delayed, and it was only in April 1997 that three agreements were signed in Bratislava concerning the establishment of the Slovak-Russian company Slovrusgaz (its shareholders were Gazprom - 50% of shares and SPP - 50%), which took control of the gas transit network through Slovakia. Mečiar's government therefore rejected an earlier proposal from Ruhrgas, offering supplies via gas pipelines from Austria. Slovakia committed itself to receive 90 billion cubic meters of gas from Russia in 1998-2008 for a total amount of \$8 billion. Opposing the takeover of SPP by Gazprom, the head of this Slovak company, Jan Ducki, died in mysterious circumstances in 1999, when he was trying to loosen ties with Gazprom, which hampered the company he headed<sup>105</sup>. In the spring of 2002, a consortium of Gazprom, Gaz de France and Ruhrgas won the tender for 49% of SPP shares, which gave the Russians the opportunity to manage the Slovak section of the gas pipeline, which transported 90 billion cubic meters of Russian gas annually to Western Europe. The whole operation was crowned by the fact that Gazprom did not pay for its own shares, as it obtained from the Slovak government a two-year extension of the payment of its contribution<sup>106</sup>.

Until 2014 (and later, albeit in new circumstances and on a decreasing scale), Slovakia was a very important transit country, through whose territory, lying on the extension of the route through Ukraine, approx. 70% of Russian exports of this commodity were pumped further west. On the other hand, transit fees for this service (about \$350 million annually) accounted for the largest item in the revenues of the Slovak state budget<sup>107</sup>. After the Russian aggression in the Donbas and with the development of alternative transmission routes, primarily Nord Stream 1, the volume of gas transported via the Ukrainian-Slovak route has been steadily decreasing. In the last period before the massive Russian invasion of Ukraine, the Brotherhood gas pipeline handled about 30-40% of Russian gas exports to Europe. Despite the war, this route is still used, and Russia declares its will to use it also in the future <sup>108</sup>.

Meanwhile, the Czechs, disregarding their eastern neighbour, after the unfortunate statement by Nikolai Ryabov, the Russian ambassador in Prague, about the possibility of using gas blackmail to force the Czech Republic to give up its application for NATO

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<sup>105</sup>E. Paszyc, op.cit., p.29.

<sup>106</sup>P. Wrabec, P. Puch, *Rosyjskie ryzyko*, „Newsweek”, issue 32/2002, 11.08.2002, p.62.

<sup>107</sup>A. Grajewski, op.cit., p.202.

<sup>108</sup>D. Czyżewski, *Zaskakująca deklaracja Rosji ws. przyszłości przesyłu gazu do Europy*, „Energetyka24”, 13.07.2022, <https://energetyka24.com/gaz/wiadomosci/zaskakujaca-deklaracja-rosji-ws-przyszlosci-przesylu-gazu-do-europy>.

membership, signed in 1997 a summer contract for gas supplies from Norway, thus breaking the monopoly of Russian supplies. Gazprom and with it Moscow, lost a contract worth \$5.5 billion<sup>109</sup>.

Gazprom's attempt to take over the Czech company Transgas, which imports, transits and distributes blue fuel, also failed<sup>110</sup>.

Some successes on the road to independence from Moscow in terms of Russian gas supplies were also recorded by the Hungarians at that time. They partly solved the problem of diversifying supplies of energy resources by building a gas pipeline to Austria (Győr-Baumgarten) with a capacity of 4.4 billion cubic meters of gas per year, which was launched at the beginning of 1996. Budapest, however, was not as cautious as Prague about Russian investments and in 1994 Gazprom bought a controlling stake in the Hungarian company "DKG", which produced equipment for petrochemical plants<sup>111</sup>.

Significant successes in terms of the above-mentioned objective No. 2 of the Russian gas strategy towards Central Europe (Maintaining the monopoly as the main supplier of gas and binding this region's countries with long-term contracts for its supplies) were recorded by Moscow in Poland. The energy sector absolutely dominated among Russian investors in the territory of the Republic of Poland. Total Russian investments in Poland, as of mid-2003 (the last year before Poland's accession to the EU), amounted to \$1,291.9 million (which accounted for approximately 2% of foreign investments in the Republic of Poland); while investment plans amounted to \$350 million (2.8% of investment plans of foreign companies in Poland). Of the three registered Russian investors with investments over \$1 million, Gazprom, which is building a system of transit gas pipelines across Poland and investing in the telecommunications sector (illegal optical fibre<sup>112</sup>), accounted for the lion's share of the total amount mentioned above (\$1,283.80 million, investment plans - \$300 million). The second investor was Lukoil (\$5.5 million, investment plans - \$50 million), interested in building or taking over gas stations<sup>113</sup>. However, the most important successes were achieved by the Russians in the sphere of linking Poland with Russia by long-term contracts unfavourable for the Republic, combining the supply of energy resources with investments in transmission infrastructure and transit costs.

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<sup>109</sup> П.И. Родионов, С.З. Жизнин, op.cit. Por.: B. Tumanow, *Polityka parodii*, „Polityka”, issue 51(2483), 18 December 2004, p.49. For more on Gazprom's fight for control of the Czech market, see: A. Grajewski, op.cit., p.197-198.

<sup>110</sup> J. Darski, *Gra o kaspijską naftę*, „Gazeta Polska”, issue 19(356) 10 May 2000, p.27. Por.: P. Wrabec, P. Puch, op.cit., p.59.

<sup>111</sup> W. Baluk, R. Szafraniec, *Polityka wobec Zachodu (wybrane aspekty)*, [w:] B.J.Albin i W. Baluk (red.), *Europa Wschodnia. Dekada transformacji. Rosja*, Wrocław 2003, p.172-173.

<sup>112</sup> *Gazociąg jamalski wygrał ze swoim światłowodem*, „Wyborcza.biz”, 11.09.2009,

<https://wyborcza.biz/biznes/7,177151,7030152,gazociag-jamalski-wygral-ze-swoim-swiatlowodem.html?disableRedirects=true>

<sup>113</sup> NN., *Dwustronne stosunki gospodarcze w 2003 r.*, „Federacja Rosyjska. Przegląd Gospodarczo-Rynkowy. Biuletyn Ekonomiczny”, issue 1/2004 (79), June 2004, p.21.

In August 1993, the government of Hanna Suchocka signed an agreement with Russia on the construction of a gas pipeline system to transport Russian gas to Western Europe via Poland and to supply our country with this raw material (Yamal gas pipeline). The agreement between PGNiG and Gazprom of September 1996 provided for the delivery to Poland, starting from 1997, over the next 25 years, of approximately 242 billion m<sup>3</sup> of blue fuel. From 2010, Poland was to receive 14 billion m<sup>3</sup> of gas per year, which would cover 80% of our country's demand in this respect<sup>114</sup>. As a consequence of the agreements signed with the Russians, in the mid-1990s, Poland stopped looking for alternative sources of gas supply, effectively resigning from the diversification of supply directions. In 1994-1995, talks with the Norwegians were suspended. It was only the SLD's electoral defeat in 1997 and the change of government that revived Warsaw's search for ways to free itself from the shackles of the Russian gas monopoly.

The contract of 1996, therefore, consolidated the excessive dependence of the Republic of Poland on supplies of an important energy resource from only one source - Russia. In conjunction with the principles of the gas pipeline's construction, which are unfavourable for Poland and Poles (purchase of land, unlimited participation of Russian workers and specialists, lack of significant orders for Polish companies, laying optical fiber without the consent of the relevant Polish authorities), the 1996 agreement became the object of attacks from the opposition at the time. It was rightly pointed out that the lack of diversification of supplies and the fact that the Republic of Poland is so far dependent on one, additionally potentially unstable and politically motivated supplier, raises legitimate concerns about the country's energy security. These fears intensified after the experience of the 1998 Bulgarian-Russian gas dispute<sup>115</sup>. An important memento was also the fact that Moscow used energy "weapons", blackmailing Lithuania and Ukraine for political purposes by cutting off gas supplies. In this situation, it was feared that the construction of the Yamal gas pipeline would increase the possibilities of Russian economic pressure on Kyiv (It was pointed out that so far it had not been possible to cut off supplies to Ukraine without at the same time jeopardizing Russian contracts for the supply of energy resources to the West, as the most important transmission lines ran through the territory of this south-eastern neighbour of the Republic of Poland, so the construction of a gas pipeline through Poland would worsen the situation of Ukrainians)<sup>116</sup>. On the other hand, it was not without reason that it was pointed out that Poland's transit location is the only

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<sup>114</sup> *Parliamentary exposé of the Minister of Foreign Affairs of the Republic of Poland, Dariusz Rosati (9 May 1996 r.)* [w:] „Polska polityka zagraniczna w 1996 r.”, The Republic of Poland. Ministry of Foreign Affairs. Promotion and Information Department, Warsaw 1997, p.29.

<sup>115</sup> The head of Gazprom, Rem Viakhirev, in January 1998 threatened to force the Bulgarian government to resign by stopping gas supplies to Bulgaria. He was supported in this by the Deputy Minister of Foreign Affairs of Russia, Alexander Avdiiev. - *Rosyjski wiceminister grozi Bułgarii. Dzień na świecie*, „Rz”, issue 16 (4876), Tuesday, 20 January 1998 r., p.5.

<sup>116</sup> E. Paszyc, *GAZPROM- główne kierunki natarcia*, „Eurazja”, issue 3-4, May-June 1994, p.78-79.



instrument that at least partially eliminates the Russian advantage resulting from Gazprom's monopolistic position on the gas market of our country<sup>117</sup>.

With the intention of changing this situation under Prime Minister Jerzy Buzek, in September 2001 PGNiG signed an agreement with Norway for the purchase of 74 bcm of gas in the years 2008-2024. In return, five Norwegian gas companies were to finance the construction of a 1,100-kilometer pipeline running along the bottom of the Baltic Sea from Scandinavia to Niechorze. In March 2002, the commencement of works on the construction of the section connecting the Danish deposits with Poland is planned. They were supposed to be completed by November 2003. The government of Leszek Miller, after coming to power, immediately suspended the execution of the contracts, and in December 2003 terminated them, considering them unprofitable. Earlier, in February 2003, the then Deputy Prime Minister of the Republic of Poland, Marek Pol, after long negotiations (November 2002-February 2003<sup>118</sup>), signed an agreement with Russia for the supply of gas from that country, which was then assessed in May 2004 by the Supreme Audit Office as incompatible with Poland's interests. The relevant report of the Supreme Audit Office stated directly that: „During the renegotiation of the terms of gas supplies from Russia, there were gross violations of the Act of April 14, 2000 on international agreements<sup>119</sup>, for which the main responsibility rests with: Prime Minister Leszek Miller and Deputy Prime Minister Marek Pol, as well as the Minister of Economy Jacek Piechota. The renegotiations of the contract for gas supplies from Russia, unfavourable for Poland, have led to a further actual reduction in the possibility of diversification”<sup>120</sup>. Even Aleksander Gudzwat, involved in business with the

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<sup>117</sup> Various, often divergent opinions on gas supplies from Russia see: „Eurazja”, issue 3-4, May-June 1994, articles: J. Danielewskiego, *Import surowców energetycznych z Rosji a bezpieczeństwo ekonomiczne kraju*, p.5-14; E. Paszyc, *GAZPROM- główne kierunki natarcia...*, p.74-79; R. Narzikułowa, *GAZPROM - ofensywa na froncie europejskim*, p.85-94.

<sup>118</sup> Preliminary talks on this subject began in January 2002 during the Polish-Russian economic forum and continued in June that year, when, as reported by the media, Minister Marek Pol, during a meeting of the Polish-Russian Intergovernmental Joint Commission for Trade and Cooperation Gospodarcza presented the position of the Polish side assuming either Gazprom's consent to reduce the contracted supplies, or to spread them over a longer period. He also insisted on a quick completion of the investments related to the construction of the first branch of the Yamal gas pipeline and its continuation in the form of the construction of the second branch. In these talks, as can be inferred from the further development of events, Minister Pol was at least ineffective. A similar result, i.e. none, was also the result of the meeting of Prime Ministers L. Miller and M. Kasyanov in Saint Petersburg on the occasion of the summit of the Council of the Baltic Sea States on June 11, 2002 and the talks held during Minister Igor Iwanov's visit to Warsaw (June 19-21, 2002). The issue of the second line of Yamal was already complicated by the signing by Germany, Russia and Ukraine of a joint statement on the creation of a consortium to oversee the transit of gas through the territory of our south-eastern neighbor. Prime Minister Miller disregarded this matter and issued reassuring statements, while Minister Pol stated that the Russians questioned on this matter, as well as in the case of the so-called connecting gas pipeline leading through Poland to Slovakia and bypassing Ukraine, did not answer questions and clearly delayed the decision. S. Popowski, *Rozmowy nie tylko o gazie*, „Rz”, issue 137(6214), 14 June 2002, p.B2. Por.: A. Burak, L. Oktaba, *Przyspieszenie z przeskodami*, „Rz”, issue 135(6212), 12 June 2002, p.B1. Por.: Idem, *Gaz na pierwszym miejscu*, „Rz” issue 135 (6212), 12 June 2002, p.B1.

<sup>119</sup> Dz.U. Nr 39, poz. 443 ze zm.

<sup>120</sup> Information on the results of the natural gas supply inspection, Supreme Audit Office, Department of Economy, State Treasury and Privatization, P/02/058, I/03/004, KGP/41017/02, KGP/41143/03.

No. 83/2003/P02058/KGP, Warsaw - June 2004, p. 4. According to the Supreme Audit Office, contracting too much gas from Russia made it unprofitable to diversify its supply sources. The additional protocol to the agreement, signed on February 12, 2003, does not lift the ban on re-export of Russian gas from Poland and does not reduce the prices of gas imported from Russia. The ownership structure of EuroPolGAZ has also not changed (recall: PGNiG and Gazprom each hold 48% of shares, while the remaining 4% is held by the Polish-Russian company Gas Trading, whose shareholder is Bartimpex Gudzwatego). According to NIK, this change should be one of Poland's negotiating goals. The agreement also prevents Poland from enforcing the construction of the second branch of the Yamal gas pipeline from the Russians. The NIK accused Deputy Prime Minister Pol of the fact that the

Russians, said about the signed agreement: „Pol agreed to additional gas collection points and basically deprived Poland of the possibility of manoeuvre. Instead of making it more flexible, he stiffened the whole agreement and condemned us to deliveries from the East”<sup>121</sup>. In general, instead of renegotiating the provisions on the gas resale ban as contrary to European law, which Gazprom was already aware of after its experience with the Italian ENI<sup>122</sup> Poland considered the reduction of the contracted gas volume a success, although it affected the project of the second line of the Yamal gas pipeline<sup>123</sup>.

In this way, the contracts signed by the government of J. Buzek for gas supplies from Denmark and Norway were effectively torpedoed with the general cooperation of L. Miller's cabinet<sup>124</sup> and Warsaw associated with Gazprom with a long-term contract for gas supplies from the second branch of the Yamal-Europe gas pipeline, which was never created.

The Polish-Russian agreement of February 1995 stipulated that the first branch of this gas pipeline would be routed through Poland by 1999, and the second by 2001. It was planned as a large investment, after its completion the resulting transmission infrastructure could be pumped to Europe 50 billion m<sup>3</sup> of gas annually, excluding supplies to Poland. In the end, however, only one branch of this gas pipeline was built, and its capacity never reached the half of the planned one. In addition, delaying the investment - i.e. postponing the construction of the compressor station and the second line of the gas pipeline - resulted in losses for Poland, which invested \$6.8 million in the purchase of land for infrastructure, the majority of which was never built. Annual losses due to the non-functioning of the second line, even at the minimum transit rate (\$1 for sending 1000 m<sup>3</sup> of gas per 100 km), were calculated at \$160 million. What is symptomatic, however, is that there were no delays in the schedule of reducing the

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negotiations conducted under his leadership were in breach of the law, and the Deputy Prime Minister himself went to Moscow without negotiating instructions that the Polish delegation could follow and without appropriate powers of attorney. These powers of attorney were issued by Prime Minister Miller only in January 2003 during the last round of negotiations, while the Polish proposals developed already in December 2002 turned out (apart from the issue of the amount of supplies) to be surprisingly consistent with the proposals of the Russian side. At the same time, Pol agreed to a gradual reduction of transit fees paid by Gazprom for the transmission of gas through Poland until 2019, until it reaches the price of \$1 per 1,000 m<sup>3</sup> per 100 km, which is below the average market prices (currently, the transmission fee is \$2.36 ) and will limit the financing of the construction of the second branch of the Yamal gas pipeline by the Polish company EuRoPol Gaz. In general, as we read in the post-inspection report of the Supreme Audit Office, "The analysis of individual solutions contained in the protocol indicates a threat to the energy security of the country and insufficient protection of the interests of the Polish side" - Ibidem, p. Rz", issue 105(6788), May 6, 2004, p.A1. See also ibidem, p.B1. On earlier reservations of the Supreme Audit Office indicating a conflict of interest between Bartimpex and EuRoPolGaz, see: A. Gargas, *Kontrolerzy NIK o gazie*, „Gazeta Polska”, issue 4(445), 23 January 2002, p.5.

<sup>121</sup> Quote M. Ostrowski, *Polka z niedźwiedziem*, „Polityka”, issue 10(2442), 6 March 2004, p.45.

<sup>122</sup> For the first time, Gazprom departed from the principle of the ban on gas re-export under pressure from the European Commission (and directly from the Commissioner for Competition, Mario Monti) in January 2003 in a contract with the Italian energy company ENI. For more see: P. Żurawski aka Grajewski, op.cit., p.447.

<sup>123</sup> J. Gruszczyński, *Mocno wybuchowa polityka gazowa*, „Rz”, issue 58(7655), 9 March 2007, p.B7.

<sup>124</sup> The contract of 2000 provided for the purchase of 76 billion m<sup>3</sup> of gas from Norway, with deliveries increasing to the level of 5 billion m<sup>3</sup> annually. The decision to withdraw from the planned investment was made jointly by Norwegian Statoil and PGNiG on December 2, 2003 in the face of the Miller's government's reluctance to fulfill the contract and its support for the competing Bernau-Szczecin project. A. Łakoma, *Kontraktu nie będzie*, „Rz”, issue 281(6661), 3 December 2003, p. B1. Por.: A.ŁA, *Możliwy nowy import*, „Rz”, issue 96(6476), 24 April 2003, p.B1.



transit fees paid by the Russians for the transmission of gas through Poland. The adopted transit rates meant imposing fixed annual revenues on EuRoPolo Gaz, which in the long term reduced the revenues of the Polish company from the transit of Russian gas from the originally expected amount of \$5.35 billion planned for 2019 to only \$850 million. i.e. about 15% of the initial value that was to remain in Poland. The remaining funds were to be allocated to huge debts and interest on them, mainly to Gazprom. The picture of the entire distribution of profits under the signed contract was completed by the fact that Gazprom, using the full capacity of the gas pipeline, could send over 531 billion m<sup>3</sup> of blue fuel to Germany, earning over \$61 billion<sup>125</sup>.

In total, Gazprom supplied more than two-thirds of the gas consumed in Poland, and did so at relatively high prices. The fact that this raw material was relatively expensive was one of the reasons for the low level of use of this fuel in Poland (about 10 times lower than in Germany) and lowering the price competitiveness of some branches of Polish industry - mainly chemical plants. At that time, the Polish energy industry was (and still mostly is) based on coal, which distinguished Poland from other Visegrad Group countries and EU countries in general, because the fact that most of the gas imported to Poland came from Russia did not mean energy dependence on Moscow, but broadly understood economic dependence - mainly in the production of the heavy chemical industry. In the conditions of lower prices of Russian gas in Germany and Russia, Polish chemical companies, for which fees for this raw material are one of the most serious factors in the increase in production costs, were exposed to serious market difficulties due to German and Russian competition. This situation could only be avoided by making the gas market more flexible in accordance with EU Directive 98/30/EC of June 22, 1998<sup>126</sup>, as redefined by Directive 2003/55/EC of June 26, 2003<sup>127</sup> - i.e. by introducing the principle of access to it by other suppliers, known as - TPA (Third Party Access). According to the aforementioned directive, at least 28% of the EU gas market should be subject to liberalization as of 2003. Implementation of the TPA principle, i.e. the obligation for the network owner to provide transmission services not only to gas from its own deposits, but also to third parties, was to enable domestic customers to order gas transport from network companies with a free choice of supplier. The implementation of the *acquis communautaire* in the discussed scope

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<sup>125</sup> A. Łakoma, A. Wielopolska, *Polska na szarym końcu*, „Rz”, issue 49(6732) 27 February 2004, p.B1. Por.: A. Kublik, *Jamał kóło nosa*, „GW”, issue 298.4509, 23 December 2003, p.4 oraz Idem, *Gaz non-profit*, „GW”, issue 49.4260, 27 February 2003, p.19.,

<sup>126</sup> Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas, „Official Journal of the European Communities”, 21.7.98, L 204/1-12. This directive, codenamed in Polish - 98/30/EC, introduced the concept of "authorized customers" (thus defining gas-fired power plants and other final customers using more than 25 million m<sup>3</sup> of gas per year) and defining them as legal persons authorized to use the principle TPA, with the proviso that EU Member States may adopt a more favorable definition of this term in their national legislation. For more information on the EU directive and the TPA principle in Polish law, see: H. Konarski, *Rurociąg konkurencji*, „Rz”, issue 211(6591), 10 September 2003, p.C4.

