



V4 IN THE TIMES OF UNPRECEDENTED CHALLENGES AND CHANGES ON THE GAS MARKET

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EXECUTIVE SUMMARY

Russia's war against Ukraine and the ensuing state of de facto energy war between Russia and the West have had unprecedented consequences for European and global energy markets including, above all, the natural gas market. On the one hand, it reinforces EU energy & climate policy objectives and accelerated their implementation: shift away from fossil fuels and increase in the role of renewable energy and energy efficiency, but the 2022 energy crisis and ensuing structural changes have been very costly, leading to record energy prices, the reconfiguration of gas flows, and a new era of volatility and uncertainty in the Eurmarkets. This was exacerbated by increased risks to security of critical EU energy infrastructure, especially for gas infrastructure following unexplained acts of sabotage on the Baltic Sea; Russia Nord Stream 1 and 2, and the Finnish-Estonian Balticconnector. Furthermore, some Ukrainian energy infrastructure sits on a major front in the ongoing war.

The changes and challenges in the gas market were particularly impactful in the V4 countries. Before the war, they were heavily dependent on Russian energy resources, especially natural gas imports. Three of V4 countries are landlocked, with no direct access to the seas and the global LNG market, reinforcing reliance on other cross-border infrastructure to bring gas to market. All V4 countries are linked to Russia by gas pipelines, either those from communist times (being Ukrainian transit pipelines and Yamal pipeline) or more recent ones (Nord Stream & TurkStream and their onshore legs). Russian aggression was a powerful stress test for the energy and security of supply strategies of the countries in the region and exposed existing vulnerabilities and inefficiencies.

In 2022, along with the rest of the EU, V4 countries reduced year on year gas consumption and, despite high prices, built up inventory. At the same time, the shock of the war and the crisis also revealed deepening divisions within the V4, both in terms of individual security of supply strategies and towards the EU-wide strategy of decoupling from Russian supplies. Currently Poland and the Czech Republic are de facto independent of Russian gas, with Poland being one of the first EU countries to go without Russian imports (from the end of April 2022). Slovakia and Hungary, meanwhile, are among the last few EU member states still importing gas from Russia. However, there is a significant difference in approach; Slovakia has reduced its dependence and sought alternative sources and routes of supply, while Hungary - despite some diversification efforts to secure Azeri or new LNG sources - has remained the only country in the EU to de facto increase Russian imports while keeping an ongoing relationship with the Kremlin at the highest government level.

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INTRODUCTION

The [V4 Energy Think Tank Platform](#) (V4ETTP) was founded in 2018 by four representative think tanks, aiming to facilitate coordinated regional energy-related and policy-oriented research and analysis building on the expertise of each member institutions in the field of energy studies. Within the framework of this cooperation, four regional policy papers are typically published each year which provide the backdrop for stakeholder workshops to discuss the policy implications of the conclusions.

This is the third of four working papers prepared in the framework of 2023 V4ETTP work plan and cooperation of researchers from REKK (Hungary), SFPA (Slovakia), AMO (Czechia) and OSW (Poland). Its draft version was discussed on November 20, 2023 at the XVII Central European Energy Conference in Bratislava, during a roundtable discussing short- and longer-term future of natural gas in V4 and CEE's countries.

Cooperation in the field of gas security of supply and coordination at the EU-level to raise awareness for the region's dependency on Russian gas and affect policy have been at the heart of the V4 cooperation for decades. The current crisis is the biggest test of this cooperation to date, with tensions over the different V4 government responses running high. With the first winter of the war behind us, it is of utmost importance to evaluate what has been achieved and how future V4 cooperation in the field of energy can be regained in the V4.

This paper is structured as follows: First, an overview of the landscape before the war is outlined. Second, an overview of the causes of the energy crisis and how it has impacted the V4. Third, an elaboration of the gas market today. Fourth, an overview of V4 national measures for diversification and phasing out Russian gas. Fifth, and overview of demand related measures and plans. The last chapter provides conclusions and general policy recommendations.

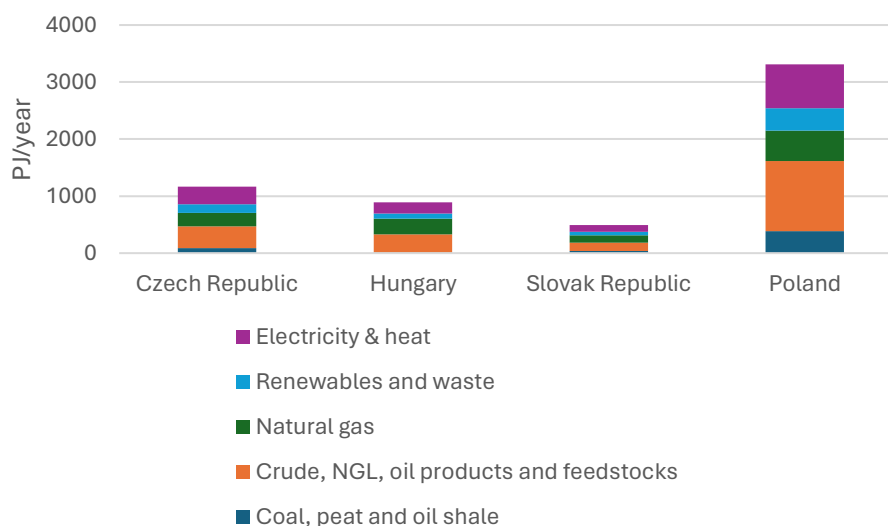
1 LANDSCAPE BEFORE THE WAR

In the last few years before the war, gas markets globally, in Europe and in the V4 countries experienced dynamic and partly unexpected changes. In Europe, the EU Green Deal strategy accelerated the energy transition towards renewables and away from natural gas. But Europe was divided between Member States wanting to replace natural gas in the energy mix as soon as possible, mainly countries in North-West Europe, and Member States (among them V4) planning to use it as a vital bridging fuel in their decarbonisation path. The Covid-19 pandemic, lockdowns and economic downturn also weakened global and European gas demand.

In parallel, natural gas integration and diversification processes in the Central and South-Eastern European gas markets intensified in the years following the 2009 gas crisis. Countries in the region that were still overly dependent on natural gas imports from Russia increased their ability to import gas from other sources through the Southern Gas Corridor (via TANAP and TAP pipelines) and LNG terminals primarily in Lithuania, Poland and Croatia, but also Greece. Cooperation with Ukraine also grew in the pre-war years. Access to Ukrainian infrastructure, including to its large gas storage facilities, enabled traders to use seasonal storage in Ukraine and contributed to the growth of regional gas trade.¹

Natural gas plays a different role in the energy mixes of the V4 countries. Poland has always had the smallest share in total primary energy consumption (16%), followed by Czechia (20%) and compared to Hungary (31%) and Slovakia (26%) which are above the EU average (see Figure 1).

FIGURE 1. FINAL ENERGY MIXES OF V4 COUNTRIES, PJ, 2021

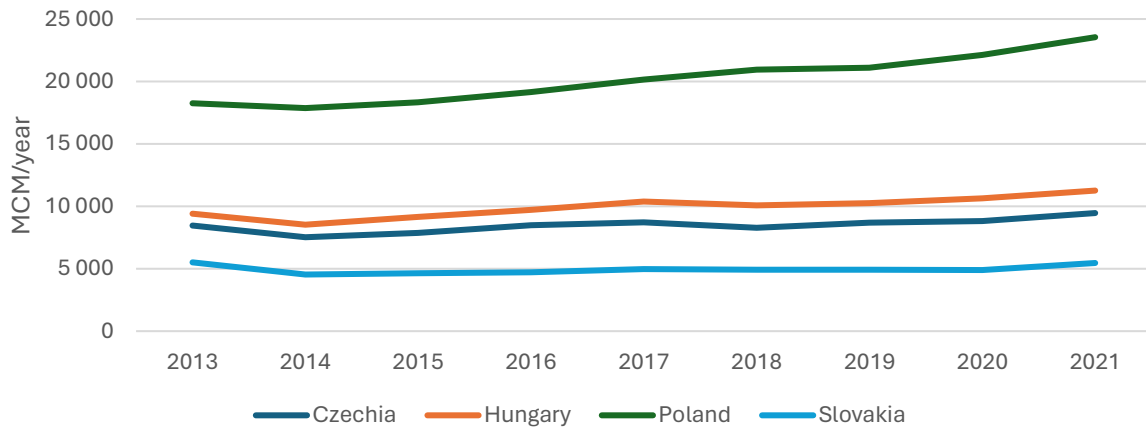


source: International Energy Agency

¹ Agata Łoskot-Strachota, Sławomir Matuszak (2020): [The growing role of Ukraine on the Central European gas market.](#)

Natural gas demand has steadily been rising across the V4 countries in recent years, from around 38.5 bcm in 2014 to almost 50 bcm in 2021, or about 30%. Poland remains the largest gas consumer in the V4, accounting for more than 47% in 2021. During this time, Poland's gas consumption rose by almost 9%, exceeded only by Hungary (12%) while the Czech Republic and Slovakia remained mostly flat (see Figure 2).

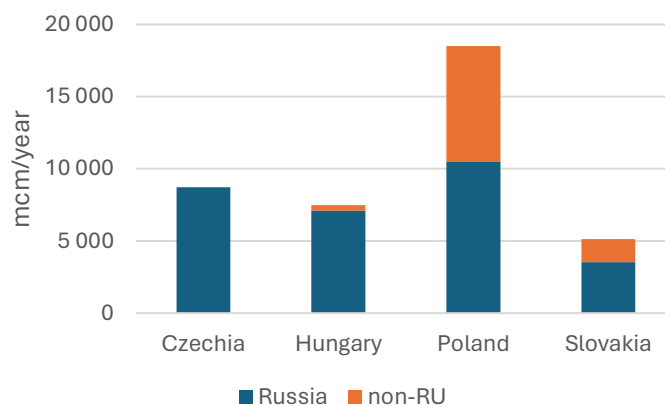
FIGURE 2. GAS CONSUMPTION IN V4 COUNTRIES, MCM, 2013-2021



Source: Eurostat

All V4 countries remained dependent on gas imports from Russia in 2021, but especially Czech Republic, Hungary and Slovakia. The diversification that was achieved came in the form of import routes that substituted for the traditional import route through Ukraine. Czech Republic, and to a degree Slovakia, began importing more volumes of Russian gas via the Baltic Sea route after the launch of Nord Stream in 2011, and Hungary via the TurkStream pipeline from 2021. Poland had the most diversified sources of supply in the region before the war started, increasing LNG imports from global markets, mainly Qatar, thanks to the commissioning of the Swinoujscie LNG terminal. Nonetheless, 56% of Polish gas imports still came from Russia in 2021 (see Figure 3).

FIGURE 3. NATURAL GAS IMPORT SOURCES IN V4, MCM, 2021



Source: Eurostat

2 GAS CRISIS, ENERGY WAR AND UNCERTAINTY

The dynamics and price volatility for regional and EU markets increased substantially towards the end of 2021. With the post-pandemic economic rebound ratcheting up demand for gas and the supply side unable to keep pace, markets tightened. Moreover, from the second half of 2021, Russia began restricting the supply of gas to the EU. Gazprom was still fulfilling its long-term contractual obligations to its European partners but stopped selling gas on the spot market and hubs. It also started reducing flows on traditional onshore pipelines via Ukraine, Belarus and Poland. In addition, the company did not fill its storage facilities inside the EU before the 2021/22 heating season. As a result, Russian-owned storage facilities - including Rehden in Germany (the largest in the country) and Damborice in Czech Republic - were at their lowest recorded level ever, resulting in record low (average) filling in all EU storage facilities. This increased anxiety in the markets and helped sustain high prices across European hubs.

The Russian aggression against Ukraine, the growing tensions between the West and Russia, finally the sanctions and the state of de facto economic or energy warfare between the EU and Russia created more uncertainty and led to rapid changes in the European gas market. From the end of April 2022, Gazprom began withholding contracted supplies from EU companies and countries that did not agree to pay under the new ruble-for-gas scheme unilaterally imposed by the Russian side (as part of countersanctions against countries deemed hostile to Russia) that changed the terms of existing contracts.

Supplies to Poland and Bulgaria were the first to be stopped, followed Denmark, Finland, the Netherlands, and several others. All Russian gas flows via the Yamal pipeline were halted completely and the Ukrainian route was minimised substantially.² By the summer of 2022, Russian gas deliveries to EU customers abiding by the new rules, among them to most important customers including German, French and Italian, started to fall. The same was true for supplies to Czechia and Slovakia. Gazprom had reduced and then suspended flows via the Nord Stream pipeline due to alleged formal-technical problems of transmission which were never to be resumed again after the explosions damaged 3 out of 4 lines of Nord Stream 1 & 2 in mid-September 2022^{3,4}. Consequently, in the second half of 2022 Russian gas continued to arrive in under-contracted volumes to only a few EU countries, including Slovakia, the Czech Republic (via Ukrainian pipelines) and Hungary (via the TurkStream pipeline).

War, Russian actions, plummeting supplies, limited availability of uncontracted non-Russian gas, and the continued uncertainty about the future supplies from Russia, all significantly

² Agata Łoskot-Strachota (2022): [Dangerous liaisons. A quick and coordinate withdrawal from Russian gas is proving hard for the EU](#)

³ Agata Łoskot-Strachota, Michał Kędzierski (2022): [Imperium kontratakuje: narastający kryzys w UE po zmniejszeniu dostaw rosyjskiego gazu](#)

⁴ Szymon Kardaś, Agata Łoskot-Strachota (2022): [Sabotage of the Nord Stream 1 and Nord Stream 2 pipelines](#)

increased risk and anxiety in the European market and contributed to the largest gas crisis in modern history - not only in Europe but globally. The situation in 2022 was exacerbated by lower output from French nuclear plants and an unexpected severe drought in the summer limiting production of hydro power plants. Prices at EU hubs rose sharply and remained volatile throughout the year, reacting not only to gas market developments but also geopolitical. The TTF hub reached a record of almost €300/MWh at the end of August 2022 (see Figure 4). Fearful of possible shortages and the risks of gas rationing, EU companies and governments were buying LNG on global markets to fill storage facilities, which pushed up global prices, particularly in Asia, leading to unprecedented competition and difficulties for poorer countries (e.g. Bangladesh, Thailand or Pakistan) to secure sufficient volumes of gas for their needs.⁵

FIGURE 4. THE EVOLUTION OF MONTHLY GAS CONTRACTS ON TTF IN 2022, EUR/MWh



Source: REKK based on TTF and news of international media

2.1 V4 AND THE GAS CRISIS 2022

The energy crisis, high prices and the risk of shortages in 2022 were felt particularly strongly in the V4 countries heavily dependent on Russian gas. Poland was in the best situation, having successfully reduced Russian gas imports in preceding years with the commissioning of the LNG terminal⁶ and accessing spot volumes on EU hubs. It initiated Baltic Pipe⁷ from Norway via Denmark in 2016 and decided not to extend its long-term contract with Gazprom, which was

⁵ Agata Łoskot-Strachota (2023): [The EU gas market: revolutionary changes and the spectre of another winter](#)

⁶ Gaz System (2023): [Information about LNG Terminal](#)

⁷ Baltic Pipe Project (2023): [Crossing borders for secure, affordable and sustainable energy](#)

set to expire at the end of 2022. Nonetheless, the war and subsequent suspension of both gas⁸ and coal⁹ imports from Russia in the spring of 2022 forced Poland to use emergency measures to secure alternative sources before the winter season.

The other V4 countries faced a much more difficult situation with limited opportunities to import alternative gas supply. Hungary is the only V4 country with the ability to access Russian gas via Turkey, which was the only major Russian export pipeline that not only continued flows but increased volumes after the war. In addition, as a result of Hungary's continued working engagement with Russia, maintaining bilateral diplomatic and energy relations and opposing EU sanctions, it continues importing Russian gas to this day, close to pre-war levels, if not higher. The Czech Republic and Slovakia imported gas from Russia before the war primarily via Ukraine and Nord Stream which were reduced and in the case of the latter, ended altogether.