<sup>127</sup> Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC, „Official Journal of the European Communities”, 15.7.2003, L 176/57-78. Directive 2003/55/EC obliges EU Member States to include the concept of "eligible customers" who can use the TPA until July 1, 2004, eligible customers within the meaning of Article 18 of Directive 98/30/EC, from July 1, 2004 at the latest, to all customers consuming gas for non-household needs and from 1 July 2007 to all customers. H. Konarski, *op.cit.*, p.C4.

should therefore open up the possibility for Polish customers to purchase gas from Dutch, German, Danish, Norwegian, Ukrainian or Russian contractors<sup>128</sup> In Poland, the TPA principle was unfortunately not implemented in the discussed period. The factual situation caused by Poland's legal obligations resulting from the agreements with Gazprom, which rigidly connects Poland with the Russian supplier, was therefore contrary to the law of the European Union. Considering the agreements of 1995-1996 and 2003, experts predicted that if they were maintained, Gazprom would remain the dominant supplier of blue fuel for Poland at least until 2022, which turned out to be true. It was only the construction of the LNG terminal in Świnoujście (2006-2015)<sup>129</sup> and the commissioning of the Baltic Gas Pipeline (September 27, 2022) leading from the Norwegian deposits through Denmark to Niechorze<sup>130</sup> that allowed Poland not only to reject Gazprom's import monopoly, but also, starting from 2022, to resign from the purchase of Russian gas.

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<sup>128</sup> H. Konarski, op.cit., p.C4.

<sup>129</sup> *Terminal LNG w Świnoujściu. Dlaczego rząd PO opóźniał kluczową dla Polski inwestycję?* [KALENDARIUM], TVP Info, 28.04.2022, <https://www.tvp.info/59348961/terminal-lng-w-swinoujsciu-czy-rzad-po-opozniakluczowadla-bezpieczenstwa-polski-inwestycje-jesli-tak-to-dlaczego>.

<sup>130</sup> *Gazociąg Baltic Pipe uroczyste otwarty*, Prezydent.pl, 27 September 2022 r., <https://www.prezydent.pl/aktualnosci/wydarzenia/gazociag-baltic-pipe-uroczyscie-otwarty,59171>.

## Map nr 2. Baltic Pipe

### Gazociąg Baltic Pipe

Ruszył przesył gazu gazociągiem BalticPipe. PGNiG będzie sprowadzać gaz z własnego wydobycia na szelfie norweskim oraz kupiony u innych producentów. Zdolność przesyłowa gazociągu docelowo ma wynieść 10 mld m<sup>3</sup> rocznie.

#### PRZEBIEG GAZOCIĄGU BALTIC PIPE



Źródła: Baltic Pipe Project, GAZ-SYSTEM



Source: *Gaz z Norwegii zaczął płynąć do Polski. Otwarto brakujący terminal Baltic Pipe*, TVN24 Biznes, 3 November 2022, <https://tvn24.pl/biznes/ze-swiata/baltic-pipe-gaz-z-norwegii-zaczal-plynac-do-polski-otwarto-terminal-w-nybro-6191236>.

The shape of the Polish gas market and the long-term delay in getting rid of dependence on Russia had the greatest impact on the long-term (originally 25-year) contract concluded in September 1996 for the supply of 250 billion cubic meters of gas from Russia, with the “take or pay”, obliging Poland to pay for the Russian raw material, regardless of the actual demand and technical possibilities of receiving it. Pursuant to the agreement, the volume of contracted gas was to be increased by leaps and bounds. In 1996, Poland was obliged to receive (or pay for uncollected) 2.7 billion m<sup>3</sup> of gas, in 1997 already 4.5 billion m<sup>3</sup>, in 2002 over 6.2 billion m<sup>3</sup>, and in 2005 as much as 9, 8 billion m<sup>3</sup>. Meanwhile, the existing gas pipelines allowed for receiving only 8.5 billion

m<sup>3</sup> per year. As a result, PGNiG, owned by the Polish state, was forced to pay Gazprom for uncollected gas<sup>131</sup>.

Earlier separate special protocol signed by the Deputy Prime Minister of the Republic of Poland, Marek Pol, and the Deputy Prime Minister of the Russian Federation, Oleg Davydov, on February 18, 1995<sup>132</sup> made the contract more rigid by introducing, in addition to the "take or pay" clause mentioned above, also a ban on re-export, a ban on lowering the minimum level of annual gas offtake by Poland and a ban on periodic interruption of supplies by the recipient subject to the threat of financial sanctions. This agreement, for obvious reasons, became the subject of sharp criticism in Poland and, as a result, was renegotiated. This led, after more than a year of negotiations, to signing by M. Pol and Deputy Prime Minister Viktor Khristenko on February 12, 2003, the above-mentioned new agreement, which was to modify the previous one. The part of deliveries that were to be made after 2020 was abandoned, but the term of the contract was extended to 2022. During this period, Poland was to buy 26.2% (56.6 bcm) of gas less than originally agreed in the contract with 1996<sup>133</sup>. According to M. Pol, Warsaw was successful in negotiations, reducing the total volume of gas contracted to 161 billion m<sup>3</sup> for the years 2003-2020. However, the fact of achieving even an acceptable negotiation result was undermined by the former vice-president of PGNiG - Piotr Woźniak, who emphasized that the abolition of the flexibility of supplies - i.e. the extension of the "take or pay" principle to the entire agreement, previously covering only part of the contracted gas, will in practice result in a very small reduction in total volume of deliveries in relation to their level established in 1996. This opinion was strengthened by the NIK report, which pointed to the contracting of too large amounts of gas, which was tantamount to Poland exceeding previous internal government findings<sup>134</sup>

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<sup>131</sup> P. Wrabec, P. Puch, op.cit., p.60. I haven't been able to find out if that's actually the case.

<sup>132</sup> *Intergovernmental Protocol of February 18, 1995 on organizational measures aimed at ensuring the implementation of the agreement of August 25, 1993 on the construction of a gas pipeline system for the transit of Russian gas through the territory of the Republic of Poland and the supply of Russian gas to the Republic of Poland*, „Zbiór Dokumentów”, issue 3, 1995, p.23-30.

<sup>133</sup> Calculations of the actual reductions in the contracted gas supplies are obscured by the fact that some of the data in the communiqué after the negotiations are given using Russian gas volume standards, and some using Polish standards, which are lower than Russian ones. According to Polish standards, the reduction amounts to 52.4 billion m<sup>3</sup> of gas, which, according to the Polish government, should bring savings of about \$5 billion compared to the amounts allocated for the purchase of this raw material from Russia according to the volumes contracted in 1996. A. Kublik, *Załatwili gaz*, „GW”, issue 37.4281, 13 February 2003, p.15. Por.: *Rosja wreszcie przykręca kurek*, „GW”, issue 19.4263, 24 January 2003, p.1 oraz A Kublik, *Gazowa zależność trwa*, „GW”, issue 19.4263, 24 January 2003, p.2. See also the dry and not explaining the nature of the problem official memo on this subject in the study published by the Polish Embassy in Moscow E. Brzeczek, *Polsko rosyjska współpraca gospodarcza*, „Federacja Rosyjska. Przegląd Gospodarczo-Rynkowy. Biuletyn Ekonomiczny”, issue 78, January 2003, p.13.

<sup>134</sup> NIK accused Pol that "the negotiated amounts for the years 2004-2010 are greater than the maximum needs from the Russian direction, specified in January 2003 by the Minister of Economy, Labor and Social Policy in the Information for the Council of Ministers regarding the position of the Polish side in talks with the Russian party on the signing of an additional protocol to the intergovernmental agreements of 1993 and 1995, specifying the volume of natural gas imports to Poland. The volumes of gas imported from Russia (according to GOST) specified in the Additional Protocol ranged from 7 bcm (6.5 bcm according to PN) in 2004 to 8 bcm (7.5 bcm according to PN) in 2010. the assessment contained in the above Information, the maximum needs for imports from this direction will be from 6.3 billion m<sup>3</sup> in 2004 to 6.8 billion m<sup>3</sup> in 2010." *Informacja o wynikach kontroli zaopatrzenia w gaz ziemny...*, p. 75.

Despite the signed agreement of February 12, 2003, issues related to the construction of the aforementioned second branch of the Yamal-Europe transit gas pipeline through the territory of the Republic of Poland remained the subject of discrepancies between Poland and Russia. The Polish side expressed interest in the implementation of this project, counting on co-financing of this project from EU programs (the so-called quick start). Warsaw insisted on the immediate commencement of talks on this matter, submitting a proposal to create a bilateral working group to develop assumptions for the construction of the entire structure. According to the Additional Protocol, the construction of this thread was to be updated by the end of 2004, but the Russians did not keep to it. Gazprom took a wait-and-see position in this respect, while conducting intensive efforts to implement the alternative Nord Stream project through the Baltic Sea. Until the beginning of 2004, Russia developed declarative arrangements with Great Britain, Germany and the Scandinavian countries.

In Poland, for a long time, until 2001, the Northern Gas Pipeline project was perceived as a form of pressure, not a real goal in itself. As a result, the threat was underestimated<sup>135</sup>. The Russians actually raised the issue of Nord Stream in the late 1990s to put pressure on Ukrainians and Poles regarding the conditions of gas transit through Ukraine, and when Poland, sympathizing with Kiev, rejected the plan to build the so-called *pieriemyczki* – a gas pipeline connecting from the thread running through Belarus and Poland to the thread located in Slovakia, bypassing Ukraine. Since 2001, however, the nature of this project has changed, and Gazprom has intensively sought co-investors willing to invest their capital in the construction of the trans-Baltic gas pipeline<sup>136</sup>. The issue of the Polish-Slovak connector, enabling the bypassing of Ukraine, became pointless in the face of Poland's objection. This problem was not of interest to the Visegrad Group.

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<sup>135</sup> R. Tarnogórski, *Gazociąg Północny. Aspekty prawne*, „Polski Przegląd Dyplomatyczny”, issue 1(29), January-February 2006, p.81-82.

<sup>136</sup> A. Łakoma, A. Wielopolska, *op.cit.*, p.B1.

Map No. 3. Designed variants of the connector ("pieremyczki") between the "Yamal" gas pipeline in Poland and the "Bratstvo" gas pipeline in Slovakia, enabling the Russians to partially bypass Ukraine as a transit country



Source: A.ŁA, Resignation from the second thread,  
[http://arch.rzeczpospolita.pl//a/rz/2002/01/20020108/ekonomia\\_a\\_1-1.F.gif](http://arch.rzeczpospolita.pl//a/rz/2002/01/20020108/ekonomia_a_1-1.F.gif).

The subject of the Polish-Russian dispute, apart from the second branch of the Yamal gas pipeline, was also the issue of exchange rate differences – i.e. the rules for determining the exchange rate between the Polish zloty and the US dollar for converting transit rates for gas transmission through the territory of the Republic of Poland<sup>137</sup>.

The outcome of the negotiations must be astonishing. The bargaining position of the Polish minister was strong. This was due to the then existing prospect of a Norwegian contract, created by the previous government of J. Buzek, and to the Russian failure to meet the deadline for starting the construction of the second branch of the Yamal gas pipeline. As only 2.88 billion m<sup>3</sup> of gas was supplied to Poland in the first branch, and 11-14 billion m<sup>3</sup> of gas was to be supplied to Poland in the second branch, its absence meant that Poland had no way to collect the contracted gas, as the Russians had no way to deliver it in the manner and in the quantities provided for in the contract. Poland, however, as indicated above, was obliged to receive gas from the gas pipeline that was

<sup>137</sup> NN., *Dwustronne stosunki gospodarcze w 2003 r.*, „Federacja Rosyjska. Przegląd Gospodarczo-Rynkowy. Biuletyn Ekonomiczny”, issue 1/2004 (79), June 2004, p.17.

never built and to pay for it, regardless of whether it receives it or not. In this situation, it seemed that the basic negotiating requirement of the Polish side should be the complete lifting of the restrictive provisions of the original contract, at least until Gazprom fulfilled its obligations regarding the construction of the second branch of the Yamal gas pipeline. The retention of the original clause could only be explained by the fact that it was to be used to finance the construction of the two planned lines of the gas pipeline, serving as a guarantee that such an expensive investment would provide investors with stable and substantial income in the future. Moreover, maintaining the "take or pay" clause practically blocked the development of the gas market in Poland, even after Poland's accession to the EU. Despite this, Deputy Prime Minister M. Pol signed a new agreement with the "take or pay" principle. Permanent off-take of 2.88 billion m<sup>3</sup> of gas in Kondratki was confirmed, i.e. in the place where the existing branch of the Yamal gas pipeline reached the borders of Poland, and it was agreed that the rest, originally planned for off-take by means of the second branch of the gas pipeline, would be supplied at two other old points of contact with the Russian gas network. As a result, this allowed the Russian side to abandon the construction of the aforementioned second branch and to finance the Nord Stream gas pipeline, which was unfavourable for the Republic of Poland, taking advantage of the fact that under this contract Poland would be forced to buy as much gas as Gazprom wanted to sell it. The take-or-pay clause has been made more realistic and the possibility of its application has been opened even in the event of non-existence of the gas pipeline for which it was created. Not only that, as a result of the signed agreement, the Polish gas industry, and with it the state treasury, resigned from potential revenues from increased Russian transit through Poland. Pursuant to the signed agreement, since 2014 the rates for gas transmission through the territory of the Republic of Poland have been set at a level almost three times lower than in 2003, and thus also much lower than those in force in the "old" EU at that time.<sup>138</sup> The Polish-Russian agreement of February 12, 2003 also did not provide for dividend payments from profits to the shareholders of EuRoPol Gaz. This gave rise to further questions and accusations against the then government, which is hardly surprising. It is impossible to rationally explain why EuRoPol Gaz – the company that operates the gas pipeline in the 90% intended for the transit of Russian gas through Poland to Germany – should operate on a non-profit basis,<sup>139</sup> a status usually granted to public utility companies. Why was the profit that PGNiG, the strategic shareholder of EurRoPol Gaz, could receive in the form of dividends,

<sup>138</sup> Assuming that the average estimated rate for gas transmission is \$2.5 for transit of 1000 m<sup>3</sup> per 100 km, EuRoPol Gaz's losses due to Gazprom's unpaid payments will amount to approximately \$3.2 billion. According to estimates, during the term of the agreement - i.e. in the years 2003-2019, the losses caused by the depletion of revenues to the state budget due to income tax, dividend tax and VAT will amount to \$1.4 billion, while the revenues of EuRoPol Gaz managing the Yamal gas pipeline will decrease by \$3, 55 billion. This estimate does not take into account the highly probable increase in gas transit prices. R. Kasprów, *Minister pod urokiem rosyjskiego iluzjonizmu*, „Rz”, issue 93(6473), 19-21 April 2003, p. B3.

<sup>139</sup> In 2003, EuRoPol Gaz generated an income of PLN 623.3 million and a revenue of PLN 1.59 billion, and only in the first quarter of 2004 the profit of this company amounted to PLN 138 million, with sales revenues of PLN 412 million. A.ŁA, *Gazociąg zgodnie z planem*, „Rz”, issue 125(6808), 29-30 May 2004, p.B3.

forgone<sup>140</sup>? Not only did the Polish state not receive dividends and fees for the transmission of Russian gas through its territory, but it even provided EuRoPol Gaz with significant support in the field of public aid, by exempting this company from customs duties and giving it tax breaks. Fees for the transit of Russian gas from Polish to Germany were not charged even by VAT in Poland<sup>141</sup>. In the future, this was also important as an argument in the discussion on Nord Stream 1 and 2 because, contrary to these facts, the Russians accused Poland, which opposes the Northern Gas Pipeline, of doing so for fear of losing revenues from the transit of Russian gas through its territory.

Even more strangely, the agreement of February 12, 2003, did not regulate the gas trade with Russia at all, leaving room for obscure operations of private intermediaries. Everything indicates that the Russian positions in the field of gas energy in Poland have been strengthened, and subsequent renegotiations of the 1996 agreement were crowned with Moscow's success and left it free to expand in this field<sup>142</sup>.

The analysis of EU documents shows that in the period in question (1991-2004) the "old" EU was apparently not afraid of using gas supplies by Moscow as an instrument of political pressure, basing its confidence in this respect on past experience. The impression of the Russian partner's reliability resulted from the fact that Moscow was dependent on the export of energy resources to the European market. At that time, almost a quarter of the Russian Federation's budget revenue came from the sale of gas to the EU and the candidate countries<sup>143</sup>, and when profits from the export of oil and its derivatives are added, this figure is almost half of the state's revenue<sup>144</sup>. This made

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<sup>140</sup> A. Kublik, *Gaz non-profit*, „Gazeta Wyborcza” (Dalej: „GW”), issue 49.4260, 27 February 2003, p.19

<sup>141</sup> QUB, *Gazowe mity o Polsce*, „GW”, issue 211.4914, 10-11 September 2005, p. 28.

<sup>142</sup> In March 2003, PGNiG announced its intention to launch a tender in April or May of that year for the purchase of 2 billion cubic meters of gas on the short-term spot supply market. In addition to the February agreements, Bartimpex A. Gudzowaty was supposed to import 1.5 billion cubic meters of gas in this way. A similar practice has been going on since the end of 2002, when PGNiG started importing gas on a spot basis through gas connections with Belarus and Ukraine without any announcement, without a tender and without making the matter known to the public. QUB, *Żonglując gazem*, „GW”, issue 68.4279, 21 March 2003, p.27.

<sup>143</sup> The payments received from Gazprom alone in 2001 accounted for 20% of the total budget revenue of the Russian Federation. Ю. А. Комаров, „Газпром” на международном рынке, *Дипломатия и экономика*, „Ж«ДВ», декабрь 2001 год.

<sup>144</sup> G. Gromadzki, *Między potrzebą a uzależnieniem. Rosyjski gaz w bilansie energetycznym rozszerzonej UE*, „O przyszłości Europy”, Reports 8, Bartorego Foundation, Warsaw, December 2002, p.6. W. Paczyński, *Bogactwo naftowe – wpływ na perspektywy rozwoju krajów WNP*, [w:] *Kłopotliwe bogactwo – sytuacja i perspektywy sektorów ropy i gazu na obszarze byłego ZSRR*, „Prace OSW”, issue 12, December 2003, p.55 - gives this figure at 39% for 2001-2002, and F. Hill, (Energy Empire: Oil Gas and Russia's Revival, London 2004, p.13) writes that 37% of federal budget revenue comes from taxes on the gas and oil sector. The Moscow resident of the International Monetary Fund, Gooheon Kwon, quoted by Hill, even claimed that 80% of the federal budget in Russia in 1999-2001 came from the oil sector, which seems to be a considerable exaggeration. М.И. Калинин (*Выступление Заместителя Постоянного Представителя Российской Федерации при Международных Организациях в Вене М. И. Калинина на научно-практической конференции „Опек и договор к Энергетической Хартии” Вена, 23 Января*, *Дипломатия и экономика*, „Ж«ДВ», февраль 2003 год) determined the share of foreign currency income from the sale of energy resources at 40% of Russia's total foreign currency income. A. Łoskot, *Security of supplies...*, p. 6. claims, however, that revenues from the sale of gas both to the internal market and for export account for 8% of the consolidated budget (Federation's budget plus regional budgets), and export revenues account for 12% of % of foreign currency income of the Russian Federation. Similar estimates - 10-20% of the impact on the state budget are given by M. Bodio, op. cit., p. 109, but already on p. 114 he writes that "Income from the sale of oil and gas accounts for about 40% of the budget of the Russian Federation and 20% of GDP". These values differ drastically from each other, and the data quoted by the last two authors differ significantly from the data quoted by the experts quoted above. D. Johnson (EU-Russian Energy links,



gas exports the main instrument for subsidizing the entire Russian economy<sup>145</sup>. Under these circumstances, it might have seemed that the risk of Russia initiating a conflict with the EU over a possible politically motivated interruption of supplies, either for the EU or, more likely, for one of its Member States - especially the "new" ones or for Ukraine, important due to its transit nature (which, after all, turned out to be difficult to delineate in practice) is indeed small.