⁸ At the end of April 2022, Polish PGNIG refused to pay according to Gazprom's terms and consequently Poland became the first country to which Russia cut off gas supplies.

⁹ In mid-April 2022, before EU sanctions came into force, Poland ceased importing coal from Russia.

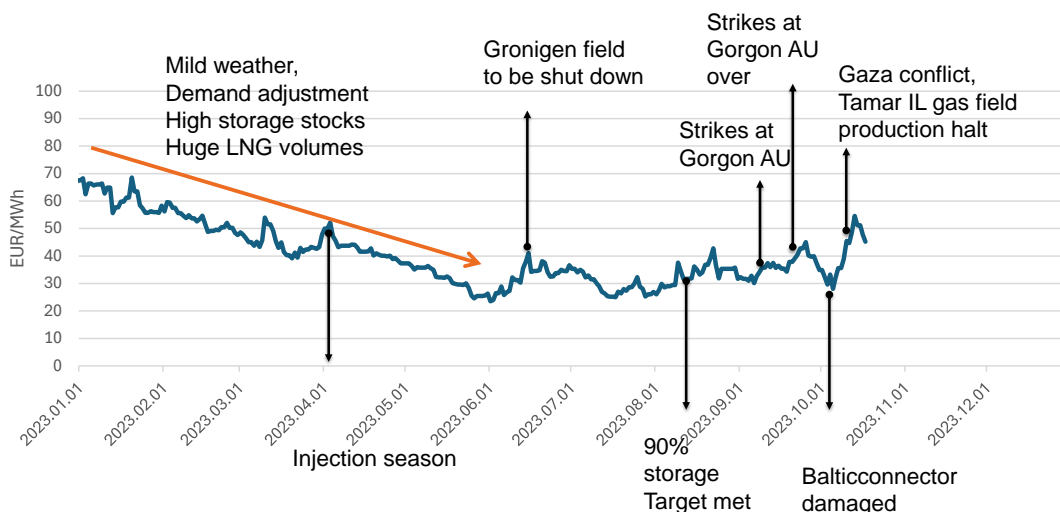
3 GAS MARKET TODAY - CONTINUING UNCERTAINTY

Despite the unprecedented challenges and dynamic changes, the EU and V4 made it through the winter of 2022/23 relatively unscathed. This was made possible both by the market reaction to the crisis and emergency regulations and interventions implemented at the EU (storage obligation and demand reductions) and state level, but also by an exceptionally warm winter and lower-than-expected gas demand in Asia, especially China.

Since the beginning of 2023, EU hub gas prices and price volatility have declined to a range below €40 to above €50.¹⁰ Several factors have played into this: falling demand for gas; stabilisation of flows from Russia; the import of significant volumes of non-Russian gas on the global market; filling EU storage facilities at record speed to record levels by September 2023; the construction of floating LNG terminals (FSRU) at record rates; the above-average autumn temperatures at the start of the 2023/24 heating season.

According to the forecasts, competition from Asian markets should be less intense in 2023/24 than in the previous year - due to not as pronounced demand (primarily in Japan and South Korea) and a significant share of long-term supply contracts held by Asian customers (including those in China).¹¹ Consequently, unless something unforeseen occurs, the coming winter is expected to be more manageable and it is unlikely the EU will experience a crisis similar to 2022. This is also reflected in the market with relatively low and stable TTF gas prices (see Figure 5).

FIGURE 5. THE EVOLUTION OF MONTHLY CONTRACTS FOR GAS AT TTF IN 2023, EURO/MWH



Source: REKK based on TTF and news of international media

¹⁰ ICE Endex (2023): [Dutch TTF Natural Gas Futures](#)

¹¹ BloombergNEF (2023): [Global LNG Winter Outlook 2023-24](#)

At the same time, however, the situation remains fluid and most sources of uncertainty have been reduced temporarily but not eliminated. First, there is always uncertainty regarding the weather and temperatures. A prolonged period of lower-than-average winter temperatures would significantly increase demand for gas in Europe, Ukraine, and the global north, increasing competition for limited available resources. Under extreme conditions, this could lead to temporary supply restrictions, especially in the poorer and less connected regions, mainly in Asia. Secondly, global gas markets remain tight. This is related to reduced Russian gas exports (in 2022 they fell by over 80 bcm of pipeline gas,¹² and in 2023 by a further 40 bcm¹³) and small year on year increase in non-Russian gas availability. That may, in the event of a surge in demand, translate into significant, yet likely lower than in August 2022, price spikes on European and global hubs. According to Bloomberg New Energy Finance (BNEF)¹⁴, global LNG supply in the winter will be about 6% higher than last year, and US exports are expected to grow by 17% y-o-y. Increasingly reliant on LNG with a relatively small share of long-term contracts in its new supply structure, the EU will remain highly exposed to the global market dynamics, and markets are susceptible to any changes on the supply side. This was the case in 2022¹⁵ and more recently: in September 2023 after Norway was forced to reduce supplies and strikes broke out at Australian LNG terminals; in October 2023 after the sabotage of the Estonian-Finnish Balticconnector;¹⁶ the outbreak of the Israel-Hamas war and the temporary shutdown of some Israeli production¹⁷ (see Figure 5).

In a tight market, the level and stability of the limited flows of Russian gas to the EU have added significance for the coming winter, and indeed several to come. Currently the EU is still purchasing gas primarily from Russia via TurkStream, but also limited amounts via Ukraine, and more LNG than before the war (see Figure 6).

¹² IEA (2023): [Natural gas supply-demand balance of the European Union in 2023. How to prepare for winter 2023/24](#)

¹³ IEA (2023): [Medium-Term Gas Report 2023 Including the Gas Market Report, Q4-2023](#)

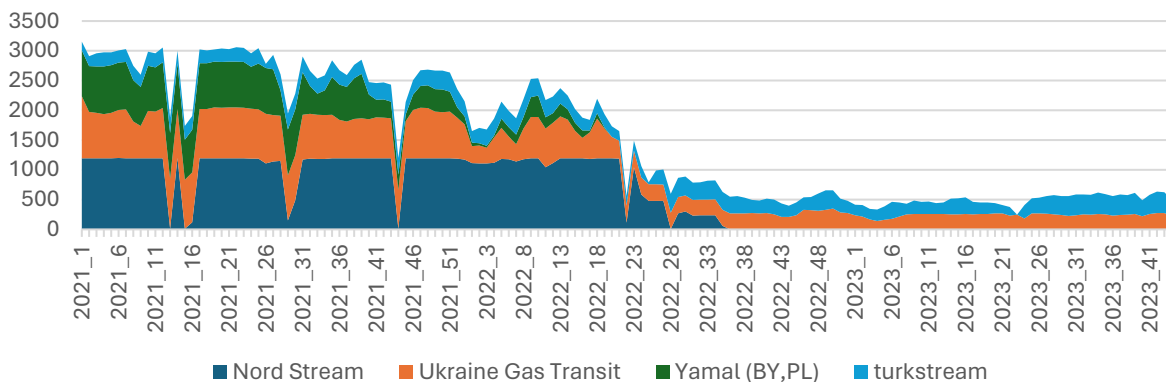
¹⁴ See ibidem

¹⁵ The case of the problems with the Freeport LNG terminal. The Guardian (2022): [Explosion at US natural gas plant raises risk of shortages in Europe](#)

¹⁶ Joanna Hyndle-Hussein (2023): [The Balticconnector gas pipeline damage](#)

¹⁷ Agata Łoskot-Strachota, Simone Tagliapietra (2023): [Israel-Hamas war: implications for gas markets](#)

FIGURE 6. RUSSIAN GAS FLOWS TO THE EU BY PIPELINE, 2021-23, WEEKLY, MCM



Source: Bruegel

Despite the significantly lower volume of Russian exports to the EU than in previous years, they still play an important role in some EU countries and help to maintain the fragile stability of the EU market. A reduction or suspension of Russian supplies, especially during peak demand, could result in a price surge, fuel volatility and uncertainty. With the reality of the ongoing war in Ukraine and the continued Russia-West energy war, both intentional and accidental curtailment of supplies or further destruction of transmission infrastructure cannot be ruled out. At the same time, in the event of further escalation of hostilities by Russia, it is also possible that the EU would decide to restrict more or all the gas imports from Russia, as some Member States and public opinion have demanded.

At the same time, increasing Russian gas to some member states is possible although probably less likely in the autumn-winter season. The reductions in Russian gas to date are attributable to decisions in the Kremlin. That is in line with the EU's objective to shift away from imports of Russian hydrocarbons entirely, which is not legally binding.¹⁸ A few EU member states made the decision to halt imports from Russia. In April 2022, Lithuania decided to end both Russian pipeline gas and LNG imports.¹⁹ Gazprom's long-term contracts with Polish PGNiG and Bulgarian Bulgargaz expired at the end of 2022. In May 2023, Finland's Gasum terminated its supply contract with Gazprom after Gazprom ceased pipeline deliveries to Finland in May 2022.²⁰ For now, Gasum still imports Russian LNG under long-term contract which it plans to end once the EU implements the 4th gas and hydrogen package.²¹

The sharp drop in gas exports to the EU is costly for Russia - reducing export revenues, possibly reducing internal gas production, and constructing new infrastructure. It also reduced the possibility for Russia to 'weaponize' gas to extract concessions from the EU and / or specific

¹⁸ European Commission (2022): [REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition](#)

¹⁹ Reuters (2022): [Lithuania ceasing all Russian gas imports for domestic needs](#)

²⁰ Reuters (2023): [Finland's Gasum terminates Gazprom pipeline gas contract](#)

²¹ Energy Intelligence (2023): [Finland Eyes Russian LNG Ban in Line With EU Legislation](#)

member states. Still increasing supplies to European companies and/or countries inclined towards a more conciliatory policy towards Moscow could be an avenue for Russia to weaken EU cohesion and support for Ukraine. Alternatively, Russian gas can be supplied to Europe via third, intermediary countries and/or companies. There are suspicions inter alia that this is one of the reasons Russia is interested in constructing a gas hub in Turkey.²² At the same time, it is unclear what conditions would allow for this scenario to play out.

The war and uncertainty related to the supplies from Russia, and the Kremlin's continued ability to influence the EU market, demonstrate the importance of securing sustainable supplies from alternative sources. EU companies have not signed many new long-term contracts for non-Russian supplies in recent years, and it remains uncertain if this will change in the future.²³ This may be due, inter alia, to the limited availability of uncontracted short to medium term gas volumes. According to the IEA, in 2023 global gas supply volumes will fall by more than 20 bcm compared to the previous year, due primarily to the drop in Russia to Europe that cannot be redirected to other markets, against low growth in LNG supplies. Rather, it expects larger volumes of LNG on the markets in 2025-26, about half of which will originate in the US. The availability of green gases is expected to increase as well, but only in the longer term.²⁴

The hesitancy of EU companies to sign new long-term gas supply contracts is also an outcome of the European Green Deal strategy to lower the use of natural gas. The IEA, EU and global data confirms that the crisis initiated by the Russian aggression against Ukraine - war and market risks - has accelerated structural changes in the EU contributing to a faster decline in gas demand. EU demand remains down in 2023, while it is increasing across Asia, notably China. According to the IEA, global demand is not expected to increase in 2023, and, with the lower than pre-war growth rate until 2026.²⁵

A slowdown in demand growth and a reluctance to enter into new long-term contracts could affect decisions to invest in new production and export infrastructure. This, together with competition from the growing economies of other global gas importers, would increase uncertainty about the ability to guarantee sufficient supply through market purchases in future years. All these factors - increasing competition, reliance on supply from the spot market and the annual variability of demand in the EU associated with the increasing share of intermittent renewables and the increasing volatility and unpredictability of weather (climate crisis) – will continue to sustain higher levels of price volatility and uncertainty than in the pre-war years.

EU continuity in increasing ambitions of its climate and energy policy could change after the European elections in 2024. It remains to be seen how the ongoing economic crisis, war,

²² Agata Łoskot-Strachota, Adam Michalski (2023): [Turkey's dream of a hub. Ankara's wartime gas policy](#)

²³ Although the 27-year LNG supply contracts signed in October taking effect in 2026 could be a sign of things to come. QatarEnergy with TotalEnergies and with Shell. Reuters (2023): [Qatar supplies gas to Europe, vying with US to replace Russia supply](#)

²⁴ According to the IEA, biomethane production will increase by 65% or 6.5 bcm by 2026 and low-carbon hydrogen by 25% or 4 bcm.

²⁵ IEA (2023): [Medium-Term Gas Report 2023 Including the Gas Market Report, Q4-2023](#)

continued global instability, and Ukraine's EU accession process will shape EU's energy and climate policy and the energy and gas markets. It is also uncertain if the EU and its member states can reduce natural gas consumption in line with non-binding REPowerEU objectives, and completely phase out imports of Russian hydrocarbons by 2027.²⁶ EU production and import of green and low-carbon gases will also affect both demand and the shape of the gas market but remains uncertain.

Lastly, the physical security of infrastructure could impact hitherto key gas supply routes to the European market. It is unknown how the Ukrainian infrastructure will be used after 2024 and the expiry of the current transit contract, as well as the Yamal pipeline currently sanctioned by Russia. The damage to the Nord Stream 1 and 2 pipelines and the Balticconnector highlights the greater risks to the security of critical energy infrastructure that has arisen since the war in Ukraine.

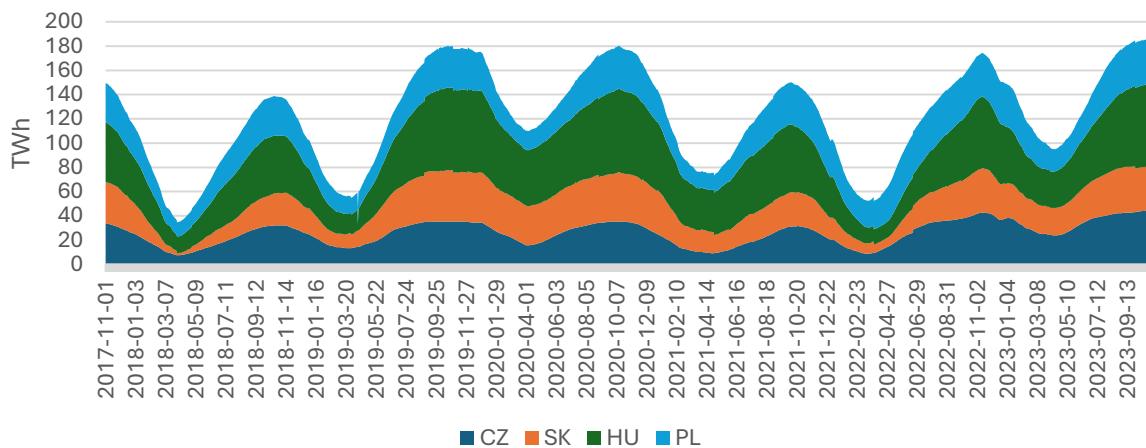
²⁶ The Fit-for-55 proposals aim to reduce EU gas consumption by 30%. REPowerEU increased this ambition in 2022: [COMMISSION STAFF WORKING DOCUMENT IMPLEMENTING THE REPOWER EU ACTION PLAN: INVESTMENT NEEDS, HYDROGEN ACCELERATOR AND ACHIEVING THE BIO-METHANE TARGETS](#)

4 V4 AND RUSSIAN GAS: DIVERSIFICATION OF ROUTES AND SOURCES

The V4 countries have implemented several measures to reduce dependence on Russian gas, secure alternative sources, routes and supply contracts, and limit price levels to shield consumers. These actions were intended to reduce vulnerability to current and potential future risks, increase resilience and energy security and, as a result, reduce the level of uncertainty and volatility despite the continued challenges.