### 3. Growing threat

The realities of the Russia-Ukraine gas conflict at the turn of 2005-2006<sup>146</sup>, Gazprom's problems with ensuring supplies to the EU caused by the harsh winter of 2006<sup>147</sup> and the gas-bomb conflict with Georgia<sup>148</sup> and finally the fire in Mažeikiai and the "renovation" of the "Druzhba" oil pipeline after the refinery was bought by the Polish

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[in:] Perspectives on EU-Russia Relations, ed. by Debra Johnson and Paul Robinson, London, New York 2006, p. 182) states that in 2002 the sales energy resources accounted for 55% of Russian exports, 20% of GDP and 40% of tax revenues.

<sup>145</sup> K. Pełczyńska-Nałęcz, E. Paszyc, W. Paczyński, op.cit., p.5.

<sup>146</sup> A. Łakoma, P. Reszka, T. Serwetnyk, A. Stojewska, *Europa szantażowana gazem*, „Rz”, issue 2(7296), 3 January 2006, p.B1. Look also: A. Łakoma, *Pora ucywilizować spory Rosji z innymi krajami* (rozmowa z Januszem Steinhoffem), „Rz”, issue 2(7296), 3 January 2006, p.B2. P. Reszka, *Ultimatum dzieli Ukrainę*, „Rz”, issue 296(7285), 20 December 2005, p.A7; idem, *Kto ogrzeje, kto zamrozi Ukrainę*, „Rz”, issue 303(7292), 29 December 2005, p.A2 i idem, *Gazowa wojna nieunikniona*, „Rz”, issue 305(7294), 31 December 2005 - 1 January 2006, p.B2; idem, *Fiasko gazowych rozmów Jechanurowa*, „Rz”, issue 296(7285), 20 December 2005, p.A1; idem, *Zwycięstwo Ukrainy* (rozmowa z Dmitrijem Babiczem), „Rz”, issue 4(7298), 5 January 2006, p.A1 i idem, *Gaz przestał dzielić*, „Rz”, issue 4(7298), 5 January 2006, p.A3 and *Gazprom zakręci kurek*, „Rz”, issue 301(7290), 27 December 2005, p.A1; *Rosja grozi Ukrainie zakręceniem gazowego kurka*, „Rz”, issue 301(7290), 27 December 2005, p.B2; *Czy grozi nam kryzys energetyczny*, „Rz”, issue 2(7292), 3 January 2006, p.A1; S. Popowski, *Wojna gazowa o Ukrainę*, „Rz”, issue 1(7295), 2 January 2006, p.A7. Por.: T. Serwetnyk, M. Przybylski, *Rosja zakręca kurek*, „Rz”, issue 1(7295), 2 January 2005, p.A1 and T. Serwetnyk, *Gazowy szantaż Rosji*, „Rz”, issue 292(7281), 15 December 2005, p.B2; idem, *Ceny gazu dyktuje polityka* (interview with Oleksiy Plotnikov - director of the Institute of World Economy and International Relations in Kiev), „Rz”, issue 296(7285), 20 December 2005, p.A7 and idem, *Ukraina odpowie na szantaż Rosji*, „Rz”, issue 297(7286), 21 December 2005, p.A2; idem, *Moskwa i Kijów upierają się przy swoim*, „Rz”, issue 303(7292), 29 December 2005, p.B2; idem, *Bez przełomu w sprawie gazu*, „Rz”, issue 304(7293), 30 December 2005, p.B1; idem, *Spór przede wszystkim polityczny*, „Rz”, issue 1(7295), 2 January 2006, p.B1; idem, *Ukraińską gospodarkę stać na nową cenę*, „Rz”, issue 4(7298), 5 January 2006, p.A3; idem, *Nadal bez gazowej umowy*, „Rz”, issue 28(7322), 2 February 2005, p.B5; idem, *Gaz nie zrujnuje nam gospodarki*, „Rz”, issue 34(7328), 9 February 2006, p.B3; idem, *Ukraińcy nie chcą Rosukrenergo*, „Rz”, issue 39(7333), 15 February 2006, p.B3; D.E., *Odcinanie gazu w TV*, „Rz”, issue 303(7292), 29 December 2005, p.A1; P. Kościński i T. Serwetnyk, *Drogi Sewastopol za drogi gaz*, „Rz”, issue 39(7333), 15 February 2006, p.A7. oraz J. Bielecki, *Niespodziewany kompromis*, „Rz”, issue 4(7298), 5 January 2006, p.A1, idem, *Europa boi się Rosji*, „Rz”, issue 45(7339), 22 February 2006, p.A7; Por.: A. Rybczyński, *Dziwny kompromis*, „Gazeta Polska”, issue 2(651), 11 January 2006, p.16-17 i K. Bień, *Skutki szantażu Rosji*, „Rz”, issue 305(7294), 31 December 2005 - 1 January 2006, p.B2. Komentarze polityków UE do całej sytuacji patrz: A. Stojewska, *Wyciągnąć wnioski z surowej lekcji*, „Rz”, issue 4(7298), 5 January 2006, p.A3.

<sup>147</sup> *Mniej gazu dla Europy*, „Rz”, nr 16(7310), 19 stycznia 2006, s.A1 oraz A. Łakoma, T. Serwetnyk, *Gazprom coraz mniej wiarygodny*, „Rz”, nr 16(7310), 19 stycznia 2006, s.B1 i idem, *No i po reputacji*, „Rz”, nr 16(7310), 19 stycznia 2006, s.B2. Patrz też: D. Malinowski, W. Radziwinowicz, *Zima zaskoczyła Gazprom*, „GW”, nr 15.5023, 19 stycznia 2006, s.1.

<sup>148</sup> P. Zychowicz, *Gruzja i Armenia bez gazu*, „Rz”, issue 19(7313), 23 January 2006, p.A1 and idem, *Gruzja oskarża Rosję*, „Rz”, issue 19(7313), 23 January 2006, p.A7. Por.: W. Jagielski, *Ktoś odcina Gruzję*, „GW”, issue 19.5027, 23 January 2006, p.1. *Armenia bez gazu, Gruzja bez gazu i prądu*, „Wprost”, issue 22 January 2006, <http://www.wprost.pl/ar/?O=86278&print=1>. Patrz też: A. Kublik, *Rosja. Drakońska podwyżka dla Gruzji*, „GW”, issue 257.5264, 3 November 2006, p.21 and *Tydzień bez gazu* (doniesienia m.szu., afp, ap, reuters, pap), „Rz”. Issue 25(7319), 30 January 2006, p.A8.

Orlen<sup>149</sup> and again the gas conflict with Belarus from the beginning of 2007<sup>150</sup> – at least judging by the press comments<sup>151</sup>, should have negatively verified hopes for stable supplies from Russia. However, this did not happen. Despite the above-mentioned warning signals, mutual dependence (the EU needed Russian raw materials, and Russia needed European money obtained from their sale) seemed to the decision-makers of most European countries at that time to be a sufficient guarantee of the stability of supplies from the East. As M. Medvedkov wrote „Russia does not have an alternative market for the sale of gas or nuclear materials, and this generates hundreds of millions of dollars a year (...) the prosperity of our country depends on the terms of trade with the European Union (...) it can be said that every citizen Russia depends on what decisions are made in Brussels”<sup>152</sup>. It sounded believable and hit the cultural code of the West, which believed that its rationality was shared by Russia's leadership elite. The countries of the Visegrad Group, first adjusting their policy to the EU policy, and acting within its framework after accession, basically adopted the same model of reasoning. However, the Visegrad Group was aware of the challenge in question. One of its first manifestations was the joint statement adopted at the V4 Prime Ministers' Summit in Warsaw on November 5, 2008, and sent to the French EU Presidency, the European Commission and the European Parliament. In it, the V4 prime ministers referred to the issue of energy security, including the Slovak proposal to create a Visegrad Development Bank that would finance energy projects<sup>153</sup>.

In the sphere of real activities, the previous relative passivity began to disappear only in the years 2005-2007. In Poland, this was related to the coming to power of the first PiS-dominated government. At that time, the above-mentioned decision to build the LNG terminal in Świnoujście was made and in the following years, despite the negligence of the years 2008-2015, became so serious that they became the subject of

<sup>149</sup> PKN Orlen kupił rafinerię Możejki, „Dziennik”, issue 33/2006, 27.05.2006, p.1. Por.: R. Rewiński i J. Momar, *Możejki wzięte. I co dalej?*, „GW”, issue 293.5300, 16-17 December 2006, p.33 and A. Jabłońska, *Pożar ostatniej szansy*, „Wprost”, 29 October 2006, issue 43(1245), p.46. Patrz też: T. Dąbrowski, *Łukoil przykręca kurek Możejkom*, „Dziennik” issue 61/2006, p.23; M. Wojciechowski, *Nie dajmy się Moskwie (rozmowa z Audroniusem Ažubalisem – wiceprzewodniczącym komisji spraw zagranicznych litewskiego sejmku)*, „GW”, issue 257.5264, 3 November 2006, p.21; R. Mickiewicz, A. Łakoma, *Awaria czy kara za porażkę*, „Rz”, issue 192(7486), 18 August 2006, p.B2 and eadem, *„Dziura w dziurze” w rurociągu do Możejki*, „Rz”, issue 39(7636), 15 February 2007, p.B1. Por.: A. Łakoma, *Ropociąg do Polski może być zamknięty*, „Rz”, issue 38(7635), 14 February 2007, p.B3; ida, *Spokojnie to tylko awaria*, „Rz”, issue 182(7476), 5-6 August 2006, p.B1; *Rosjanie chcą zarobić na Możejkach*, „Rz”, issue 193(7487), 19-20 August 2006, B.2 and *Pusty ropociąg z Rosji na Litwę*, „Rz”, issue 39(7636), 15 February 2007, p.A1.

<sup>150</sup> A. Kublik, *Gazprom wystawił Białorusi rachunek za Łukaszenkę*, „GW”, issue 78.5086, 1-2 April 2006, p.31. Patrz też: M. Koenig, *Przyjaźń się skończyła*, „Gazeta Polska”, issue 3(704), 17 January 2007, p.20 i J. Ziankiewicz, *Mińsk szantażowany*, „Dziennik”, issue 37/2006, 1.06.2006, p.9.

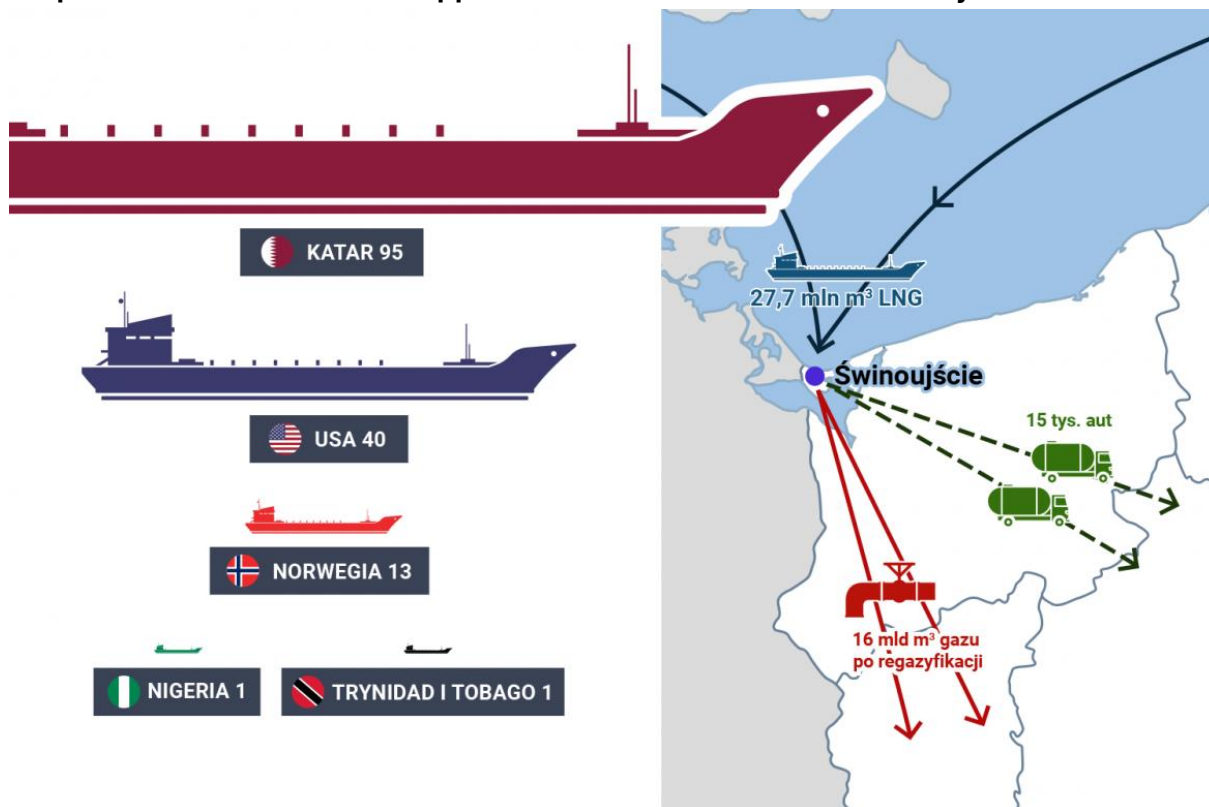
<sup>151</sup> See reprints of foreign press comments in Rzeczpospolita: *Szantaż po rosyjsku*, „Kommersant”, 16.12.2005, [w:] „Rz”, issue 294(7283), 17-18 December 2005, p.A2; *Złudzenia co do „starszego brata”*, „Lwowska Hazeta”, 29.12.2005, [w:] „Rz”, issue 304(7293), 30 December 2005, p.A2; *Gaz jako środek nacisku*, „Die Welt”, 30.12.2005, [w:] „Rz”, issue 305(7294), 31 December 2005, p.A2; and a series of three reprints in „Rz”, issue 5(7299), 6 January 2006, p.A2: *Gazowy rozejm*, „El Pais”, 5.01.2006, *Cios poniżej pasa*, „Postup”, 5.01.2006, *Czekanie na kryzys*, „Frankfurter Allgemeine Zeitung”, 5.01.2006. Patry też komentarze polskie: K. Niklewicz, *Europa mądra po szkodzie*, „GW”, issue 14.5021, 17 January 2006, p.19 i idem, *Unia Europejska na rosyjskim gazie*, „GW”, issue 15.5022, 18 January 2006, p.10.

<sup>152</sup> Cyt. za: M. Bodio, op.cit., p.130.

<sup>153</sup> *Joint Statement of the Visegrad Group Prime Ministers*, Warsaw, 5 November 2008, Visegrad Group, <https://www.visegradgroup.eu/2008/joint-statement-of-the-110412-3>.

a special NIK report<sup>154</sup>, the investment was finally completed. This ensured Poland's safe gas supplies by sea from the US, Qatar and Norway, and small amounts also from Nigeria and Trinidad and Tobago, completely beyond Russian control. The current regasification capacity of the LNG terminal in Świnoujście is 6.2 billion Nm<sup>3</sup> per year. There are also two cryogenic tanks for LNG process storage with a capacity of 160,000 m<sup>3</sup> each<sup>155</sup>.

**Map No. 4. Sources of LNG supplies to the LNG terminal in Świnoujście**



Source: D. Rzaša, *Why the gas terminal in Świnoujście is my favorite investment in Poland*, 300Gospodarka, 18 maja 2022, <https://300gospodarka.pl/news/dlaczego-gazoport-w-swinoujsciu-to-moja-ulubiona-inwestycja-w-polsce>.

The Czech Republic, Slovakia and Hungary, having no access to the sea and the fact that their relations with Russia differed from Poland, did not secure themselves in a similar way at that time. That doesn't mean they haven't taken any action. Moreover, the experience of 2009 resulted in strengthening the spirit of cooperation within the

<sup>154</sup> Implementation of investments related to the construction of a terminal for receiving liquefied natural gas in Świnoujście, Information on the results of the inspection, NIK, KGP-4101-05-00/2013, Registration No. 187/2014/P/13/058/KGP, Warsaw, 15.01.2015, p.43. <https://www.nik.gov.pl/plik/id,8461,vp,10549.pdf>. For a discussion, see: A crushing NIK report on the construction of a LNG terminal. List of errors and shortcomings, TVN24 Biznes, March 2, 2015, <https://tvn24.pl/biznes/z-kraju/raport-nik-o-budowie-gazoportu-ra520058-4455039>.

<sup>155</sup> Terminal LNG, Gaz System, <https://www.gaz-system.pl/pl/terminal-lng/terminal-lng.html>. See also: D. Rzaša, *Dlaczego gazoport w Świnoujściu to moja ulubiona inwestycja w Polsce*, 300Gospodarka, 18 May 2022, <https://300gospodarka.pl/news/dlaczego-gazoport-w-swinoujsciu-to-moja-ulubiona-inwestycja-w-polsce>.

Visegrad Group in the field of energy security. During the Polish V4 presidency in 2009, the Visegrad Task Force for Energy Security was established. Shortly afterwards, on February 24, 2010, a summit of the Visegrad Group in the V4+ format (i.e. together with countries from outside the group) was held in Budapest, dedicated to the issue of energy security. A declaration was adopted<sup>156</sup>, finally signed by 11 countries of Central Europe and the Balkans (Poland, the Czech Republic, Slovakia, Hungary, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Romania, Serbia and Slovenia), containing support for the concept of cooperation in the field of energy security, including for example creating supply routes alternative to the Russian direction and integrating the transmission systems of the states - parties to the declaration. One of the specific decisions of the summit was the project to build a North-South gas corridor. This "gas axis", consisting of short interconnectors connecting Poland with the Czech Republic and Slovakia, and Slovakia with Hungary, was to cover a market with an annual consumption of 30 billion m<sup>3</sup> of gas<sup>157</sup>. Cooperation in the area of energy security has been recognized as a priority of the Visegrad Group. They promised each other consultations and arrangements regarding common positions on the European Commission's initiatives in the area of EU energy policy. Funds to finance the relevant investments (beyond own resources) were hoped to be obtained mainly under the EU financial perspective for 2014-2020. V4 started lobbying in the European Union on this matter, as a result of which the project of the North-South gas corridor was included by the European Commission on the list of priority EU infrastructure projects that should be implemented by 2020. Specifics were entrusted to the aforementioned Visegrad task force for energy security to develop<sup>158</sup>.

It was not a legal obligation, but acting in the spirit of this document, on October 4, 2010, the 110-kilometre-long Hungarian-Romanian Arad-Segedin gas pipeline was launched, connecting the gas systems of both countries. The capacity of the interconnector built there was 1.75 billion m<sup>3</sup> per year, with the possibility of increasing it to 4.4 billion m<sup>3</sup>. However, since it was Romania's first gas connection with a neighbouring country, apart from the southern branch of the "Brotherhood" gas pipeline, which transports Russian gas, leading from Ukraine through Romania to Bulgaria, this investment was rather a security system for Romania, which created the possibility of importing gas from a direction other than Russia. However, the interconnector also improved Hungary's energy security, in the context of plans to involve the Hungarian company MVM in the AGRI project, under which liquefied natural gas from Azerbaijan would be transported by sea to the Romanian port of

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<sup>156</sup> Declaration of the Budapest Summit of the Visegrad Group Plus on energy security, <http://ww2.senat.pl/k7/partnerstwo/budapesztpl.pdf>.

<sup>157</sup> P. Turowski, *Bezpieczeństwo dostaw gazu dla Grupy Wyszehradzkiej i pozostałych państw Unii Europejskiej*, „Bezpieczeństwo Narodowe”, BBN, issue 30, II 2014, p.116-117.

<sup>158</sup> Information on the Visegrad Group, Office of International Affairs and the European Union, Chancellery of the Senate, June 2012, p.11.

Constanta. In this way, Hungary would also gain access to the gas transit route remaining outside Russian control<sup>159</sup>. However, the AGRI project collapsed under the influence of the 2015 immigration crisis, which strongly affected the Balkans, disrupting the economic stability of the region and causing numerous political crises in the Western Balkan countries<sup>160</sup>.