Like the other EU member states, all V4 countries have been filling their storage facilities at record pace and volumes since the war, achieving 98-99% by November 2023²⁷ (see Figure 7). Hungary and Slovakia have the largest storage capacities, capable of meeting about 2/3 of annual demand. Polish storage covers about 15% of annual demand, which translates to about 1.5 months in the winter. Following the gas crisis, Poland accelerated works to increase domestic storage capacity by 24% by 2025/26. Slovakia also plans to expand its storage capacity, including the construction of a storage tank near the Velke Kapusany border point.

FIGURE 7. CUMULATIVE FILLING LEVEL OF V4 STORAGE SITES, XI.2017-XI.2023, TWh



Source: Aggregated Gas Storage Inventory

Since the start of the war, V4 countries have taken various measures in relation to their gas supplies from Russia. Poland refused to accept Gazprom's unilateral changes to contractual terms for countries deemed 'unfriendly' by the Kremlin, and consequently Gazprom halted supplies at the end of April 2022. Since Slovakia and the Czech Republic unequivocally opposed Russian aggression and supported EU sanctions, their companies were also obliged to comply with Gazprom's ruble-for-gas scheme, which they agreed to in the spring of 2022. Nonetheless, both countries have been undersupplied according to their contracts since summer 2022. This is especially true for Czech Republic following Russia's suspension of Nord Stream 1 flows. According to Prime Minister Petr Fiala, as of early 2023 Czech dependence on Russian gas has

²⁷ Aggregated Gas Storage Inventory (AGSI): [Storage Data](#)

fallen from a high of 97% to 3-4%.²⁸ Slovakia, on the other hand, has only managed to reduce its dependence on Russian gas from a high of 85% to 64%.²⁹

Finally, Hungary has been pursuing a deliberate policy of engagement with Russia since the beginning of the war, maintaining political and economic and importantly energy relations while opposing EU energy sanctions. This is intended, among other things, to ensure its continued and stable supply of Russian hydrocarbons at contractual prices.

4.1 POLAND - SUSTAINABLE INDEPENDENCE FROM RUSSIAN GAS

When the war broke out, Poland was already well into implementation of the most important diversification projects in the region. The LNG terminal in Świnoujście has been in operation since 2016, with import capacity gradually expanded from the initial 5 bcm/y to over 6 bcm/y in 2022 and a target capacity of at least 7.5 bcm by the end of 2023.³⁰ Terminal utilisation has also increased to 94%, most of which are deliveries from the US and Qatar.³¹

In 2022, the Polish gas TSO (Gaz-System) in cooperation with its partner from Denmark and financial support of the EU, succeeded in completing construction of the 10 bcm/y capacity Baltic Pipe pipeline,³² the first route directly connecting Poland and Central and Eastern Europe with Norwegian deposits. In its first year of operation, by October 2023, 5.5 bcm of gas was transported.³³ It is not an exaggeration to say that Baltic Pipe has been the most important Polish supply source in 2023, together with the Świnoujście terminal providing 75% of gas supplies to the country.³⁴

In addition, two other interconnectors became operational in 2022. The Polish-Lithuanian GIPL opened in May, with a capacity of 2.5 bcm/y in the Lithuanian direction and 2 bcm/y in the Polish direction. This allows deliveries to Lithuania and imports from the Lithuanian Klaipeda to Poland.³⁵ In November 2022, the bi-directional Polish-Slovak interconnector was commissioned, with a capacity of 5.7 bcm/y towards Poland and 4.7 bcm/y towards Slovakia. This is an important piece of the north-south infrastructure integration of both countries and allows Poland additional access (via Slovakia) to the Ukrainian market and gas infrastructure.

At the same time, Poland can also import gas from the EU market via traditional connections with the Czech Republic and Germany, including a large connection at the entry point of the

²⁸ Euractiv (2023): [Czechia decreases Russian gas dependence over eight months](#)

²⁹ Denník (2023): [Zmluva s Gazpromom platí do roku 2034, dovtedy musíme za ruský plyn platiť, hovorí šéf SPP](#)

³⁰ The expansion of the terminal is expected to be completed by the end of 2023, reaching capacity up to 8.3 bcm/y.

³¹ According to Orlen, 5.8 bcm was imported in 2022. LNG imports were less than 4 bcm in 2021 and the utilisation of Świnoujście was 78%.

³² Baltic Pipe Project (2023): [Crossing borders for secure, affordable and sustainable energy](#)

³³ Gaz System (2023): [GAZ-SYSTEM – pierwsza rocznica uruchomienia Baltic Pipe](#)

³⁴ X (2023): [Tomasz Włodek](#)

³⁵ In 2022, Orlen imported more than 0.5 bcm.

Yamal pipeline to Germany (Mallnow). Finally, the construction of a new, floating LNG terminal (FSRU) is planned near Gdansk for 2027, with initial capacity of 6.1 bcm/y. In the event of binding additional interest from gas consumers in Poland and in the region, a second regasification train could be added to increase capacity.

Poland has also improved its security of supply situation by diversifying its supply structure. It has the largest domestic gas production among V4 countries (4 bcm/y), but this is only equivalent to about 25% of demand with the remainder covered by imports. Prior to the war, supplies were ensured under long term contract with Gazprom and Qatar and supplemented by short term contracts at smaller volumes with Centrica and Cheniere (see Table 1). In 2022, once Russia cut its supply to Poland in April, the spot market became a key source. Most spot LNG cargos came from the US but also from Nigeria, Trinidad and Tobago and Egypt. In addition, Poland has used BalticPipe to transmit gas produced by PGNIG and Lotos on the Norwegian shelf.³⁶ From the beginning of 2023 the situation improved dramatically with two US long-term contracts and agreements with Danish Orsted and Norwegian Equinor (the last one negotiated in the crisis time) entering into force. From 2026/27 two additional long-term contracts for US LNG will be added to this (see Table 1).

TABLE 1. CONTRACTS FOR THE SUPPLY OF NON-RUSSIAN GAS TO POLAND

Country	Company	Volumes bcm/y	Entry into force	Duration (years)	Terms/Route of supply
Qatar	Qatargas ³⁷	2,7	2014/15 ³⁸	20	LNG, DES
USA	Cheniere, Sabine Pass	1,95	2023	20	LNG, DES
USA	Venture Global, Calcasieu Pass	2,05	2023	20	LNG, FOB
Denmark	Orsted	1,5 ³⁹	2023	5	BalticPipe
Norway	Equinor	2,4	2023	10	BalticPipe
USA	Venture Global, Plaquamines	5,4	2026	20	LNG, FOB
USA	Sempra, Port Arthur	1,35	2027	20	LNG, FOB

Based on PGNIG / Orlen data

The diversification of routes and contracts has completely changed the structure of Poland's gas imports, particularly evident after the cessation of Russian supplies (see Figure 8).

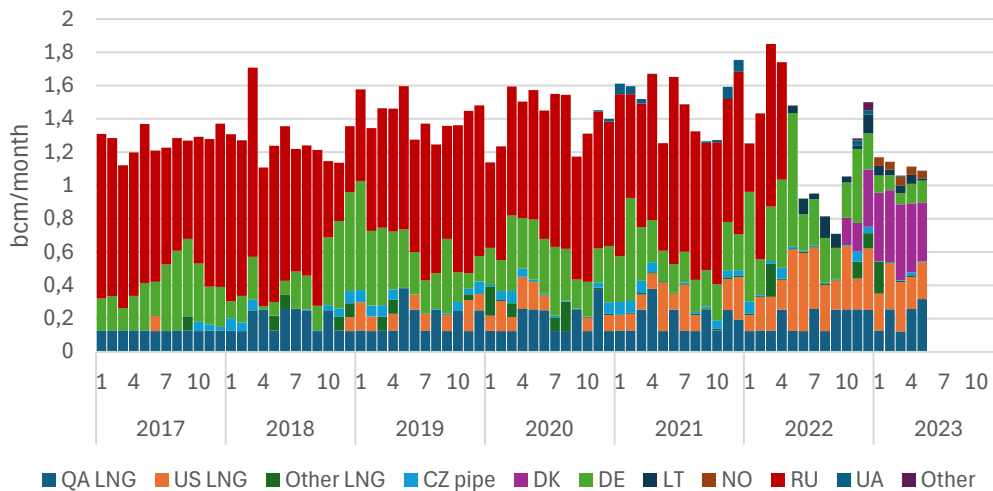
³⁶ In 2022 production was 3 bcm, which is expected to drop in 2023 rebounding to 3-4 bcm/yr.