The transit nature of Central Europe, which cannot be effectively cut off from Russian supplies without cutting off the "old" EU from them, constituted, as it was believed in most European capitals, including the V4, a certain protection against the political use of "gas and oil weapons", naturally as long as the rulers of the Kremlin behave rationally. Effective cutting off was not easy, as the Ukrainian experience soon showed. Merely reducing the pool of gas pumped through a given pipeline by the amount intended for the country that they wanted to deprive of Russian supplies, and which was a transit country, was not enough. Such a state, due to Russia breaking the contract, which at that time was usually also an agreement on both the purchase of gas and its transit, meant that the transit country, unlawfully deprived of its gas pool, was able to physically draw gas sent to other recipients, and accused of its theft, the answer is that since Russia broke the agreement, the Russian gas sent through its territory is illegally smuggled. Such a situation was created in the context of Ukraine in the gas conflicts with Russia in 2008-2009<sup>161</sup>. The "de jure" cut-off without the "de facto" cut-off was therefore not effective from the Russian point of view.

The construction of a gas pipeline running along the bottom of the Baltic Sea and bypassing the territory of the Visegrad Group countries has reduced the importance of the V4 as a transit area. At the same time, the lack of coordination of the gas import policy within this group allowed Russia to play off individual countries by diversifying the Russian approach to each of them. When in February 2004 Russia cut off gas supplies to the country ruled by Lukashenko and friendly to him, excluding the first branch of the Yamal gas pipeline running through Belarus and Poland, through which 20 billion m<sup>3</sup> of gas per year was pumped at that time (of which Poland received only 2.88 billion m<sup>3</sup><sup>162</sup>), Gazprom directed additional amounts of blue fuel to Germany via a pipeline running through Ukraine, Slovakia and the Czech Republic, and launched a gas pipeline supplying Lithuania, Latvia and the Kaliningrad region, which has not been used for 14 years. Only Belarus and Poland, which is not in dispute with Russia, but clearly disregarded, remained cut off from supplies, and also Lithuania, after all, where

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<sup>159</sup>Hungary and Romania connect gas pipeline systems, "OSW Analyses", 13.10.2010, <https://www.osw.waw.pl/pl/publikacje/analizy/2010-10-13/wegry-i-rumunia-lacza-systemy-gazociagowe>

<sup>160</sup> V. Jóźwiak, *Przewodnictwo Węgier w Grupie Wyszehradzkiej*, „Biuletyn PISM”, 8 August 2017, p.2.

<sup>161</sup>For more on the Russian-Ukrainian gas dispute, see: P. Żurawski vel Grajewski, *Unia Europejska wobec rosyjsko-ukraińskiego sporu gazowego kwiecień-październik 2014 r.*, [w:] T. Domański (red.), *Międzynarodowe studia polityczne i kulturowe wobec wyzwań współczesności*, Łódź 2016, p.199-226.

<sup>162</sup> A. Łakoma, *Co z dostawami do Polski i Niemiec*, „Rz” issue 41(6724) 18 February 2004, p.B1.

Viktoras Valentukievicius - head of the main Lithuanian gas distributor - Lietuvos Dujos - was forced to call on large enterprises to use substitute fuel – black oil<sup>163</sup>. For Poland, this disregard by Russia was symptomatic, the more so that it took place only a few weeks after the government of L. Miller resigned from the construction of the Norwegian gas pipeline (2 December 2003).

Considering the shares of the German Ruhrgas in Gazprom and the fact that this company received about 30% of its imports from Russia via the Yamal pipeline, it can be assumed that Berlin was most likely warned about the Russians' planned shutdown of supplies via Belarus and managed to prepare for this situation. The lack of German protests against the violation of the agreements seems to confirm this version<sup>164</sup>. According to some specialists from the USA, it was the Germans who put pressure on the Russians to exert this type of pressure on Belarus<sup>165</sup>. The diplomatic intervention of the surprised European Commission had only a symbolic meaning. The head of the Directorate-General for Energy and Transport, François Lamoureux, on behalf of the European Commission, sent a letter to Deputy Prime Minister V. Christienka expressing "serious concern" and requesting "urgent clarifications" on a "major matter", i.e. the suspension of the shipment of blue fuel for Poland and Germany transit through Belarus. Brussels' previous belief, also emphasized by Lamoureux, that the contracts signed with Russian companies provide "reliable certainty" of gas supplies<sup>166</sup>, as apparently been shaken, but this has not had any significant consequences for the Russian-EU energy dialogue.

After the sad experience of February, PGNiG was intensively looking for ways to protect itself in the event of a repeated interruption of gas supplies from Russia. It was planned to increase the domestic extraction from the current approx. 4 billion m<sup>3</sup> to approx. 6 billion m<sup>3</sup> annually. The possibility of storing this raw material outside Poland was also considered, for example in Ukraine, or Poland's participation in the construction of new gas pipelines from Germany and the Czech Republic.<sup>167</sup>

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<sup>163</sup> A. Kublik, *Gazowy stan wyjątkowy*, „GW”, issue 43.4557, 20 February 2004, p.1. Por.: D. Malinowski, *Stan wyjątkowy*, „GW”, issue 43.4557, 20 February 2004, p.21. and A. Łakoma, P. Reszka, *Gaz popłynął, problem pozostał*, „Rz”, issue 43(6726) 20 February 2004, p. B1. In March 2004, representatives of PGNiG talked with the management of the Russian Gazexport, which is responsible on behalf of Gazprom for gas exports to Europe, on compensation for the unjustified suspension of gas supplies to Poland on February 18 and 19 this year. Puławy, Zakłady Azotowe Police and PKN Orlen estimated their losses at around PLN 4 million. There are no official figures, but the press reported about \$2 million claimed by all Polish companies together as compensation from Gazprom. The head of Gazexport, Alexander Medvedev, declared his readiness to compensate for "actually incurred and proven losses". What losses the Russians consider falling into this category, however, is difficult to say. Talks are ongoing. P.R., *There will be a plan to reverse the Yamal*, „Rz”, issue 60(6743) 11 March 2004, p. B1.

<sup>164</sup> P. Woźniak, *Gaz paraliżujący*, „Wprost”, issue 9(1109), 29 February 2004, p.20.

<sup>165</sup> J.M. Fijor (*Gaz bojowy*, „Wprost”, issue 13(1113), 28 March 2004, p.49) writes: „According to prof. Piotr Moncarz from Stanford University (USA), an outstanding specialist in gas issues, "Germany, and more specifically Ruhrgas, a significant shareholder and important business partner of Gazprom, knew about the decision in advance and prepared for this step." Moreover, it was the Germans who pressured the Russians to teach Belarus a lesson.”

<sup>166</sup> R. Sołtyk, *Bruksela żąda wyjaśnień*, „GW”, issue 43.4557, 20 February 2004, p.21.

<sup>167</sup> A. Łakoma, A. Michalski, *Nadal najwięcej kupujemy w Rosji*, „Rz”, issue 80(6763) 3-4 April 2003, p.B1.



Despite Moscow's efforts to change the Russian gas transmission routes to Western Europe since the late 1990s<sup>168</sup> Ukraine and Slovakia remained until 2022 the main transit area for Russian "blue fuel" pumped to Gazprom's most important customers on the Old Continent.

#### 4. A sharp wake-up call - the Russian-Ukrainian "gas wars" 2006-2014

The issue of the instability of gas supplies from Russia and the high political risk of their interruption have become obvious since the Russian-Ukrainian gas wars of 2006-2009<sup>169</sup>. At that time, Poland, under the rule of PO-PSL, was adapting its policy to the policy of the "European mainstream" and the line of "reset" relations with the Kremlin, led by the US, i.e. it made efforts to warm up relations with Russia. This basically resulted in ignoring the Ukrainian-Russian gas dispute<sup>170</sup>, during which Donald Tusk was just on a "warming" visit to Moscow (February 8, 2008)<sup>171</sup>. However, the Ukrainian-Russian gas crisis of 2009 was deep, it had a strong impact on the gas market, especially in Slovakia and Bulgaria, and what is particularly important for our topic, it fell during the Czech Presidency of the European Union. This presidency, however, failed to cope with it at all. The Czech Republic, on behalf of the EU, on January 2, 2009, the day after taking over the presidency, declared that this was a bilateral dispute between Russia and Ukraine and that the EU would not interfere in it. The spokesman of the Czech presidency for EU affairs, Jiří Potužník, after the meeting of Prime Minister Mirek Topolánek with the Ukrainian delegation in Prague, stated in an interview with AFP: "We will not interfere until the gas pressure drops to a low level"<sup>172</sup>. It was a dramatic mistake, encouraging both Moscow and Kiev to induce Brussels to intervene by provoking a gas crisis in EU countries. In both feuding capitals it was believed that this intervention would be unfavourable for the opposing side. As a result, the Czech Republic, although naturally it did not have such intentions, de facto invited Russia to

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<sup>168</sup> P. Żurawski vel Grajewski, *Polityka Unii Europejskiej wobec Rosji...*, p. 504-518, 521-551. Por.: E. Wyciszkiewicz, *Rosyjski sektor naftowo-gazowy - uwarunkowania wewnętrzne i perspektywy rozwoju*, [w:] E. Wyciszkiewicz (red.), *Geopolityka rurociągów. Współzależność energetyczna a stosunki międzypaństwowe na obszarze postsowieckim*, Warsaw 2008, PISM, p. 34-36, 54-55; A. Eberhardt, *Problematyka energetyczna w stosunkach Federacji Rosyjskiej i Republiki Białoruś*, [w:] E. Wyciszkiewicz (red.), op.cit., p. 67-72 and A. Szeptycki, *Stosunki pomiędzy Federacją Rosyjską i Ukrainą w sektorze gazowym*, [w:] E. Wyciszkiewicz (red.), op.cit., p. 103-104, 119-120.

<sup>169</sup> For more see: A. Szeptycki, op.cit., p. 123-130 and idem, *Ukraina wobec Rosji. Studium zależności*, Warsaw 2013, WUW, p. 186-189. During the 2009 Ukrainian-Russian gas crisis, the EU set up and deployed its own fact-finding mission to Ukraine to investigate the causes and circumstances of the situation. *EU Sends Fact-Finding Mission to Ukraine Amid Gas Standoff*, Deutsche Welle, 5.01.2009, <http://www.dw.de/eu-sends-fact-finding-mission-to-ukraine-amid-gas-standoff/a-3921896>.

<sup>170</sup> For more see: A. Górka, W. Konończuk, *Gazowe fiasko Julii Tymoszenko w Moskwie*, „Tydzień na Wschodzie” (dalej: „TnW”), 26.02.2008, <http://www.osw.waw.pl/pl/publikacje/tydzien-na-wschodzie/2008-02-27/gazowe-fiasko-julii-tymoszenko-w-moskwie>. Por.: Tymczasowe zawieszenie ukraińsko-rosyjskich sporów gazowych, „TnW”, 15.04.2008, <http://www.osw.waw.pl/pl/publikacje/tydzien-na-wschodzie/2008-04-16/tymczasowe-zawieszenie-ukraińsko-rosyjskich-sporow-gazowy> oraz A. Górka, P. Wołowski, *Ukraińsko-rosyjskie porozumienie gazowe*, „TnW”, 18.03.2008, <http://www.osw.waw.pl/pl/publikacje/tydzien-na-wschodzie/2008-03-19/ukraińsko-rosyjskie-porozumienie-gazowe>.

<sup>171</sup> B. Cichocki, P. Świeżak, *Co Polska może na Wschodzie? Raport*, „Bezpieczeństwo Narodowe” BBN, issue I-II-2008/7-8, p.69. Por.: M. Greszta, *Prasa rosyjska o wizycie Tuska w Moskwie*, „Gazeta.pl”, 08.02.2008, <http://wiadomosci.gazeta.pl/wiadomosci/1,114873,4911801.html>.

<sup>172</sup> Prezydencja UE: spór gazowy to problem Rosji i Ukrainy, *Finanse WP*, 2.01.2009, <https://finanse.wp.pl/prezydencja-ue-spor-gazowy-to-problem-rosji-i-ukrainy-6114152487896705a>.

cut off supplies to those EU countries that were supplied with gas transiting through Ukraine, which it did. On January 7, 2009, Slovakia declared a state of emergency in the economy due to a 70% drop in Russian gas supplies. The main Slovak transmission and receiving station in Velké Kapušany had to be closed<sup>173</sup>.

This experience has shown that the conflict between Kiev and Moscow and the interruption or reduction of blue fuel supplies from Russia to Ukraine threaten to seriously disrupt its transit and supplies to numerous EU countries, including Slovakia, the Czech Republic and Hungary. In 2009, there were even joint EU-Ukrainian projects to deal with possible new crises of this type. However, the financial problems of the eurozone, eliminating the prospect of a more serious involvement of the EU in solving Ukraine's gas problem, and the indolence of the authorities in Kiev meant that they remained in the sphere of declarations<sup>174</sup>. It is in the context of these events's memory, the awareness of the existing negligence and the growing tension, and then the war between Ukraine and Russia, that the problem of Ukraine's economic stabilization was presented in the declaration of the European Council of May 27 as a task also for the Russian Federation<sup>175</sup>. Thus, it was included in the matter of EU-Russia relations under the slogan of acting for Kiev, but in fact it was about the stability of Russian gas supplies to EU member states.

The Visegrad Group, meanwhile, made its own declarations and plans (albeit regarding actions planned within the EU) in matters of energy security. On January 25, 2011 in Bratislava, the ministers of the V4 countries competent in matters of energy, adopted a declaration<sup>176</sup>, in which they expressed their support for further Visegrad cooperation in the field of energy and formulated numerous demands to increase the energy security of the region, including a plan to build an infrastructural connection between the then planned LNG terminal in Świnoujście and its counterpart on the Croatian island of Krk in the Adriatic. In 2015, this project became one of the pillars of the Three Seas Initiative. As part of the North-South Gas Corridor, e.g. interconnectors: Polish-Czech (completed in 2011) and Polish-Slovak (completed in 2022). In mid-December 2010, a connector was launched on the Croatian-Hungarian border, and on January 28, 2011,

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<sup>173</sup>Słowacja bez gazu. Stan wyjątkowy w gospodarce, money.pl 7.01.2009, <https://www.money.pl/gospodarka/polityka/arttykul/slowacja:bez:gazu:stan:wyjatkowy:w:gospodarce,205,0,413133.html>. Por.: Słowacja wprowadziła stan wyjątkowy w gospodarce, Bankier.pl, 7.01.2009, <https://www.bankier.pl/wiadomosc/Slowacja-wprowadzila-stan-wyjatkowy-w-gospodarce-1887857.html>.

<sup>174</sup> For more see: P. Żurawski vel Grajewski, *Giedroyc na jagiellońskim szlaku Prometeusza, czyli polska polityka wschodnia w latach 1989-2013*, [w:] *Projekt „Polska”. Silne i bezpieczne państwo?* red. A. Antczak-Barzan, Warszawa 2014, Vizja Press & IT, p. 291-292.

<sup>175</sup> *Statement of the Heads of State or Government on Ukraine*, Brussels, 27 May 2014, Council of the European Union, Brussels, 27 May 2014, p. 1-3.

<sup>176</sup> *Declaration of V4 Energy Ministers, Bratislava, 25 January 2011*, Visegrad Group, <https://www.visegradgroup.eu/2011/declaration-of-v4-energy>.



the Prime Ministers of Slovakia and Hungary signed an agreement on the construction of a gas interconnector connecting the two countries<sup>177</sup>.

Russia's position on the energy market in the Visegrad Group countries after their accession to the EU was determined, on the one hand, by EU legal regulations (the so-called energy packages adopted in EU legislation), and on the other hand, the security of supply for the V4 seemed to be largely guaranteed by the transit location of these countries, causing, in the event of their mutual solidarity (transmission routes run, as mentioned, either through Belarus and Poland, or through Ukraine, Slovakia and the Czech Republic), making it physically impossible to cut them off for a long time from Russian supplies, without at the same time cutting off the powerful countries of the "old" union. The Hungarian-Russian energy cooperation, launched in March 2006, in the field of building storage facilities for Russian gas in Hungary, which could supply the countries of the "old 15" in the period of possible blackmailing of the "new" EU members, broke the Visegrad energy solidarity before it managed to be truly born. Projects to build the trans-Baltic gas pipeline Nord Stream 1, which were supported by Brussels during the discussed period as part of the energy dialogue with Russia, threatened to destroy the guarantee provided by the Central European transit monopoly and to increase the sensitivity of the countries located in this region to Moscow's political pressure, related to energy blackmail in line with a scenario repeatedly used by the Kremlin in the CIS and Bulgaria. Germany's successful efforts to exclude Nord Stream 1 and 2 from EU law and to provide the Russians with the lion's share of the Opal transmission capacity<sup>178</sup> created a system of bypassing Central European transit countries.

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<sup>177</sup> Information on the Visegrad Group, Office of International Affairs and the European Union, Chancellery of the Senate, June 2012, p.12. See also: The North-South Gas Corridor as a Priority of the Visegrad Group, OSW Analyzes, 2.02.2011, <https://www.osw.waw.pl/pl/publikacje/analizy/2011-02-02/korytarz-gazowy-polnoc-poludnie-priorytetem-grupy-wyszehradzkiej>.

<sup>178</sup> Komisja ustąpiła Gazpromowi ws. OPAL, „Biznes Alert”, 28 October 2016, <https://biznesalert.pl/komisja-ustapila-gazpromowi-ws-opal/>.

**Map No.5. Nord Stream 1 and 2 and the Opal gas pipeline - a German-Russian system for bypassing transit countries in Central Europe**



Source: W. Jakóbiak: Rozstrzygnięcie sporu o OPAL może ustawić rynek na 15 lat, „Biznes Alert”, 7 February 2017, <https://biznesalert.pl/jakobik-rozstrzygniecie-sporu-o-opal-moze-ustawic-rynek-15/>.

## 5. Gas from Russia in the shadow of the war in Ukraine

The Russian aggression in Crimea and Donbas had an obvious impact on the issues of gas transit through Ukraine, and thus along the route leading to Slovakia, the Czech Republic and Hungary. On April 10, 2014, in a special letter addressed to 18 EU countries, including Poland, Putin personally called on them to get involved in this matter<sup>179</sup>, unambiguously threatening to suspend the supply of "blue fuel" to Ukraine.

<sup>179</sup> The letter also contained meticulous financial calculations, according to Russia, showing the scale of Ukrainian commitments and Russian goodwill. Обращение Президента России к лидерам ряда иностранных государств, Президент России, Новости, 10 апреля 2014 года, <http://kremlin.ru/news/20751> (access: February 15, 2015). For an overview of the letter, see: "Gazowy" list Putina. Ekspert: Majstersztyk rosyjskiej dyplomacji, tvn24, 10 April 2014, <http://www.tvn24.pl/wiadomosci-ze-swiata,2/gazowy-list-putina>.

Implicitly, however, this meant problems in the transit of gas pumped through the territory of this country to the EU countries, including the V4 countries, in the absence of a Russian-Ukrainian agreement, naturally concluded on the Kremlin's terms, which, according to Russia, should be enforced on Kyiv by the addressees of the discussed letter. Poland's initial reaction to this step was quite vague, and Warsaw's expectation that the answer would be given on behalf of the entire Union, and not just the addressees of the discussed document selected by Moscow, was as clear as it was politically reasonable<sup>180</sup>.

About 70-80% of the blue fuel sent from Russia to the EU was pumped through this route<sup>181</sup> (in 2013, Russia exported 137.64 billion m<sup>3</sup> of gas to the EU<sup>182</sup>, and in 2010 as much as 95 billion m<sup>3</sup> was sent to EU consumers via gas pipelines through Ukraine<sup>183</sup>. The commissioning of Nord Stream reduced this dependency somewhat<sup>184</sup>, but did not deprive Ukraine of its position as the main transit country for Russian gas). From the perspective of EU consumers of this raw material, transit through this country provides them with supplies of approx. 20-25% of their annual gas demand<sup>185</sup>. It is for this reason that even in the times of Viktor Yanukovich, the EU sought to transform that country into the main gas distributor for Europe<sup>186</sup>.