³⁷ Now QatarEnergy LNG.

³⁸ Contract for 1.35 bcm since 2014, volumes doubled in 2017.

³⁹ The entire contract is for the supply of 7.2 bcm by October 2028.

FIGURE 8. POLAND: MONTHLY IMPORT SOURCES, 2017-2023, BCM



Source: Eurostat

4.2 CZECH REPUBLIC - DIVERSIFICATION AND INCREASED ROLE OF THE STATE IN THE GAS SECTOR

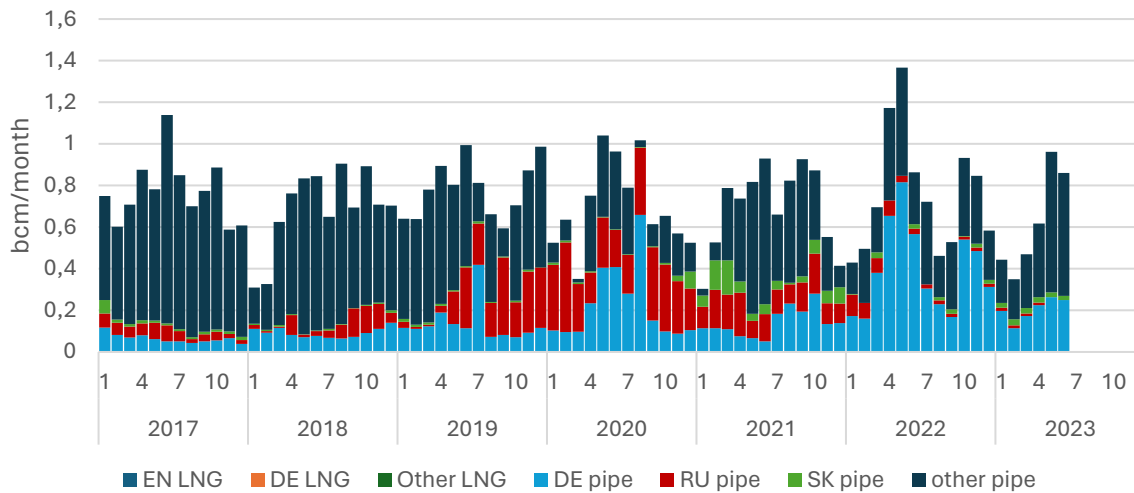
The Czech gas market has a traditional connection to the Russian gas supply route via Ukraine and Slovakia, but for several years, and perhaps to an even greater extent, the country has become more integrated with the German market and infrastructure and imported bulk of Russian gas via Nord Stream. This also had the effect of increasing the significance of Czech gas infrastructure for West-East flows. Thus, the outbreak of the war and suspension of gas supplies from Russia via Nord Stream effectively ceased gas deliveries to the Czech Republic, with only small amounts arriving via Slovakia, which until 2023.

At the same time, it was this integration and access to German infrastructure that enabled the Czech Republic to secure alternative supplies. In mid-2022, Czech CEZ reserved 40% of the capacity (3.1 bcm/year) at the newly completed FSRU terminal in Eemshaven, the Netherlands, the EU's first new terminal opened after the outbreak of war, from September 2022 to September 2027. This has the potential to cover one third of its domestic gas needs.⁴⁰ Since the outbreak of the war, the Czech Republic has been buying LNG from Belgian and Dutch terminals and Norwegian gas via German companies.

The Czech Republic is also in negotiations for additional LNG capacity from terminals under construction in Germany (Lubmin) and Poland (Gdansk). To enable imports from the Polish terminal the revival of the second Polish-Czech Stork II interconnector would be required. This would open another import route into the country. Finally, the Czech Republic remains connected to Slovakia and could theoretically benefit from additional import sources it secures.

⁴⁰ [Krzysztof Dębiec \(2022\): Czechy z udziałem w holenderskim terminalu LNG EemsEnergyTerminal](#)

FIGURE 9. CZECHIA: MONTHLY IMPORT SOURCES, 2017-2023, BCM



Source: Eurostat

NOTE: Eurostat monthly data shows gas inflows by border points, so Czech imports from Germany (via German border points) are until summer 2022 mostly Russian molecules sent via Nord Stream and Opal pipelines in Germany to Czech Republic.

In parallel with the reconfiguration of the structure and sources of imports, the Czech Republic has also changed the ownership structure of its gas sector. First, Gazprom was stripped of its stake in Moravia Gas Storage, one of the largest gas storage facilities in the country. Gazprom has been also denied use of this storage capacity until March 2024. Secondly, the state and state-owned companies are taking on a larger role in the heavily privatised gas sector, primarily to maintain control over critical gas infrastructure and increase its security after the outbreak of the war. In the summer of 2023, state-owned CEPS, the operator of the Czech electricity grid, bought RWE Gas Storage CZ, which owns almost 80% of the domestic storage capacity. Then in September it purchased Czech gas pipeline operator Net4Gas.⁴¹

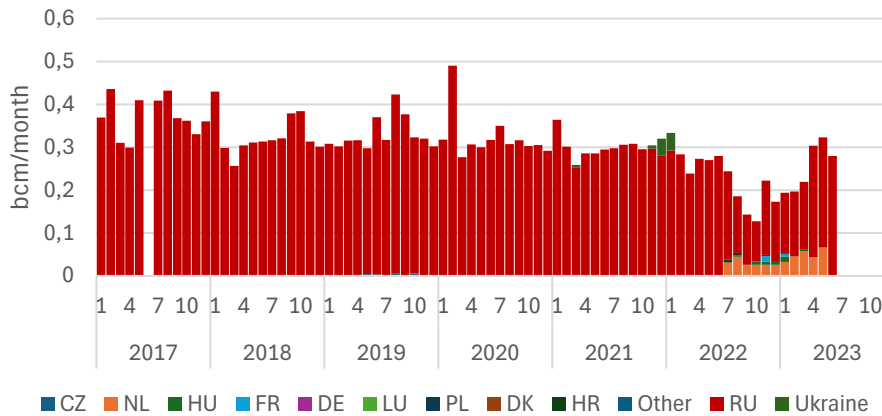
4.3 SLOVAKIA - PARTIAL DIVERSIFICATION

Geographically, Slovakia is in the most difficult position among the V4 countries. It served as the most important transit route for Russian gas to the EU for decades and remains dependent on both supplies from Russia and their transit via Ukraine. At the same time, it has relatively limited access to alternative sources and/or routes and relies on cooperation with neighbouring countries for diversification. Currently, state owned SPP, the largest energy supplier in the country, imports majority of domestic consumption from Gazprom under a long-term contract that expires in 2034 and is one of the few member states to receive gas transported through Ukraine. The challenge for Slovakia remains not only the EU policy of shifting away from Russian gas imports, but perhaps more significantly, the pending expiration

⁴¹For more cf. [Krzysztof Dębiec \(2023\): Czechy: Net4Gas w rękach państwa](#)

of the Ukrainian-Russian transit contract at the end of 2024, which could endanger future supplies through Ukraine.

FIGURE 10. SLOVAKIA: MONTHLY IMPORT SOURCES, 2017-2023, BCM



Source: Eurostat

Slovakia has been able to purchase small volumes of spot and short-term of LNG. SPP, which supplies more than 50% of the domestic gas market, purchased 80 mcm of LNG in February 2022 via the terminal on the Croatian island of Krk.⁴² Combined with other diversification contracts, this covered more than 65 per cent of the company's non-Russian volumes by the end of the year, which is more than 1/3 of total gas demand. At the beginning of 2023, SPP signed contracts with non-Russian suppliers⁴³ for similar volumes in 2023-24.