In the winter of 2014/2015, due to the next acute Ukrainian-Russian gas crisis accompanying the beginning of the war between the two countries, the role of the Visegrad Group countries (although not V4 as a cooperation format) in the ongoing game between Moscow and Kiev turned out to be crucial. Ukraine, apart from saving measures and increasing its own production, has made intensive efforts to launch supplies from directions other than Russia. Although the raw material itself was still mainly Russian, it was pressed from outside Russia through reverse flows from Slovakia,

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[putina-ekspert-majstersztyk-rosyjskiej-dyplomacji.417362.html](http://putina-ekspert-majstersztyk-rosyjskiej-dyplomacji.417362.html). Por.: D. Malinowski, *Putin o długu Ukrainy za gaz: sytuacja jest krytyczna*, wnp.pl Portal Gospodarczy, 10.04.2014, [http://gazownictwo.wnp.pl/putin-o-dlugu-ukrainy-za-gaz-sytuacja-jest-krytyczna.223192\\_1\\_0\\_0.html](http://gazownictwo.wnp.pl/putin-o-dlugu-ukrainy-za-gaz-sytuacja-jest-krytyczna.223192_1_0_0.html). See also: UE zamierza odpowiedzieć na „gazowy” list prezydenta Rosji, wnp.pl Portal Gospodarczy, 11.04.2014, [http://gazownictwo.wnp.pl/ue-zamierza-odpowiedzic-na-gazowy-list-prezydenta-rosji.223242\\_1\\_0\\_0.html](http://gazownictwo.wnp.pl/ue-zamierza-odpowiedzic-na-gazowy-list-prezydenta-rosji.223242_1_0_0.html). Grzegorz Schetyna, at that time, not yet the head of the Polish Ministry of Foreign Affairs, he considered Putin's letter a sign of the Kremlin's weakness. Grzegorz Schetyna: list prezydenta Putina to przejaw słabości Rosji, WP Wiadomości, 11.04.2014, <http://wiadomosci.wp.pl/kat,1342,title,Grzegorz-Schetyna-list-prezydenta-Putina-to-sygnał-bezradności-Rosji,wid,16532786,wiadomosc.html?ticaid=114237&ticsn=3>.

<sup>180</sup> Polish Foreign Minister Radosław Sikorski, referring to this letter in an interview for TVN 24, stated that "Russia should firstly recognize the Ukrainian government, secondly - agree with it a fair market price of gas and the conditions for the transit of Russian gas through Ukraine to EU countries." and added that a joint response would be provided by "the European institutions, probably President (of the European Commission José Manuel) Barroso, or President of the (European Council) Herman van Rompuy". *Unia Europejska wspólnie odpowie na list Putina*, tvn24, 12 kwietnia 2014, <http://www.tvn24.pl/wiadomosci-ze-swiata,2/unia-europejska-wspolnie-odpowie-na-list-putina.417984.html>.

<sup>181</sup> M. Kaczmarek, *Bezpieczeństwo energetyczne Unii Europejskiej*, Warsaw 2010, Wydawnictwo Akademickie i Profesjonalne, p. 42. Por.: A. Szeptycki, *Ukraina wobec Rosji...*, p. 183.

<sup>182</sup> S. Kardaś, *Przeciąganie liny. Rosja wobec zmian na Europejskim rynku gazu*, „Prace OSW”, issue 50, Warsaw, September 2014, p. 8.

<sup>183</sup> P. Żurawski vel Grajewski, *Strategia Federacji Rosyjskiej wobec państw basenu Morza Bałtyckiego*, „Analizy Natolińskie”, 4(52), 2011, p. 17.

<sup>184</sup> Gazprom zapowiada spadek tranzytu gazu przez Ukrainę, „Analizy OSW”, 1.06.2011, <http://www.osw.waw.pl/pl/publikacje/analizy/2011-06-01/gazprom-zapowiada-spadek-tranzytu-gazu-przez-ukraine>.

<sup>185</sup> A. Szeptycki, *Stosunki pomiędzy Federacją Rosyjską a Ukrainą w sektorze gazowym...*, p. 103.

<sup>186</sup> UE chce by Ukraina stała się europejskim hubem gazowym, cire.pl, Energy Market Information Centre, 3.05.2013, <http://www.cire.pl/item,75533,1,0,0,0,0,0,ue-chce-by-ukraina-stala-sie-europejskim-hubem-gazowym.html>.

Hungary and Poland<sup>187</sup>, and the key here was the agreement with Bratislava, not without difficulty and with the participation of the European Commission pressing on Slovakia<sup>188</sup>. As a result, on 2 September 2014 reverse supplies were launched via the Vojany-Uzhhorod gas pipeline, with a volume of 9.85 bcm per year (about 40% of the raw material previously imported directly from Russia) at a competitive price, i.e. lower than the USD 385 required by Gazprom<sup>189</sup>. Ukraine has also signed contracts with several Western companies for the supply of gas via this route (including a contract with the state-owned Norwegian gas company Statoil for the transmission of 15 million cubic meters of gas per day, starting from 1 October<sup>190</sup>). At the same time, Slovakia continued to play a key role in supplying the EU with gas. Therefore, the memorandum signed on April 28, 2014 in Bratislava also included provisions on the continuity of transit supplies via Ukraine and Slovakia to the EU<sup>191</sup>.

Poland, although it had less infrastructural possibilities of gas reverse flow for Ukraine than Slovakia, under the influence of this experience began to rapidly increase them. When a year and a half later, at the end of November 2015, Ukraine finally gave up gas purchases from Gazprom, in the following year - 2016, PGNiG exported 370 million m<sup>3</sup> of "blue fuel" to this country, and in 2017 it increased this export by over 89% to 700 million m<sup>3</sup> of gas<sup>192</sup>. In the next crisis, Poland's reaction was quick and decisive. On March 2, 2018, PGNiG signed a contract with Naftogaz for emergency gas supplies, after Gazprom refused to supply "blue fuel" to Ukraine<sup>193</sup>. Gas supplies from Poland (in addition to supplies from Slovakia and Hungary) were mentioned by President Petro Poroshenko the very next day as one of the decisive factors enabling the stabilization

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<sup>187</sup> The maximum capacity of gas pipelines from Poland and Hungary is 1.5 bcm and 5.5 bcm, respectively. J. Groszkowski, W. Konończuk, op.cit.

<sup>188</sup> The subject of further Slovak-Ukrainian dispute is the launch of the reverse flow on the Brotherhood gas pipeline, the main transit route for Russian gas to the west. Kiev is seeking Bratislava's consent for a reverse route on this route, as its scale would be of decisive strategic importance. The capacity of this gas pipeline makes it technically possible to import up to 30 billion m<sup>3</sup> of gas annually from the EU direction. However, Slovakia has been rejecting Ukrainian efforts for many months, hiding behind the provisions of the Slovak-Russian gas contract. J. Groszkowski, W. Konończuk, op.cit.

<sup>189</sup> E. Corner, *Vojany-Uzhorod pipeline inaugurated*, Energy Global's World Pipelines, 03/09/2014, <http://www.energyglobal.com/pipelines/business-news/03092014/Vojany-Uzhorod-pipeline-inaugurated/> (dostęp: 16.02.2015). Por.: *Vojany-Uzhgorod gas pipeline to reach maximum capacity in October 2014*, "Kyiv Post", 28 April 2014, <http://www.kyivpost.com/content/business/vojany-uzhgorod-gas-pipeline-to-reach-maximum-capacity-in-october-2014-345468.html> (access: 15.02.2015).

<sup>190</sup> S. Kardaś, W. Konończuk, A. Łoskot-Strachota, *Negocjacje gazowe Ukraina-Rosja-UE: wojna pozycyjna*, „Analizy OSW”, 8.10.2014, <http://www.osw.waw.pl/pl/publikacje/analizy/2014-10-08/negocjacje-gazowe-ukraina-rosja-ue-wojna-pozycyjna>. Por.: *Media: Ukraina podpisała kontrakt gazowy z Norwegią*, BIS, <http://www.studium.uw.edu.pl/?post/19562> and *Norway's Statoil sells gas to Ukraine's Naftogaz*, Reuters, Oct 3.2014, <http://www.reuters.com/article/2014/10/03/ukraine-crisis-statoil-idUSL6N0RY2UC20141003>.

<sup>191</sup> Меморандум щодо реверсу природного газу зі Словаччини в Україну підписано, Національна акціонерна компанія Нафтогаз України, 28.04.2014, <http://www.naftogaz.com/www/3/nakweb.nsf/0/D407E9866FA2D1B1C2257CC800539597?OpenDocument&year=2014&month=04&nt=Новини&> (access: 16.02.2015). Por.: *Negocjacje gazowe 2 maja w Warszawie*, Onet.biznes, 29 April 2014, <http://biznes.onet.pl/wiadomosci/energetyka/negocjacje-gazowe-2-maja-w-warszawie/gxmyk>.

<sup>192</sup> Польща за рік удвічі збільшила поставки газу до України, УНІАН, 10 січня 2018, <https://economics.unian.ua/energetics/2339032-polscha-za-rik-udvichi-zbilshila-postavki-gazu-do-ukrajini.html>.

<sup>193</sup> Польська PGNiG почала термінові поставки газу в Україну, „Економічна правда”, 2 березня 2018, <https://www.epravda.com.ua/news/2018/03/2/634643/>.

of the country's supplies of this raw material, and thus a positive resolution of another gas dispute with Russia<sup>194</sup> initiated by the Kremlin two days earlier<sup>195</sup>.

Before that happened, in 2014, having faced the challenge of ensuring Ukraine's reverse gas supplies from Slovakia, Hungary and Poland, Russia launched a counter-offensive. It drastically reduced the transport of raw materials to Slovakia. In September 2014, deliveries to SPP fell by an average of 15%, and in October by 50%. It was a cunning game on Moscow's part. It led to a reduction in the amount of gas available on the EU market and thus to an increase in its prices on European stock exchanges, which made it difficult for Ukraine to obtain blue fuel on western markets at a price competitive to that offered to Kiev by Gazprom under a long-term contract. The increased costs of the Kremlin's policy have also started to be borne by other recipients in Central Europe (primarily Slovakia), forced to purchase more expensive gas on spot markets. As usual, Gazprom explained the situation with technical problems and the procedure of filling the warehouses<sup>196</sup>, which, however, was rightly recognized by the Prime Minister of Slovakia, Robert Fico, as unreliable. Bratislava was forced to secure access to alternative directions of gas imports from Austria and Germany via the Czech Republic. In this way, SPP could meet 30% of the daily gas consumption in the country. In addition, Slovakia had almost full warehouses. The earlier, above-mentioned pressure of the European Commission on Bratislava regarding its consent to the gas agreement on the reverse to Ukraine and the resulting dispute with the Slovak-Russian side and the related costs incurred by Slovakia became the basis for the latter's efforts to compensate them by the European Commission. At the same time, the SPP avoided entering into a formal dispute with Gazprom (e.g. before the Court of Arbitration – as Naftogaz did). At the same time, Bratislava declared that it would keep the agreement with Kiev, hoping that this attitude would help it obtain EU compensation for increased expenses for gas from spot markets, and would ensure stability of supplies from the West should the gas crisis in relations with Russia worsen<sup>197</sup>. Action followed this declaration. On 4 November, the operator of Slovak gas pipelines, Eustream,

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<sup>194</sup>Prezydent Ukrainy: sytuacja z dostawami gazu ustabilizowana, PAP, 3.03.2018, <http://www.pap.pl/aktualnosci/news,1313021,prezydent-ukrainy-sytuacja-z-dostawami-gazu-ustabilizowana.html>. Por.: Газова ситуація в Україні стабілізувалася – Порошенко, „Економічна правда”, 3 березня 2018, <https://www.epravda.com.ua/news/2018/03/3/634663/>.

<sup>195</sup>„Газпром” розриває контракти з „Нафтогазом” – Міллер, „Економічна правда”, 2 березня 2018, <https://www.epravda.com.ua/news/2018/03/2/634637/> and: Заява Газпрому - це заява на публіку – юрист, 2 березня 2018, „Економічна правда”, <https://www.epravda.com.ua/news/2018/03/2/634655/>. Por.: P. Marzec, Gazprom zrywa kontrakty gazowe z Ukrainą. Na wschód gaz wysyła PGNiG, RFM24, 2 March 2018, <http://www.rmfm24.pl/fakty/swiat/news-gazprom-zrywa-kontrakty-gazowe-z-ukraina-na-wschod-gaz-wysyl.nld,2552399>.

<sup>196</sup> See the propaganda transcript of Alexei Miller's conversation with Vladimir Putin on this subject published on Gazprom's website: «Газпром» поставяет газ в Европу в рамках контрактных обязательств, Пресс-центр/Новости «Газпрома», Релиз, 17 сентября 2014, <http://www.gazprom.ru/press/news/2014/september/article201356/>.

<sup>197</sup>J. Groszkowski, A. Sadecki, Słowacja i Węgry wobec dostaw gazu na Ukrainę, „Analizy OSW”, 8.10.2014, <http://www.osw.waw.pl/pl/publikacje/analizy/2014-10-08/slowacja-i-wegry-wobec-dostaw-gazu-na-ukraine>.



announced the start of work on increasing their capacity from the then 9.8 billion m<sup>3</sup> annually to 14.3 billion m<sup>3</sup>, which was to be achieved at the beginning of 2015<sup>198</sup>.

However, Hungary behaved differently under Russian pressure. On September 25, 2014, gas supplies to Ukraine ceased<sup>199</sup>, which resulted in an increase in gas transmission from Russia by 1/3. The closing of the reverse took place three days after the meeting between Prime Minister Viktor Orbán and Gazprom CEO Alexei Miller in Budapest<sup>200</sup>. Naftogaz described the decision as "unexpected and unexplained"<sup>201</sup>. The Hungarians cited the increased demand for raw material from Russia as the reason for it, caused by the need to fill warehouses for the winter, which they did - as they emphasized - in accordance with EU recommendations. However, this translation is not reliable. As a result of earlier neglect, these storage facilities held only 3.8 bcm of gas at the end of September 2014, so they were only 62% full. However, these reserves were sufficient. The annual consumption of gas in Hungary is approximately 9.3 billion m<sup>3</sup> and is partly covered by supplies from Austria. Thus, the country enjoyed a high level of gas security even in the event of suspension of supplies of Russian gas through Ukraine. Prime Minister Orbán's declarations about Hungary's solidarity with Ukraine, "but not at the expense of its own energy security", were therefore unconvincing. Fortunately, Budapest's attitude was not decisive for Ukraine's position in its gas conflict with Russia. In the previous months, Kyiv imported less gas from Hungary than the capacity of the gas pipelines allowed. On the other hand, it was the summer months. In winter, the importance of deliveries from the Hungarian reverse could increase<sup>202</sup>. The direct aim of the Russian energy and negotiation game was to slow down reverse supplies of Russian gas from the EU to Ukraine. Russia's tool of economic pressure on the EU was the supply of blue fuel to selected EU importers at a level lower than the orders placed by them. With regard to the Visegrad Group countries, due to Hungary's adaptation to the Russian policy and the geographical location of the Czech Republic, this action affected primarily Slovakia, but also, although to a lesser extent, Poland, as both countries continued reverse supplies of gas to Ukraine.

In the winter of 2014-2015, Moscow's action to force the end of the reverse flow of Russian gas from the west turned out to be ineffective, mainly due to Bratislava's

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<sup>198</sup> S. Kardaś, W. Konończuk, A. Łoskot-Strachota, op.cit. Por.: Eustream announces the Open Season procedure, Media News, Eustream Slovak Gas TSO, 4.11.2014, [http://www.eustream.sk/en\\_media/en\\_news/6](http://www.eustream.sk/en_media/en_news/6).

<sup>199</sup> Після зустрічі з Газпромом Угорщина зупиняє потік газу в Україну, Національна акціонерна компанія Нафтогаз України, 25.09.2014, <http://www.naftogaz.com/www/3/nakweb.nsf/0/68C29121CE52AE2EC2257D5E00784649?OpenDocument&year=2014&month=09&nt=Новини&>.

<sup>200</sup> Проектировщик венгерского участка «Южного потока» в направлении Баумгартена будет выбран до конца октября, Пресс-центр/Новости «Газпрома», Релиз, 22 сентября 2014, <http://www.gazprom.ru/press/news/2014/september/article201737/>.

<sup>201</sup> Węgry znów wysyłają gaz Ukrainie. Po kilku miesiącach przerwy, TVN24, 12.01.2015, <http://www.tvn24.pl/wiadomosci-ze-swiatea,2/wegry-wznowily-dostawy-gazu-na-ukraine,505087.html>.

<sup>202</sup> J. Groszkowski, A. Sadecki, op.cit. In 2013, Ukraine purchased 600 million cubic meters of gas from Hungary. Hungary sends gas to Ukraine again...

attitude, pressured by the European Commission to maintain its tenacity against Gazprom's pressure. Deliveries from Poland - maintaining gas solidarity with Ukraine and their interruption by Hungary - susceptible to Russian suggestions, were not of decisive importance. The Czech Republic remained completely out of the game, as it was not a neighbor of Ukraine and did not decide on a possible reverse. However, the basic conclusion regarding the Visegrad Group was pessimistic. It did not retain even the smallest traces of solidarity in its reaction to the situation. Each state acted separately, with Poland and Slovakia (with the leading role of the latter resulting from the existing material infrastructure) acting in the same direction, and Hungary in the opposite direction.

## **6. Towards the Three Seas Initiative - intensification of cooperation between Central European countries on the security of gas supplies after 2015**

The Russian aggression in Ukraine and the resulting perturbations in the supply of gas transited through the invaded country made the governments of Central European countries aware of the urgent need to ensure the security of supplying stable and safe natural gas supply routes and sources. The Visegrad Group countries were active in this field, but the main forum for regional infrastructural cooperation was not the Visegrad Four, but a broader format - the Three Seas Initiative (IT)<sup>203</sup>.

Established in 2015 by 12 countries of Central Europe, including all the Visegrad Group countries, IT adopted infrastructural cooperation in the energy, transport and communication and digitization dimensions as its goal. The connection of the gas systems of the area between the Baltic, Black and Adriatic Seas is therefore one of the three most important areas of cooperation within the Three Seas Initiative. However, the countries of the Visegrad Group, apart from Poland, have not shown much interest in IT so far, although they have participated in its work. The energy dimension played an important role here.

Hungary has been strengthening its reinsurance system against the threat of cutting off Russian gas, among others, with the help of projects implemented under the Three Seas Initiative. From the point of view of Budapest, the most important of them, as reported by Hungary itself as the leading country in this project, is the plan for the extraction of

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<sup>203</sup> More about the Three Seas Initiative see: P. Żurawski vel Grajewski, *Trimarium—Omnes viae Europam ducunt*, "Trójmorze", 1/2021, p.5-26. <https://trimarium.pl/prof-zurawski-vel-grajewski-wszystkie-drogi-prowadza-do-trojmorza/>. Por.: A. Orzelska-Stączek, *Inicjatywa Trójmorza w świetle teorii realizmu. Polityczne aspekty nowej formy współpracy dwunastu państw*, „Sprawy Międzynarodowe”, issue 1/2019, p. 131-155. P. Kowal, A. Orzelska-Stączek, *Inicjatywa Trójmorza: geneza, cele i funkcjonowanie*, 3 East of the West Wschód Zachodu, Warsaw 2019, p.90 i G. Zbińkowski, *The Three Seas Initiative and its Economic and Geopolitical Effect on the European Union and Central and Eastern Europe*, Comparative Economic Research. Central and Eastern Europe, Vol. 22, No 2, 2019, p.105-119.

unconventional gas, initiated somewhat late in 2020, the significant resources of which are at the disposal of Hungary itself. The project, valued at \$200 million, has not yet progressed beyond the planning phase. It was to be implemented in cooperation between Hungary, Austria, Romania and Slovakia, and with the participation of Ukraine and Serbia as partner countries. It is hard to guess how the current war in Ukraine will affect the further fate of this undertaking. However, the fact remains that it was undertaken with the explicit intention of reducing the dependence of the participating countries on Russian gas<sup>204</sup>.

During the Hungarian presidency of the Visegrad Group in 2017, Budapest pushed for the revitalization of the Eastern Partnership, but with a focus on Armenia and Azerbaijan, with the intention of concluding a strategic partnership in the field of energy between them and the European Union, which would enable the transmission of energy resources from the Caspian Sea basin. Given the state of Armenian-Azerbaijani relations, this project was hardly realistic<sup>205</sup>. Hungary, however, tried to interest the V4 in the concept of diversifying gas supplies by building a corridor connecting it with the Trans-Anatolian Gas Pipeline (TANAP), which was supposed to provide access to this raw material from Azerbaijan<sup>206</sup>. Other projects were not initiated by Hungary, although Budapest participated in them only not in cooperation with the Visegrad Group countries, but within the broader framework of the Three Seas Initiative. This category of projects includes the BRUA project (Bulgaria, Romania, Hungary, Austria), which is to ensure gas supplies from the Black Sea basin to the above-mentioned countries. This project is in fact mainly Romanian and Hungary participates in it but is not the lead partner<sup>207</sup>. Another example is the Omišalj-Zlobin interconnector leading from the island of Krk to mainland Croatia and enabling further gas transmission to the Hungarian-Croatian border, which has been under construction since 2018, completed in 2019 and already put into operation. Its annual capacity is 1.7 billion m<sup>3</sup>. The entire cost - €25 million - was covered from own funds<sup>208</sup>.

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<sup>204</sup> *Extraction of unconventional gas*, Three Seas Projects, <https://projects.3seas.eu/projects/extraction-of-unconventional-gas>.

<sup>205</sup> More on the Armenian-Azerbaijani conflict and its further development see: P. Żurawski vel Grajewski, *Kampania jesienna 2020 r. wojny azersko-ormiańskiej – uwarunkowania historyczne i skutki polityczne*, [w:] *Armenia and Azerbaijan: post-conflict realities & peace-building*, „Studia Wschodnioeuropejskie”, issue 14/2021, p. 66-94.

<sup>206</sup> V. Jóźwiak, op.cit., p.2.

<sup>207</sup> BRUA, Three Seas Projects, [https://projects.3seas.eu/projects/brua-development-on-the-territory-of-romania-of-the-national-gas-transmission-system-along-the-corridor-bulgaria-romania-hungary-austria-\(brua-phase-1-and-2\)-and-enhancement-of-the-bidirectional-gas-transmission-corridor-bulgaria-romania-hungary-austria-\(brua-phase-3\)-and-the-development-on-the-territory-of-romania-of-the-southern-gas-transmission-corridor-for-taking-over-gas-from-the-black-sea-shore-\(black-sea-podisor\)](https://projects.3seas.eu/projects/brua-development-on-the-territory-of-romania-of-the-national-gas-transmission-system-along-the-corridor-bulgaria-romania-hungary-austria-(brua-phase-1-and-2)-and-enhancement-of-the-bidirectional-gas-transmission-corridor-bulgaria-romania-hungary-austria-(brua-phase-3)-and-the-development-on-the-territory-of-romania-of-the-southern-gas-transmission-corridor-for-taking-over-gas-from-the-black-sea-shore-(black-sea-podisor)).

<sup>208</sup> *Compressor station 1 at the Croatian gas transmission system*, Three Seas Projects, <https://projects.3seas.eu/projects/compressor-station-1-at-the-croatian-gas-transmission-system>.



**Map No. 6. Omišalj-Zlobin interconnector connecting the LNG terminal on the island of Krk with the coast of Croatia**



Source: *Construction works for the LNG Evacuation Gas Pipeline section Omišalj-Zlobin*, 6.5.1-0014-HR-W-M-17, North-South gas interconnections in Central Eastern and South Eastern Europe, Innovation And Networks Executive Agency, <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/6.5.1-0014-hr-w-m-17>.

The Eastring project, on the other hand, is in the planning phase - a gas transit route from the Black Sea and Caspian Sea basins, leading - depending on the version - from Malçoçlar on the Turkish-Bulgarian border to the Hungarian-Slovak border - i.e. to the interconnector in Velki Zlievce or the Polish-Slovak with the interconnector in Velké Kapušany<sup>209</sup>.

Hungary's reluctance to give up supplies of Russian oil, despite having the technical and infrastructural capacity to do so<sup>210</sup> and Hungary's general attitude towards Russian aggression in Ukraine, disturb Budapest's relations with its neighbours. So far, this has not translated into the above-mentioned projects of becoming independent of Russian gas, but it undoubtedly raises distrust towards the Hungarian partner also in this dimension of joint energy projects.

<sup>209</sup> Eastring, Three Seas Projects, <https://projects.3seas.eu/projects/eastring>.

<sup>210</sup> W. Jakóbiak, *Kryzys przyjaźni Rosji i Węgier*, „Biznes Alert”, 10 August 2022, <https://biznesalert.pl/ropociag-przyjazn-przerwa-dostaw-czechy-slowacja-węgry-energetyka-ropa-sankcje-rosja/>.

The latest achievement in the field of infrastructural integration of the gas system within the Visegrad Group, and at the same time the Three Seas Initiative, is the completion of the construction on August 26, 2022 and the commissioning in October of the same year of the interconnector on the Polish-Slovak border in Strachocin. The installation has an annual capacity of 5.7 billion m<sup>3</sup> towards Poland and 4.7 billion m<sup>3</sup> towards Slovakia. Thanks to this gas connection, Poland gained infrastructural access to gas sources located in the countries of Southern Europe, North Africa and the Caucasus area, while Slovakia gained access to gas from the Baltic Pipe (Norwegian Shelf), the LNG Terminal in Świnoujście and the LNG Terminal in Klaipėda. The commissioning of the Strachocina – State Border gas pipeline was the final act in Poland of the entirety of the above-mentioned infrastructural project under the name North-South Corridor. Currently, this gas main consists of 15 gas pipelines with a total length of over 860 km, a gas hub in Strachocin and a new compressor station in Kędzierzyn-Koźle. The Poland-Slovakia interconnector (Strachocina - Velké Kapušany) is 61.3 km long on the Polish side and 106 km on the Slovak side. A fibre optic cable was laid along the gas pipeline, enabling remote monitoring of its operation and automation of control<sup>211</sup>. The project is part of a wider initiative implemented as part of the Three Seas Initiative by Poland, Slovakia and Ukraine, and connecting the system of Polish connections with Denmark and Norway via the Baltic Pipe with the Slovak and Ukrainian systems<sup>212</sup>.

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<sup>211</sup> Interkonektor gazowy Polska – Słowacja zbudowany, GAZ SYSTEM, 26.08.2022, <https://www.gaz-system.pl/pl/dla-mediow/komunikaty-prasowe/2022/sierpień/26-08-2022-gaz-system-interkonektor-gazowy-polska-slowacja-zbudowany.html>.

<sup>212</sup> Diversification of gas supply sources and integration of gas infrastructure in the Three Seas Region, Three Seas Projects, <https://projects.3seas.eu/projects/diversification-of-gas-supply-sources-and-integration-of-gas-infrastructure-in-the-three-seas-region-diversification-of-gas-supply-sources-and-integration-of-gas-infrastructure-in-the-three-seas-region-with-the-implementation-of-the-baltic-pipe-project-and-cross-border-interconnections-republic-of-poland-slovak-republic-and-republic-of-poland-ukraine>

**Map No. 7. Polish-Slovak interconnector Strachocina - Velké Kapušany**



Source: *Construction works for the Poland – Slovakia Gas Interconnection*, 6.2.1-0019-SKPL-W-M-16, North-South gas interconnections in Central Eastern and South Eastern Europe, Innovation And Networks Executive Agency, <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/6.2.1-0019-skpl-w-m-16>

Polish-Czech cooperation is less advanced in this respect. The planned interconnector, connecting the Polish and Czech gas systems, is to run from Libhošť (in the Czech Republic) to the Polish border in Hařta and further on the Polish side to Kędzierzyn Koźle. Its planned capacity from Poland to the Czech Republic is to be 5 billion m<sup>3</sup>, and from the Czech Republic to Poland 2.5 billion m<sup>3</sup>. The main investors are Gaz-System (Poland) and Netgas (Czech Republic)<sup>213</sup>.

<sup>213</sup>PL-CZ3 flatten, Gaz System.pl, [https://www.gaz-system.pl/fileadmin/pliki/inwestycje/ulotki/Interkonektor\\_Polska\\_-\\_Czechy.pdf](https://www.gaz-system.pl/fileadmin/pliki/inwestycje/ulotki/Interkonektor_Polska_-_Czechy.pdf)

**Map No. 8. Polish-Czech interconnector Libhošť-Kędzierzyn Koźle**



Source: Own study based on: Preparatory studies for the Poland-Czech Republic interconnection [known as Stork II] between Libhošť (CZ)- Hat (CZ-PL) – Kędzierzyn (PL), North-South gas interconnections in Central Eastern and South Eastern Europe, Innovation And Networks Executive Agency, <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/6.1.1-0054-czpl-s-m-14>.

Russia's large-scale aggression against Ukraine has opened a new chapter in the gas issue. The Visegrad Group also did not act in solidarity in this respect. Poland, the Czech Republic and Slovakia took a tough stance against Russia, supplying arms and gas to Ukraine and demanding tough sanctions against Russia. Hungary, on the other hand, sought to soften Brussels' stance towards Moscow and demanded exemptions for Hungary from the regime of EU sanctions imposed on Russia. However, neither the European Union nor any of the Visegrad Group countries proposed a ban on natural gas imports from Russia as sanctions. Although Poland itself, as mentioned, resigned from it, it did not demand it from others. Therefore, the issue of banning the import of Russian gas in the context of the reaction to Russia's attack on Ukraine was not discussed within the Visegrad Group.

## 7. Conclusions

The Visegrad Group has over thirty years of history. The issues of energy security, including the security of gas supplies, were not an area of integration for this group. Therefore, the countries belonging to it pursued a diversified gas security policy, moreover changing over time during those thirty years.

All four began their march towards gas independence from Russia from a position inherited from almost half a century of Soviet domination over our countries. It has inherited strong infrastructural ties with the Russian supplier in this field. Poland strengthened them even after the fall of communism by agreeing to the construction of the Yamal gas pipeline. Slovakia, on the other hand, was connected with Russia by the "Brotherhood" gas pipeline, operating since 1967 and being the main route for the transmission of Russian gas to the west. This gas pipeline was subject to all the upheavals associated with Russian-Ukrainian relations, until its section? was blown up in the Poltava region in June 2014<sup>214</sup>. The repaired pipeline continued to operate, but the uncertainty of supplies was obvious.

The year 2010 could be considered a breakthrough date for the emergence of the Visegrad Group, also as a format for cooperation in the sphere of gas policy of its member states, when the project of building the North-South Corridor was adopted at the V4 summit in Budapest. Its main promoter was Hungary, which, however, soon became involved in cooperation with Russia in the construction of the South Stream gas pipeline, having previously agreed to Russian gas storage facilities on its territory<sup>215</sup>. Another – this time a stronger breakthrough was 2014 – the year of Russia's aggression against Ukraine and thus the intensification of problems with the transit of Russian gas through this country to Europe, including the Visegrad Group countries. Both turning points of the V4 activation in terms of seeking an alternative to Russian gas were therefore related to Ukraine – the first with the Russian-Ukrainian "gas wars" of 2008-2009, which affected Slovakia in a particularly drastic way, the second with the aforementioned Russian military aggression in the Crimea and Donbass .

For the countries of the Visegrad Group, the V4 format was not a key forum for cooperation in the field of becoming independent from Russian gas supplies in previous years, although attempts to use this platform for this purpose took place in the years indicated. Individual Visegrad Group countries, if they took steps to become gas-

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<sup>214</sup> A. Ptak, *Eksplzja gazociagu „Braterstwo” na środkowej Ukrainie. Władze podejrzewają zamach*, Forsal.pl, 17 June 2014, <https://forsal.pl/artykuly/804443.eksplozja-gazociagu-braterstwo-na-srodkowej-ukrainie-wladze-podejrzewaja-zamach.html>.

<sup>215</sup> P. Turowski, op.cit., p.120-122.

independent from Russia, usually went beyond the format of the Visegrad Four. There are two main reasons for this:

- lack of gas deposits on a strategic scale (i.e. those that could ensure gas supplies not only to the country of production, but also to the neighboring countries) on the territory of the V4 countries. Shale gas deposits in Hungary do not solve the problem of the entire Visegrad Group;
- no access to the sea, except for one, Poland, which has it. This factor forced the remaining Visegrad Group countries either to seek gas independence from Russia by building interconnectors with Poland, which was chosen by neighbouring Slovakia and a little later the Czech Republic, or to look for alternative routes to the seas, which was done by Hungary, or through joint Balkan projects with Romania and Bulgaria towards the Black Sea and the Caspian Sea or with Croatia towards the Adriatic.

As a result, after 2015, the search for gas supply sources and routes alternative to Russia was more often in the Three Seas format than in the Visegrad format – if not formal, at least geographical.

The sea as a "gas window to the world" became such only in the first decade of this century, when, on the one hand, high prices of energy resources made the exploitation of shale deposits economically viable, and on the other hand, the development of gas liquefaction and regasification technologies, leading to it made the gas market more flexible at a cost acceptable to the economies of its recipient countries. The introduction of liquefied natural gas (LNG) to this market and its maritime transport made recipients independent from "rigid links" in the form of gas pipelines, binding the supplier with the recipient for many years. Gas pipelines, making it impossible to change the supplier without building a new time-consuming and expensive transmission infrastructure, made customers dependent on the gas extractor and distributor. If it was Russia, as in the present case, it entailed a high political risk. The appearance of LNG on the market, transported by gas ships, made the blue fuel market more flexible, making it similar in this respect to the market of crude oil, transported by tankers, and enabled countries with access to the sea to quickly diversify the directions and sources of supplies. Countries without a sea coast had to enter into cooperation with their neighbours with sea ports and LNG terminals. This was also done by individual countries of the Visegrad Four.

However, the Visegrad Group has so far failed to agree on a common gas policy towards Russia and Ukraine. Hungary's attitude does not allow us to be optimistic about the future of V4 policy coordination in this area either.

Poland, at least after 2015, has taken a firm course to get rid of any dependence on Russian gas supplies and in October 2022 it finally achieved this goal thanks to two key investments - Gazport in Świnoujście and the Baltic Pipe gas pipeline, which brings gas from Norwegian deposits. At the same time, these installations serve as the aforementioned "sea gas window to the world" for Slovakia and the Czech Republic, which have apparently already noticed this and have implemented (Slovakia) or are implementing (Czech Republic) projects of interconnectors connecting their gas systems with the Polish one, with the intention of using access to Russian gas, imported either to the LNG terminal in Świnoujście or via the gas pipeline to Niechorze. Hungary has a chance to take advantage of this route by implementing plans for interconnectors with Slovakia.

After 2015, the concept of mutually insuring entrances to the Central European gas pipeline system in the triangle Baltic (LNG terminal in Świnoujście) - Adriatic (LNG terminal on the Croatian island of Krk) - Black Sea (planned terminal in Romanian Constanța), presented as part of the Three Seas Initiative, has on the gas policy of the Visegrad Group countries, which are looking for supply routes alternative to Russia in these directions. Poland extended this system to the Baltic states, building and commissioning in May 2022 an interconnector connecting it with Lithuania<sup>216</sup>, while Hungary was looking for connections via Romania with an exit to Bulgaria, Turkey and Azerbaijan, or with Croatia with an exit to the Adriatic. The Czech Republic, and especially Slovakia, having a central geographical location, took advantage of this fact by connecting to both systems - Slovakia with the Polish one in Velké Kapušany and the Hungarian one in Velké Zlievce, while the Czech Republic was only planning to connect to the Polish gas network in Hať so far. All in all, this results in a fairly coherent system, but rather a Three Seas system than a Visegrad one.

This does not diminish the fact that the central geographical location of the Visegrad Group countries makes their participation in the Three Seas System a sine qua non condition for its success. In this sense, the cooperation of the Visegrad Four in the field of gas security, understood as getting rid of dependence on Russian gas supplies, is of key importance for the entire region.

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<sup>216</sup> GAZ-SYSTEM: Nowy Interkonektor gazowy Polska-Litwa od 1 maja przesyła gaz do Polski, Gaz System, 5.05.2022, <https://www.gaz-system.pl/pl/dla-mediow/komunikaty-prasowe/2022/maj/05-05-2022-gaz-system-nowy-interkonektor-gazowy-polska-litwa-od-1-maja-przesyla-gaz-do-polski.html>.

**Map No. 9. Polish-Lithuanian interconnector Hołowczyce - Jauniūnai**



Source: *Preparatory works for the Gas Interconnection Poland-Lithuania up to building permission(s) obtainment*, 8.5-0045-LTPL-S-M-14, North-South gas interconnections in Central Eastern and South Eastern Europe, Innovation And Networks Executive Agency, <https://ec.europa.eu/inea/en/connecting-europe-facility/cef-energy/8.5-0045-ltpl-s-m-14>

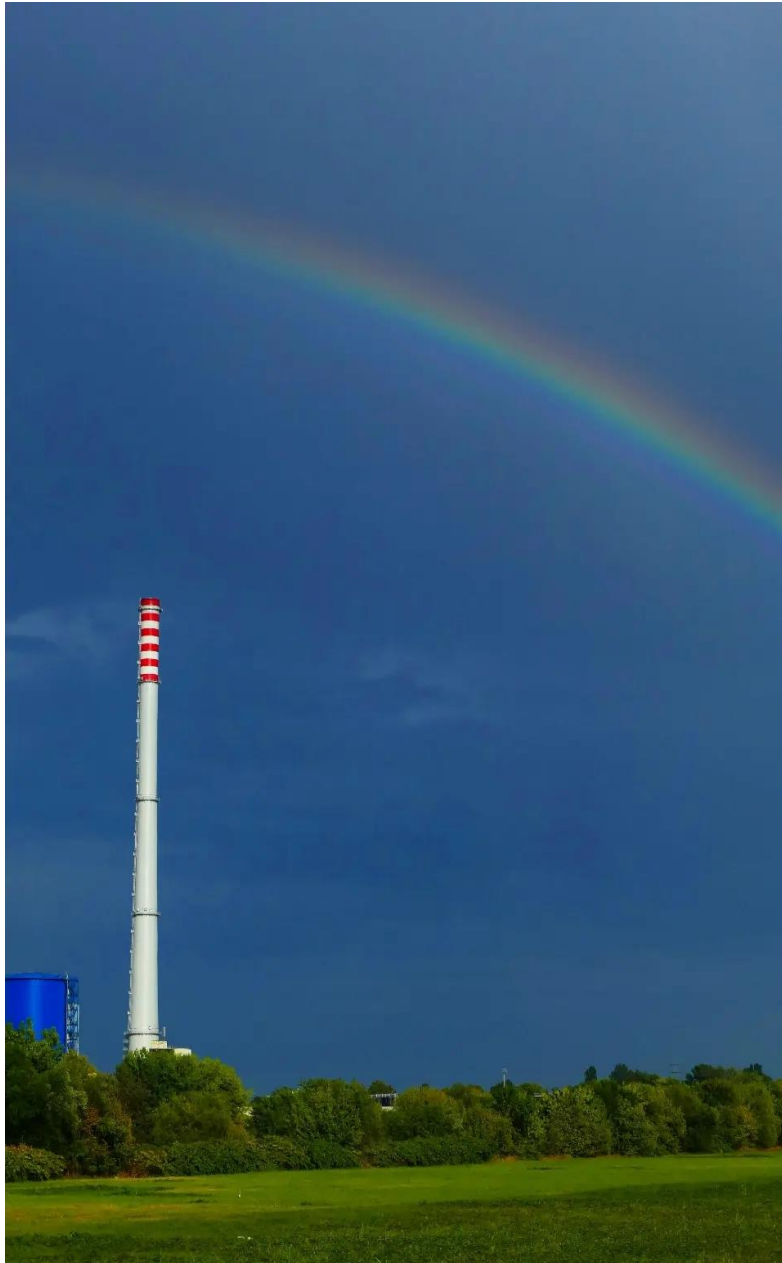


# **IV.**

## **Future of energy in CE between nuclear and hydrogen. Central Europe in the context of challenges**

**Ivan Hrستیć**

**Newspaper columnist, editor and reporter**



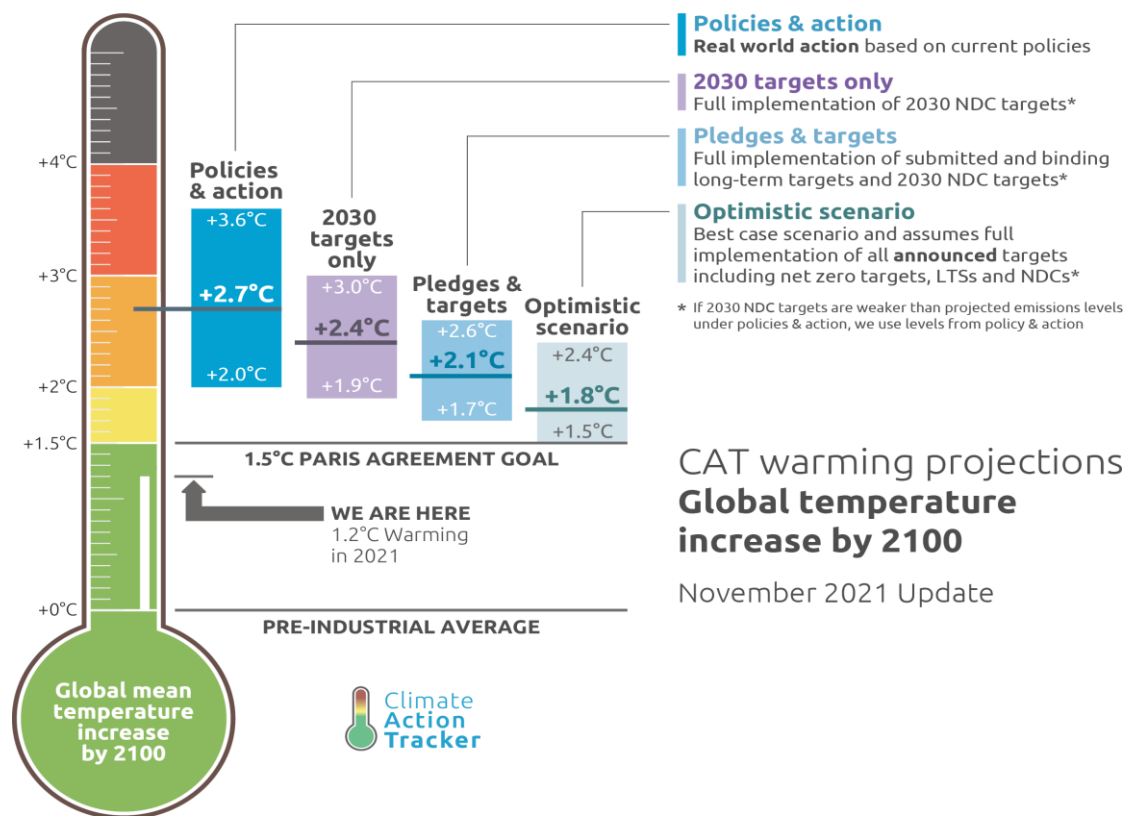
## **1. Climate changes and rapidly changing geopolitical context**

### **1.1. The promises of Glasgow**

It was only a year ago, when the promises of world leaders about an accelerated green transition were showered in Glasgow, Scotland. It is true that the final document from COP 26 resulted in a slightly less binding resolution than many activists and many well-intentioned players had hoped for, but, nevertheless, it brings the first kind of

consensus on what needs to be done urgently at the global level, and since the conference in Paris in 2015, whose conclusions have meanwhile suffered a number of serious blows.