As far as infrastructure, the interconnector with Poland was successfully launched in October 2022, providing Slovakia with access to the LNG terminal in Świnoujście, though it has not been utilized to date, which could be at least partially attributable to limited availability of free import capacity in Poland.

Other diversification measures are still in the initial planning stage. Like Czech Republic, Slovakia has sought access to LNG terminals in Europe, signing memoranda of understanding with, among others, Italian, German and Polish companies, but to date no binding agreements have been concluded. Talks are also under way with alternative gas suppliers from the USA, Qatar, Asia and Africa.⁴⁴ Finally, Slovakia has been supportive of new regional projects, such as the Solidarity Ring, not only to diversify but to reassert itself as a transit country.⁴⁵ This project envisages the expansion of infrastructure running from Bulgaria through Romania and Hungary

⁴² SPP (2022): [SPP prvýkrát nakúpil LNG, dodávky plynu sú bez obmedzení](#)

⁴³ With BP, ExxonMobil, Shell, RWE and ENI, see CEEnergy News (2023): [SPP renews gas contracts to strengthen energy diversification in Slovakia](#)

⁴⁴ Ministerstvo Hospodárstva Slovenskej Republiky (2023): [Draft update of the Integrated National energy and climate plan for 2021-2030 processed pursuant to Regulation \(EU\) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action](#)

⁴⁵ Zespół OSW (2023): [Solidarity Ring: krok do zwiększenia dostaw azerskiego gazu do Europy Środkowej](#)

to Slovakia to bring Azerbaijan supplies to the EU market. In parallel, an extension of the connection at the Slovakian-Hungarian border is under consideration.

Slovakia is also exploring ways to increase its domestic gas production. Though it is quite expensive, it is estimated that domestic production could cover up to 10% of Slovak demand.⁴⁶ It remains unclear which of the above plans will prove to be viable and gain supported of the newly elected Slovak government in October 2023.

4.4 HUNGARY - STRENGTHENING COOPERATION WITH RUSSIA

Hungary's security of supply strategy in response to the war in Ukraine and Russia's economic war with the West is completely opposed to the other V4 countries and the rest of the EU. The aim is to ensure the stability of Russian gas imports, which are received via the TurkStream pipeline through the Black Seabed to Turkey and then Bulgaria and Serbia to Hungary. In addition, some imports have continued along the traditional route via Ukraine, Slovakia and Austria. Russia is fulfilling its obligations to Hungary under the terms of the 15-year contract signed at the end of 2021 for the supply of 4.5 bcm of gas per year.⁴⁷ Hungary signed additional supplemental supply agreements with Gazprom in August 2022⁴⁸ and April 2023⁴⁹. Hungary purchases the missing gas on the EU hubs and also imports it in the form of LNG. In 2021, Hungarian energy utility MVM secured a 7-year contract for of 1 bcm capacity annually from the Krk terminal in Croatia. It also has a 6-year contract with Shell for the supply of 0,25 bcm of LNG. Last but not least Hungary produces about 2 bcm of gas domestically, which is about 20% of domestic consumption (9.5 bcm in 2022).

Despite its efforts to maintain diplomatic relations with Russia and ensure stable or even larger supply volumes from Gazprom, Hungary has also started to look for options to diversify its sources of supply. To this end, it supports regional projects such as the Solidarity Ring, with a declared interest in 1-2 bcm of gas from Azerbaijan. In summer 2023 an agreement was signed between Hungary's MVM and Socar to supply 0.1 bcm of Azeri gas until the end of 2023.⁵⁰ Then in August 2023, MVM signed an agreement with Turkey's Botas for the supply of 0.3 bcm in 2024.⁵¹ These volumes are not significant relative to Hungary's annual demand, but the agreements include the possibility of storing Azeri and Turkish gas in Hungarian storage facilities.⁵² Budapest has been holding talks with Qatar and Oman about LNG supplies for

⁴⁶ Ministerstvo Hospodárstva Slovenskej Republiky (2023): [Draft update of the Integrated National energy and climate plan for 2021-2030 processed pursuant to Regulation \(EU\) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action](#)

⁴⁷ Szymon Kardaś, Andrzej Sadecki (2021): [Nowa węgiersko-rosyjska umowa gazowa](#)

⁴⁸ Politico (2022): [Hungary signs new gas deal with Gazprom](#)

⁴⁹ AP (2023): [Hungary forces new energy deals with Russia amid Ukraine war](#)

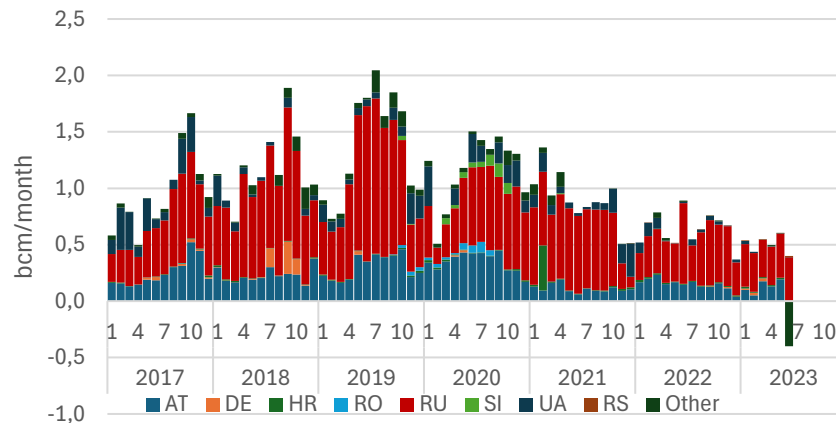
⁵⁰ Turan (2023): [Hungary and Azerbaijan discussed launching operations at Hungarian gas storage facilities](#)

⁵¹ Argus (2023): [Hungary to buy 275mn m³ of gas from Turkey in 2024](#)

⁵² In September this year, SOCAR has already began sending an agreed 50 mcm of gas to Hungarian storage.

several months, but they remain inconclusive with the possible start of deliveries from the Croatian terminal in a the next few years. In the mid-term, Hungary is also looking to import gas from Romanian Black Sea offshore and access capacities of the planned Polish FSRU terminal in Gdansk. Lastly, an interconnector with Slovenia is being planned which would give Hungary the option of buying surplus gas imported by Slovenia from, for example, Algeria.

FIGURE 11. HUNGARY: MONTHLY IMPORT SOURCES, 2017-2023, BCM



Source: Eurostat

Since 1990 Hungary has invested heavily into gas infrastructure, including interconnectors with each bordering country and a near doubling of storage capacity. In the Krk LNG open season procedure, Hungarian traders booked half of the capacities, which provided the commercial backing it needed for a positive investment decision. The terminal started operation in 2021 and provides Hungary access to the global gas market. Alternative supplies are, however, limited, and the Croatian capacity enables only to cover around 10% of Hungary's gas demand.

The delays and complications for regional infrastructure projects like BRUA were among the factors locking-in Hungary's dependency on Russian gas before the war. Current diversification efforts are either very short-term and involve marginal volumes of gas or remain non-binding plans. Therefore, Hungary has no real option now or in the near future to significantly reduce its dependence on Russian gas. The gradual diversification of supplies, on the one hand, may ensure a certain degree of competition on the domestic market, or help strengthen Hungary's negotiating position vis-a-vis Russia. Given its excellent gas transmission network connectivity, Hungary might take advantage of the regional market dynamics and secure mutually beneficial cooperation with new suppliers or players (Turkey and Azerbaijan). Finally, Hungary may also be motivated by the increased gas supply security risks posed by Russia (resulting, inter alia, from the risk to the security of critical infrastructure increased by the war) or the political and financial costs associated with transit through third countries (see Bulgaria's increase in transit fees for Russian gas flows⁵³). At the same time, however, the measures taken do not ensure the adequate supply in case exports from Russia to Hungary are interrupted for any reason.