In Glasgow, before our eyes, the leaders of 197 world entities one after the other theatrically take the podium, take the microphone under the spotlights of television crews, in the pose of far-sighted visionaries solemnly swear what will be their contribution to saving the planet. About two-thirds of them, which together represent 90 percent of the world's GDP, pledge to accelerate the realization of the holy grail of the green transition: net-zero emissions.



*PLEDGES AND TARGETS - Source: Climate Action Tracker*

Of course, the final document of the conference deserves many justified objections, because the desired goal, reducing global warming to less than 2°C above pre-industrial levels, will still not be achieved. In fact, according to the level of these promises,

according to experts' estimates, greenhouse gas emissions should actually increase by 14 percent by 2030 compared to emissions in 2010, and global temperatures by the end of the century would increase by 2.4°C, if these promises were to be fulfilled.

However, the historical fact remains that the Glasgow Climate Pact for the first time explicitly addresses the negative role of coal as a key factor in global warming. Thus, more than 40 countries announce the closure of their coal-fired thermal power plants, while many commit to gradually neutralizing their emissions and achieving carbon neutrality in a significantly longer period than desired – China by 2060, and India by 2070. Unfortunately, among those who are not in a hurry in making promises also is the third among the largest consumer of that fuel – the USA. The interests of individual big players, with a large dose of hypocrisy, as expected, remain opposed to what is perceived as the interest of the planet in the focus of the public, media and politics.

Of course, there are no consequences for those who do not fulfill their promises. For the majority of politicians who participate in such conferences, words are cheap, political points are instant, and performance control is too long a stick. At the end of the stipulated term, few among them will still be in office anyway.

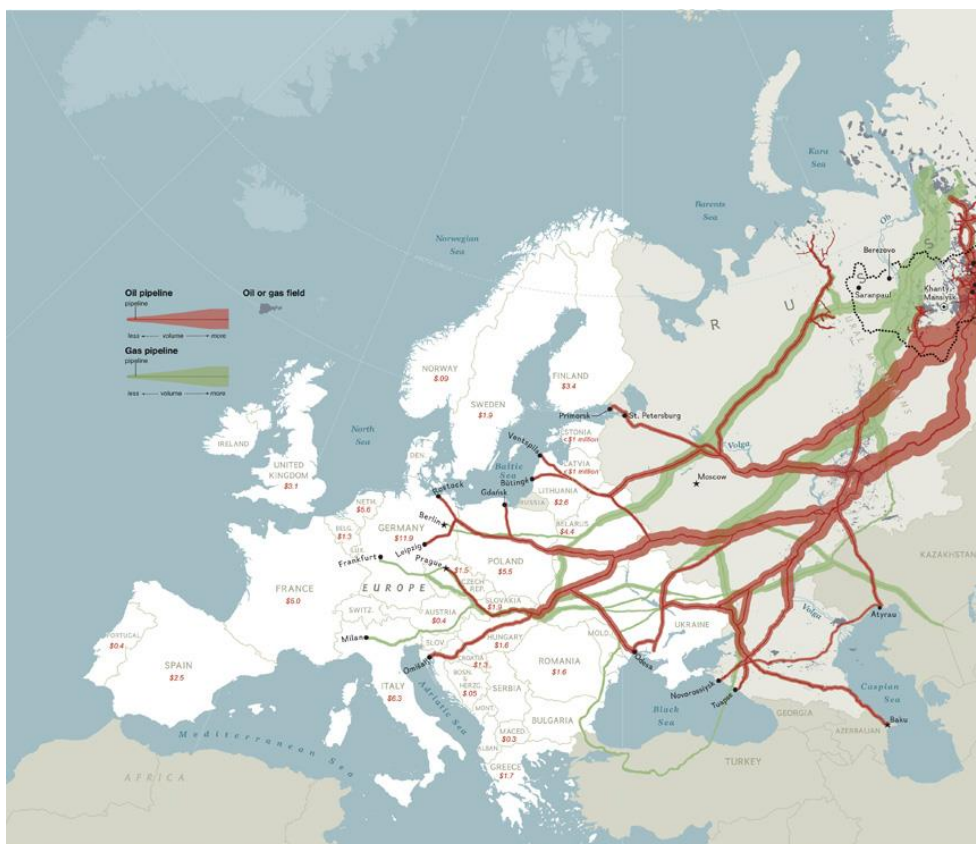
For those countries and other entities, territorial or corporate, that dare to take a historic step forward, of course, the key information is how they plan to replace coal in their energy chain – or at least how to "neutralize" it in accounting terms. Quite expectedly, most of them highlight plans for large investments in solar and wind energy, (even) greater reliance on natural gas, and as one of the key energy sources that could occupy a more important place in the near future – green hydrogen. It is clear, many countries are thinking very seriously about nuclear energy, but it is not popular to think aloud about it at such "green" events, such plans usually remain behind the scenes, so of course it is repeated in Glasgow.



## 1.2. The game changer: Russian invasion on Ukraine

As much as it is expected that many will not keep their promise this time either, few have imagined that the first blow would come so soon. On paper, the Glasgow Climate Pact may represent three steps forward in some segments, but already on February 24, there are at least two very real and tangible steps back on the global energy roadmap. The invasion of Ukraine by Putin's Russia is an event that completely changes the geopolitical and energy map of Europe and the world and, at least at first glance, makes it completely impossible to fulfill the key promises of the climate pact. But again, on the other hand, after the initial extremely negative effect, there is undoubtedly the potential to further accelerate the realization of those promises and to impose new, maybe even better solutions.

Vladimir Putin certainly did not expect a united reaction from the democratic world, above all those gathered under the Euro-Atlantic umbrella. There are several reasons for this, but one of the most important most certainly is the state of dependence in which he led a number of European nations, as the main dealer of natural gas for the Old Continent. Or did these nations bring themselves to that state? Be that as it may, Putin did not believe that anyone would seriously oppose him.



*Russian Bloodstream Vessels: Oil and natural gas pipelines towards EU -  
Source: National Geographic*

The example of Germany is certainly the most extreme, and the unexpected absurdity is that the green policies adopted with closed eyes when it comes to otherwise obvious geopolitical and geostrategic facts contributed greatly to this. It is bizarre that Angela Merkel's administration, even after Russia's aggression against Ukraine in 2014 and the annexation of Crimea by Putin's Russia, in violation of all international laws and better customs, continued to rely on Siberian natural gas for energy and persisted in the construction of even the Nord Stream No.2. At the same time with the planning of dramatically increased consumption of this energy source from a single supplier, the gradual shutdown of coal-fired thermal power plants and the accelerated shutdown of nuclear power plants are also planned. How short-sighted!

The Chamberlainesque policy of the West in that period, of course, in the eyes of Moscow oligarchs and Great Russian ideologues, militarists and imperial nostalgics was expectedly perceived as a weakness and could not lead to anything other than increasing the appetite of the Russian Federation as the successor of the vanished Soviet and Russian empires. Germany was clearly sacrificing the interests of the EU for its own short-term energy interests. Countries like Poland, in the centuries-old gap between powerful neighbors, on the contrary, experienced on their own backs and in the not-so-distant past what such an inconsistent Chamberlainesque policy in search of some new, but equally false "Peace For Our Time" can lead to.

What would happen if the United States of America were at the same time similarly dependent on Russia? If it depended only on Europe, perhaps the reaction would be only a mild escalation of the one in 2014, when the West protested, but in fact business as usual continued like before the annexation of Crimea. In this way, the USA is once again taking on the task of leading the Old Lady by the hand, that is, of saving Europe from itself. Germany's reluctance to provide direct assistance in offensive rather than defensive weapons even after eight months of invasion indicates that without American push, relying only on the EU, Ukraine would not be able to put up the resistance it did in the long term.

Without the insistence of the Americans, who finally opened their eyes to Brussels, a series of LNG terminals in the Baltic and Adriatic would hardly have been opened, which now bring diversification of supply routes to that part of Europe and guarantee relative energy security in the midst of the biggest security crisis on the European continent since WWII.

## The European LNG infrastructure



Source: European Commission 2022.

The Germans still do not have any such terminal and are only now turning in that direction. The view in the rear-view mirror is bizarre: While the Germans carelessly and recklessly build Nord Stream 2 and thereby putting themselves at the mercy of Putin, Poland already solves half of its needs with the Swinoujscie LNG terminal and shapes the long-term goal of complete independence from Russian natural gas. The neighboring Baltic states are guided by a similar logic. At the last minute, Croatia also makes that sure, and with the planned expansion of the Omišalj terminal, maybe could even meet the needs of Slovenia, Hungary and Austria in addition to its own.

It's hardly a coincidence – the Americans certainly always work in the interests of their

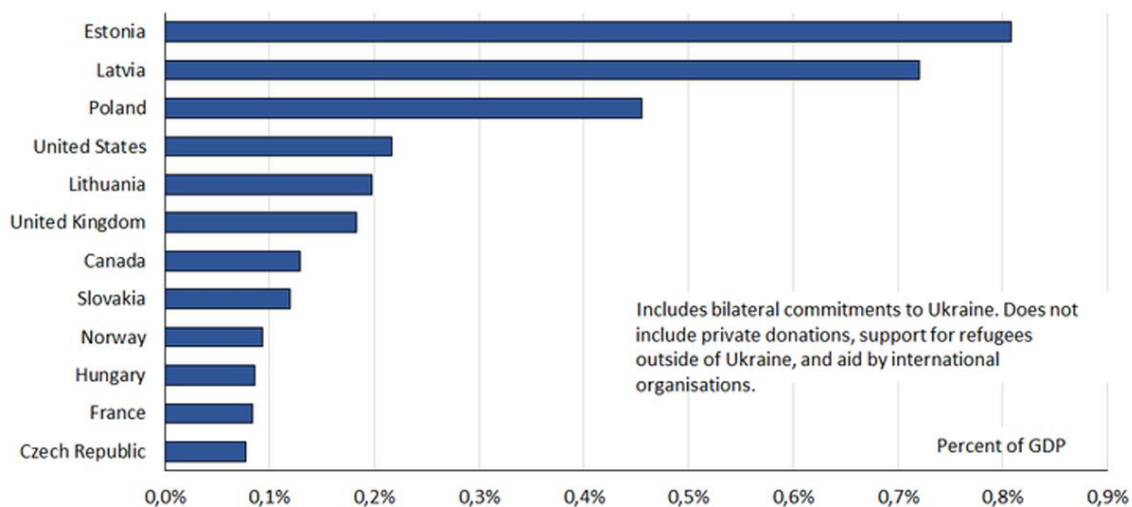


oil and gas industry, and the broader self-interest, but there were undoubtedly larger geostrategic interests at stake here, partially translated into the Three Seas initiative, launched in 2015 by Polish President Andrzej Duda and Croatian President Kolinda Grabar -Kitarović, bringing alive a distant echo of the Polish interwar Intermarium concept.

When you look at the available data, it is obvious that on average, measured by the criterion of the share of the value of armed aid in the total GDP, it was precisely the countries of New Europe, between the three seas, that extended their hand to Ukraine most generously – and bravely – at least initially. And from the emphatically defined track of the countries of the Visegrad Group in relation to Russia and Ukraine, only Hungary jumps out at the moment, trying to push some kind of autochthonous form of "Hungary First" policy, but which most certainly, whether we like it or not, at least for the time being, plays in the hands of politics of Kremlin.

#### Government support to Ukraine: By donor GDP

Commitments Jan 24 to May 10, 2022. Top 12 of 37 countries



Source: Kiel Institute for the World Economy

Diversified sources of energy, along with multiplied supply routes, are equivalent to energy security. And energy security is inextricably linked to national security. It can never be left entirely to market relations. Of course, when it comes to addictions, the solution cannot even be a simple change of dealer. Incomparable as it is, even if it is currently expedient, it would not be politically wise or economically sound to replace Russian natural gas with American liquefied natural gas in the long term. But,



fortunately, there is no such “danger” at the moment, because the USA currently does not even have sufficient capacities to meet all the needs of the Old Lady in the short term, so she has to matchmake the available capacities in various parts of the world. From existing well-known suppliers, such as the Gulf countries, to potential future big players, such as Argentina or some that may not even be on the horizon yet. However, this is not the only trap that one could fall into.

## **2. Traps of solar and wind energy**

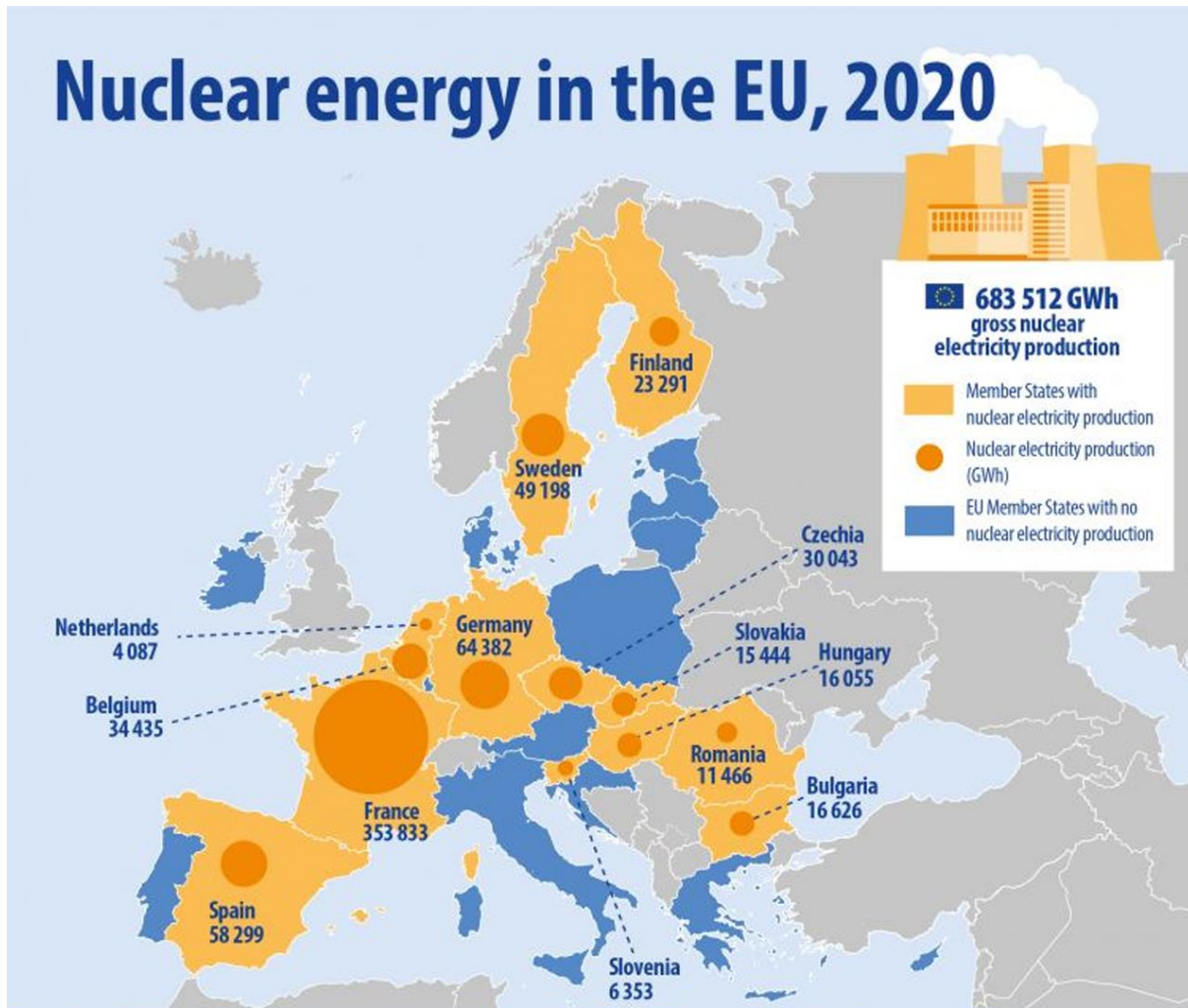
### **2.1. Central Europe between fears from the past and prospects of the future**

Faced with the fact that the survival of the industry and social peace is at least currently more important than the minimization of the carbon footprint, even in the German Green-Socialdemocratic coalition government they accept the reality and thus postpone the planned shutdown of thermal power plants on nuclear fuel and coal. They planned to shut off all the remaining nuclear plants by the end of 2022, and now they are leaving two active at least until April 2023. Anything else would be irrational, or a luxury that even rich Germany cannot afford.

As far as Germany is concerned, the ideological green attitude still prevails, so it will most likely only remain a short- or medium-term delay, but some other countries are aware that giving up some of the “controversial” energy sources (in the eyes of the public or experts) could have an unacceptably negative effect on the economy and national safety. France, of course, does not think of shutting down its nuclear plants, and some other European countries are building or have recently opened new ones (Hungary, Finland, Slovakia), are increasing their capacities and extending their lifespan (Switzerland, Spain, Sweden, Finland...), are planning new blocks (Slovenia), are just preparing to build their first commercial nuclear reactors (Poland) or are planning them in the near future (Croatia). Of course, it was not only the Europeans who learned the lesson. Worldwide, at least 55 new reactors are currently under construction in 15 countries, most notably in China.

If you think that the problem is that "overnight" there will be no more Russian gas, that is nothing compared to the problem that would arise if all European nuclear plants were shut down. Only at that moment would Europe be faced with an unsolvable problem. True, 14 EU members currently do not have nuclear plants on their soil, roughly half of them (Slovenia and Croatia share a nuclear plant on Slovenian soil), but that does not mean that it will remain so, especially after the lessons that this crisis brings. Of course, even if they wanted to, the French could not compensate for the electricity obtained from 56 nuclear reactors that meet almost 72 percent of France's needs with increased

construction of solar and wind power plants, or some other renewable sources. Nothing can even replace the security of supply that nuclear power plants have offered to the French economy over the past few decades. It still is the backbone of the French economy.



### 14 EU Member States without nuclear electricity production:

Denmark, Estonia, Ireland, Greece, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria, Poland, Portugal

*Source: European Commission 2020*

In the current energy crisis generated from geopolitical turbulence, one of the cheapest ways, and certainly the one that brings the fastest results, is to reduce consumption. Due to the massive import of Russian "cheap" natural gas, it has grown beyond real needs, decades ago. Savings measures and the unusually warm autumn of 2022 mean

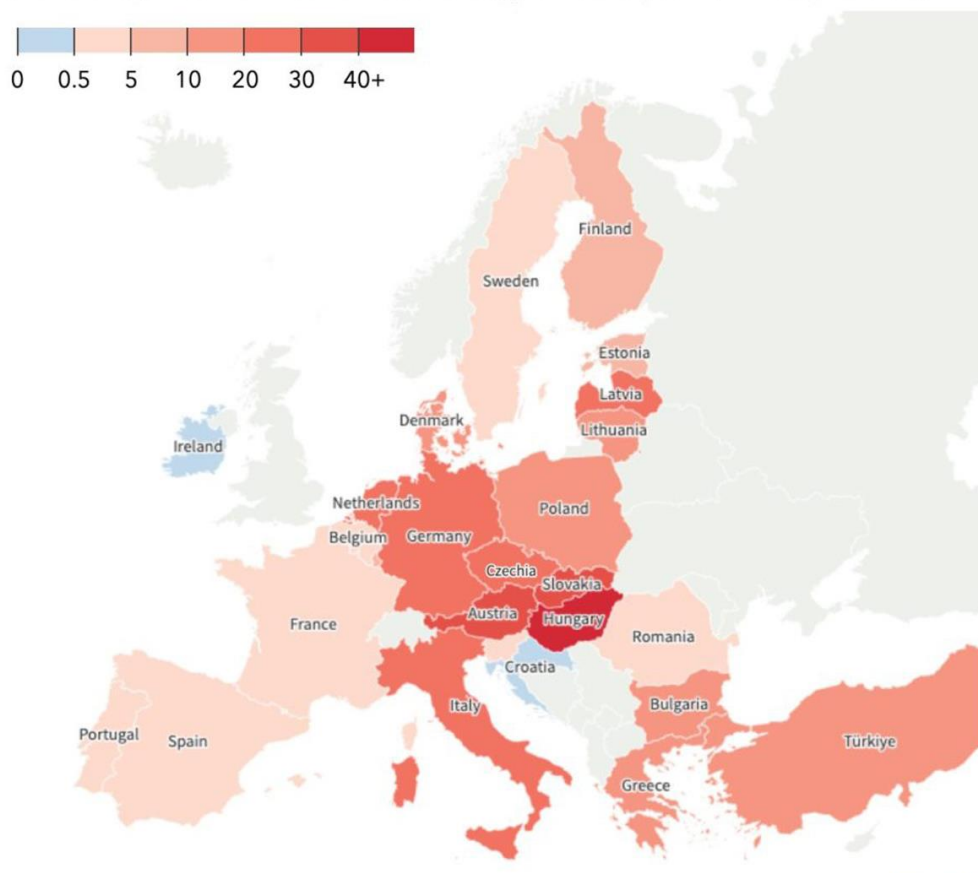
that natural gas storage facilities in a number of European countries are almost full, as well as the capacities of deliquifying terminals.

German storage reach almost 100 percent capacity. Floating fleets of LNG tankers could be seen in front of European terminals, waiting for weeks to be unloaded. However, the potential arrival of colder days could quickly change the picture.

In any case, LNG terminals are a game changer for EU in this crisis, which through the winter of 2022/23, despite all the problems affecting European citizens, would emerge as the winner in the energy war with Russia. However, this is primarily because the capacities were filled in good time with Russian natural gas, while it was still available in sufficient quantities, so there could be many more problems in the 2023/24 heating season, when it is quite likely that there will be no more Russian gas in the storage at all. However, it is clear that in order for Europe to be energy secure, it must achieve the first and most important goal: as little dependence as possible on external producers and suppliers of fossil fuels, which it itself lacks. As little dependence on potential blackmailers and extortionists as possible. Of course, also in order to achieve another goal: the proclaimed plans for carbon neutrality, as part of a wider plan to save the planet.

## Russian gas dependence

(Russian gas as a share of total energy consumption, 2020, percent)



Source: IMF

Cynics would say that these high-value humanitarian plans can also be seen as a means to achieve the first-mentioned goal – because Europe thus renounces the very energy source that it itself does not have enough of anyway, thus avoiding financing and strengthening potential external enemies or sources of insecurity, and ultimately, it encourages its own industry and the creation of jobs on its own soil. Saving the planet, yes, definitely. But one should also not close his eyes to a clear economic calculation that has an undoubted dose of selfishness built into it: when everything is added up, the green agenda in the long term brings the highest return on investment and an advantage over the competition. Of course, if it is implemented in such a way that one's own economy is not crippled in too much of a hurry.

## 2.2. Energy of the elements: sun, wind, water and fire

In green dreams, there is no doubt that absolutely nothing can beat not the cheapest but the cleanest energy on paper – solar and wind. But, of course, even solar and wind power plants are not absolutely green. When looking at the complete production chain, in reality, in today's circumstances, it is still impossible to produce electricity that would truly have a zero carbon footprint, let alone a zero impact on the environment, in this case when we talk about the degradation of large areas in nature, necessary for construction such power plants. Their negative impact on the biosphere, i.e. on human, animal and plant communities, is of course not comparable to those produced by thermal power plants, but it certainly still exists.

Of course, it would be ideal if the world could completely switch to energy obtained from the most natural possible sources – the sun and the wind. Unfortunately, these sources are subject to seasonal and daily fluctuations. When there is no wind, windmills stand still. At night, solar power plants do not produce energy. The rule of thumb still applies: The more capacity we have in solar and wind energy, the more reserve or basic capacity we need in permanent, continuous sources, which do not depend on any fluctuations and can be switched on, off or dosed as needed. And such still mean the burning of fossil, bio or nuclear fuels, with the addition of hydropower in the mix.

In this way, if we are not careful, we can achieve the opposite of the desired effect – to simultaneously even increase consumption from sources that we would otherwise like to eliminate. Of course, that doesn't have to be the case.

That may still change, but it seems that Europe has already set a deadline for cars with internal combustion engines and established a vision of European roads on which cars will roll that would not generate greenhouse gases. But, of course, this does not mean that all these cars would really be ecologically clean, only that the source of pollution from the city streets and roads of European cities would move elsewhere, perhaps to poorer European countries, and perhaps even to other continents, to countries of the Third world – which may help Europe, or other centers of economic power, but hardly saves the planet.

The carbon footprint of electric cars doesn't actually have to be favorable at all. And on average it's still by no means. Essentially, the batteries of the electric cars we drive today are actually charged with electricity obtained not only from green sources, but mostly from a mix of fossil and bio fuels, nuclear fuels and hydropower. In cities, especially overcrowded metropolises, they may be satisfied that they have moved

pollution to another location, but that still does not mean that pollution does not occur at all. Elsewhere.

Polish president Andrzej Duda had maybe the most sincere presentation among all the present leaders on that matter during the latest COP27 in Sharm el-Sheik: **"Let us not be climate hypocrites. Since it's easy for the leaders of the rich north to boast with their achievements. The world, however, has the right to ask where we have moved our production. For if we have moved it into non-European countries, then we should not forget that our responsibility has not disappeared."**

Can any Tesla driver say with certainty that his car does not actually run on – coal? Or that parts in his car weren't made with the highest possible environment impact possible, using coal somewhere else?

Lithium batteries in the majority of today's electric cars are a special problem, because the complete transition to such type of batteries presupposes extremely high pressure on the supply of rare metals and other raw materials, which, with large investments and significant environmental risks, can only be exploited in a small number of countries, among which a handful of them are again strongly represented and including some on which Europe would not like to develop a new kind of dependence. However, the European Commission says: Lithium and rare earths are the oil and gas of the future, we are looking into securing such critical raw materials supply chains in the EU, to support our energy transition and end geopolitical dependencies.

The strongly accelerated development of these batteries does indeed bring greater range and faster charging, and thus the daily usability of such cars, not only inside the cities, but also on longer intercity distances. But the question is what would happen to the availability of rare metals at a time when all cars with fossil fuel engines had to be replaced by electric cars? Of course, it is not impossible that a scenario that is a utopia for some and a dystopia for some will come true, that in the not-so-distant future the average citizen will no longer own a car at all, but will ride improved mass public transportation, while private cars will be a luxury intended for the richest. However, the still unanswered question for the EU is whether it really wants such a dark fate for its automotive industry, which still has a leading technological and quality control edge over the most competitors in the world, and at the same time is a powerful flywheel of the European economy.

### 2.3. Hydrogen is definitely entering the scene

When we talk about batteries, we are not necessarily talking only about electric cars, but also about a much wider need to accumulate the generated electricity. Where and how would we store surplus electricity at times when the wind and sun are at their best, and where from would we get the reserves when the sun and wind are at a minimum? The possibilities of electrical energy storage are still only symbolic. There is certainly a need for the development of batteries in the literal, but also in the broader sense of the word. For example, a reversible hydroelectric power plant also resembles some form of rechargeable battery – in periods of low demand, electricity is used to pump water from a lower reservoir and return it to a higher reservoir. To use it again at the moment of higher demand. So, in that case, we no longer depend only on the natural inflow of water into the reservoir, which also varies throughout the year. The total efficiency of the system is not necessarily taken into account, but that what is much more important – preserving the availability of hydro potential in periods of higher demand for electricity.

Likewise, solar and wind energy can be used to produce energy that will be available at any time. This is the moment when green hydrogen definitely enters the scene. Although it has been talked about for decades, at the moment the application of hydrogen in practice is still modest, but a real boom will soon follow, supported by billions of euros from newly created European funds, and even the specialized European Hydrogen Bank.

Why didn't this happen earlier? High energy prices and the use of energy as a weapon in hybrid wars certainly now make sources that seemed too expensive until yesterday – much more attractive. Also, although theoretically hydrogen sounds like the cleanest possible energy source, the combustion of which does not release greenhouse gases into the air, but pure water vapor, its production by no means has to be – and in the current reality is mostly not – ecologically clean. "Grey" hydrogen, which is currently the most used, is obtained through burning fossil fuels, therefore, its production implies a very tangible carbon footprint.

Depending on the method of production and the size of that carbon footprint, verbal prefixes of various colors from the rainbow spectrum are added to hydrogen, but what we are primarily interested in is the so-called green hydrogen, obtained by electrolytic processes from water. The problem with that process is that it requires huge amounts of electricity, which again in some cases can be obtained by burning fossil fuels. But,

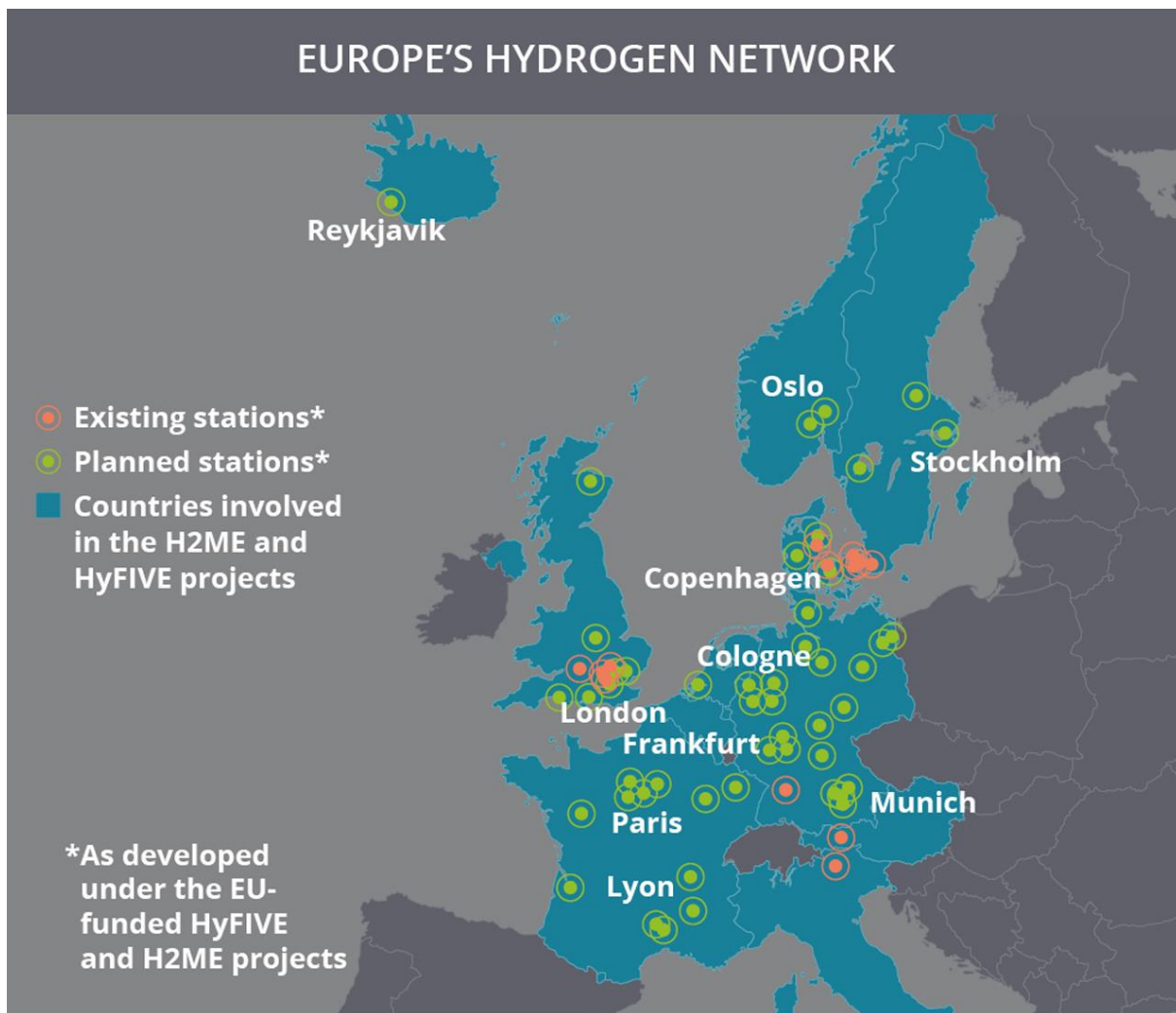
hydrogen can also be produced from renewable sources of electroenergy, that is, from what nature offers us through the daily sun and wind.

All this, of course, means that the generously subsidized solar and wind power plants will produce electricity for the equally generously subsidized electrolytic production of green hydrogen, which can be used at any time of the day or night in industry, citizens' homes, and to drive cars from whose exhaust pipes only water vapor comes out. Sound perfect? Not even close for some critics who claim that green hydrogen in such circumstances is essentially not an energy source for the production of electricity but an energy sink, and that its production with so much energy consumption is simply not rational. However, they may be underestimating the reversibility effect of the entire system, as well as the fact that it would reduce the need for backup solar and thermal power plants in classic sources. And they certainly do not include the geopolitical aspect of the entire energy problem into the whole calculation.

Of course, an additional problem is that such ecologically absolutely clean production in sufficiently large quantities, regardless of the price for the taxpayer and the end consumer, cannot be achieved overnight, so the European legislative and executive authorities plan to tolerate that the electricity for the electrolysis of water is used in the production of green hydrogen it can also be obtained from less clean sources – that is, classic thermal power plants again, including coal-fired ones, which should otherwise be phased out gradually in a relatively short period of time. So, green hydrogen would be "green" hydrogen, when we would turn a blind eye to one or both eyes, because the end justifies the means.

What is crucial in this scenario is that the conditions for such a production could be created in many countries. The cheapest production would still be in countries with abundant insolation, and even countries with problematic quantities of fresh water, such as those in North Africa, would be considered, because according to some estimates, even desalination of seawater would not dramatically increase the final price of the product. However, production could also be ensured in Europe itself, even in countries that do not come to our mind first in terms of the amount of sunny days, like in Central Europe, so that in the end the sources could be sufficiently diversified.





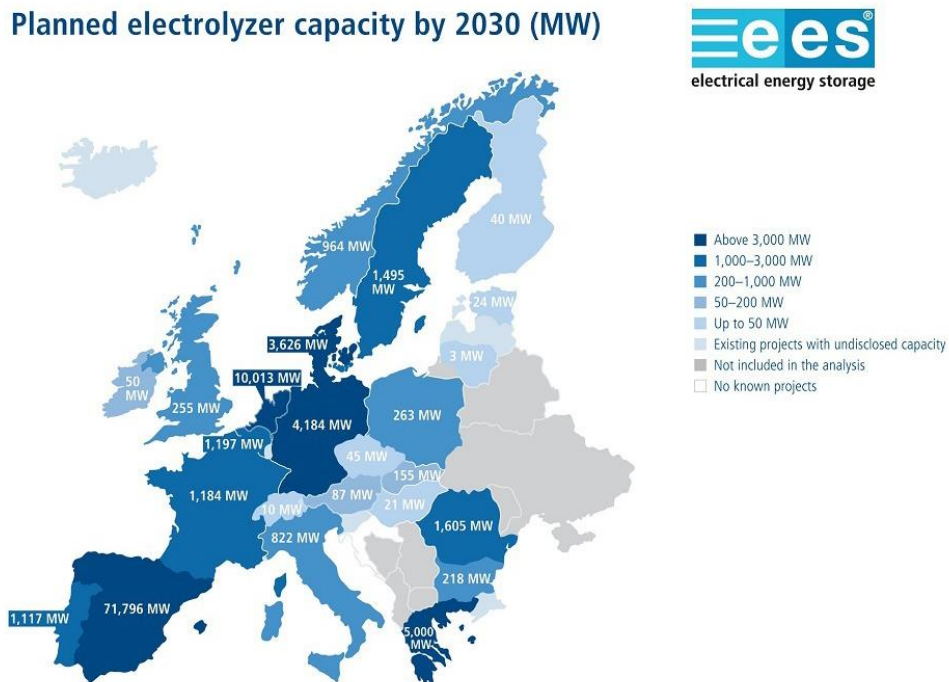
Source: European Commission

Hydrogen-powered cars would thus not have problems with expensive and short-lived batteries, short range or the availability of a network of fast chargers. If hydrogen were available at every gas station today, which could be achieved, the range of these cars would depend only on the size of the hydrogen tank. The technology exists, hydrogen-powered cars are a reality, and the only thing standing in the way of its wider application is the will to invest in their production and hydrogen distribution network, which will now certainly dramatically increase in parallel with the greater availability of European funds for their development.

Hydrogen fuel, when produced by renewable sources of energy like wind or solar power, is in fact a renewable fuel. The good news is that it can be transported through gas pipelines. It will not be cheap to adapt existing gas pipelines, but a wise move would

be to prescribe that all new boilers be hydrogen-ready, in order to facilitate the transition. It can be gradual, because the technology enables the mixing of natural gas and hydrogen – the so-called hydrogen blending. According to estimates from the UK, converting 20 percent hydrogen into the gas blend could reduce carbon emissions by 6 million tons per year, which would be the equivalent of removing 2,5 million internal combustion vehicles from the road.

**Planned electrolyzer capacity by 2030 (MW)**



With the increase in the production of green hydrogen, and the development of technologies that reduce the amount of electricity needed for its production, the goal could be getting closer every year. The commission says the project will support the construction of "large-scale electrolyzers and transport infrastructure, for the production, storage and transport of renewable and low-carbon hydrogen." Strategies include adapting gas stations and the gas network to the new fuel. Of course, all this presupposes large investments, both for companies and citizens, despite the announced large incentives.

### 3. Conclusions

COP 27 in Egypt's Sharm el-Sheikh brings the renewal of the vows of world leaders, along with some possible retractions, so in the end it turns out that Russian aggression against Ukraine, and the energy and food wars that Putin launched as a means of blackmail, after he inadvertently slowed down the implementation of the promises from Glasgow, could actually speed up their timeline in the end. British Prime Minister Rishi Sunak called Russia a "rogue country", proposing a plan for its economic isolation, which of course means self-imposed abstinence, a boycott, and perhaps an world-wide imposed ban on Russian energy sources. These are dire times for every responsible nation who would not like to rush themselves into another trap set by the energy predators, and to find themselves between the hammer and the anvil. In trying to make peace between two seemingly opposing goals – giving up the dirty energy and building tight energy security for their societies and economies, they should go step by step. In reaching the famed zero-emission goal, they should not forget to achieve a reasonable degree of self-reliance. Of course, that does not exclude cooperation with the countries that have similar interests.

It is quite obvious that even coal should be left available for the times of crises, before the new energy architecture kicks in, which would presumably include some kind of a unified european energy task force. The well ballanced architecture would certainly include a wide grid of solar and wind power plants, intensive use of all the technological advances that could turn every citizen's home into a small power plant, make them self-sufficient or/and able to complement the public power network. But obviously, the choice of nuclear energy should continue to be on the table of every nation willing to cope with the percieved risks of that technology, and to harvest the benefits, as all those who did in the right time chose the best possible technology and the toughest security measures. And on the other hand, they have the clear outcome of creating the cleanest possible energy source – from hydrogen technology, that will be most critical to achieving net zero. Huge investments are absolutely necessary and unavoidable.

Is green hydrogen an utopia, or could we really realize the dream of absolutely clean energy with zero carbon footprint and minimal impact on the environment? The goal presupposes huge investments, but it is quite obvious that in these circumstances, in which responsible nations agree that it is necessary to slow down the impact of human civilization on global warming as soon as possible, and on the other hand, that it is of crucial importance to dramatically reduce dependence on individual countries that tend to abuse energy as a means of blackmail and even weaponize it – there really isn't much of a choice.



*Photo: Ivan Hrstić*



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**Visegrad Group towards contemporary energy challenges**