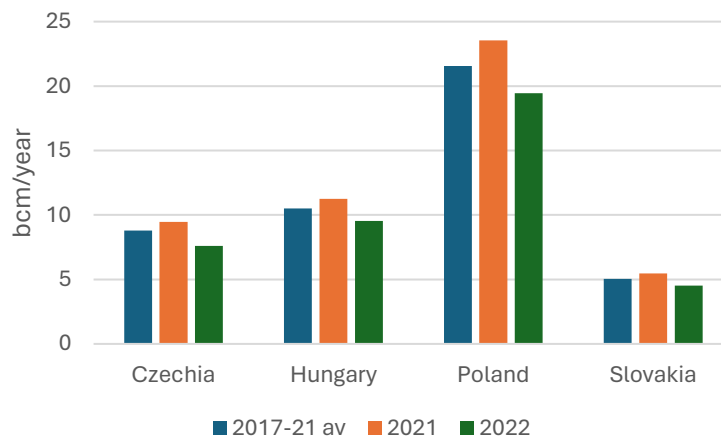
⁵³ Ilona Gizińska, Łukasz Kobeszko (2023): [Bulgaria introduces additional fees for Russian gas transit](#)

5 DECREASING DEMAND IN V4

In response to the energy crisis, all EU countries, including the V4, significantly reduced their gas consumption. This was as result of lower consumption and fuel switching in response to record prices and the demand destruction, particularly for industry. The voluntary 15% EU demand reduction target that was met and extended also contributed to the changes in behaviour.

According to Eurostat, year-on-year demand in 2022 fell the most in the Czech Republic (-19.6%), followed closely by Poland and Slovakia (more than 17% each). Hungary dropped the least, but still over 15%. The decline was less significant compared to the 5-year average (2017-21), where again Czechia recorded the largest reduction and Hungary the smallest (see Figure 12).

FIGURE 12. GAS CONSUMPTION IN V4 COUNTRIES, 2017-2022, BCM



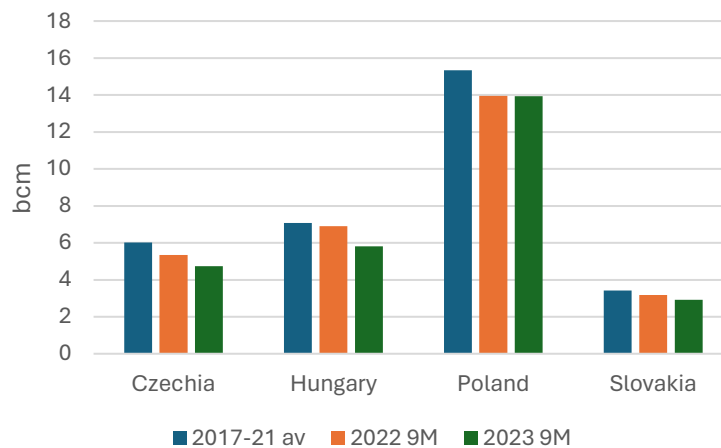
Source: Eurostat

According to data published by the European Commission⁵⁴, only Hungary (20%) and Czechia met the voluntary reduction target set by EU for the August 2022-March 2023, while Poland (12.5%) and Slovakia (1%) fell short.

V4 demand declined further in 2023. According to Eurostat, demand over the first three quarters compared to the same period in 2022, during the energy crisis, declined in all V4 countries except Poland - most notably in Hungary (almost 16%), but also in the Czech Republic (11.5%) and Slovakia (8%) (see Figure 13).

⁵⁴ Eurostat (2023): [EU gas consumption decreased by 17.7%](#)

FIGURE 13. V4: CHANGES IN GAS CONSUMPTION, 2017-23, BCM



Source: Eurostat

For Hungary, the fall in consumption was mostly attributable to the response to price signals and demand destruction. It was the building sector (households) and industry (chemical and fertilizers plants) that mostly decreased consumption. The only governmental measure affecting the demand was a maximum heating temperature set for public buildings.

For the Czech Republic, in addition to the relatively mild winters, high prices and demand destruction contributed to the decline in consumption in 2022. This was led by large customers (47%) and households (26%).⁵⁵ In the public sector, energy savings was supported by an information campaign led by the Ministry of Industry and Trade.⁵⁶

For Poland as well, the fall in demand was mostly attributable to demand destruction of industry, but it was also visible in the household sector, despite the price cap introduced by the government. This could have been a result of governmental and non-governmental information campaigns calling for energy savings and a milder than average winter. Energy efficiency measures, building insulation, and switching to other sources of heat (large increase in heat pump installations) also contributed.

In Slovakia there have been discrepancies in data reporting which makes it difficult to assess the actual change in the demand. The Ministry of Environment set a savings target of 15% and issued energy saving guidelines for 2,500 public buildings.⁵⁷ The authorities that did provide data showed a 14.2% reduction in energy consumption.⁵⁸ Several entities, notably the Slovak Innovation and Energy Agency together with the Ministry of Economy and government office, launched their own information energy saving campaigns.

⁵⁵ ERU (2023): [Loňská spotřeba plynu byla nejnižší za posledních 8 let, meziročně se snížila o pětinu](#)

⁵⁶ Ministry of Industry and Trade of the Czech Republic (2023): [Vláda chce jít s úsporami energií příkladem. Projednala manuál, který poradí, jak na to](#)

⁵⁷ Ministry of Environment of the Slovak Republic (2022): [Government sets an example](#)

⁵⁸ Ministry of Environment of the Slovak Republic (2023): [Energy Savings](#)

6 CONCLUSIONS AND QUESTION ABOUT THE FUTURE OF GAS IN THE V4

The gas crisis and Russian war against Ukraine triggered changes in V4 gas sourcing to varying degrees. Poland and Czechia were both able to reduce Russian imports to nearly zero because the former has access to the sea and a long-held diversification strategy and the latter is well connected to Germany and, by extension, the North-West European gas market.⁵⁹ Meanwhile there was less opportunity and less change for Slovakia and Hungary. Slovakia lowered Russian gas imports from 85% to 64% in 2022 and in Hungary it remains the same as before the war, 80%.⁶⁰

The V4 will continue to be impacted in the coming years by the changes and the challenges on the EU gas market. This will impact those countries buying gas on the short-term market the most, which is the Czech Republic, but also Slovakia and Hungary. Poland is in the best position with a well-diversified portfolio of long-term contracts, most of which entered into force in 2023. Now contracted supplies and own production (in Poland and Norwegian continental shelf) can satisfy almost all Polish gas demand and limit exposure to price volatility. Together with calmer EU and global gas market, it may be one of the factors behind the stabilised demand in 2023.

Despite the ongoing diversification and reduced supplies, uncertainty related to the stability and volume of gas flows from Russia will be among the key factors fuelling uncertainty on the European, and especially Central-European, markets in the immediate (upcoming winter) and longer term. At the same time Kremlin may use gas as a weapon only as long as the EU full decouples from Russian gas imports.

As a consequence of the uncertainty surrounding gas prices and stability of supply, demand for gas in V4 is difficult to predict in the next few years. This is largely driven by the market situation and the ability of individual countries and companies to secure stable supplies at affordable prices. At the same time national policies and strategic choices – related to both future of Russian gas as well as the future of gas in energy mixes and for example each of V4 countries heating sectors – will also play an important role. It appears that the perceived stabilisation of the EU market in the medium term could lead to a rebound in demand in all V4 countries. Demand is forecasted to grow in the Czech Republic⁶¹, and is also possible in Slovakia, where gas traditionally plays an important role in the energy mix. According to the draft version of Slovakia's updated National Energy and Climate Plan (NECP), the share of gas in electricity generation should remain stable, but increase in the heating sector, where substitution by other sources only expected in the longer term. Hungary's NECP anticipates

⁵⁹ As of early 2023 see Euractiv (2023): [Czechia decreases Russian gas dependence over eight months](#)

⁶⁰ Denník N (2023): [Zmluva s Gazpromom platí do roku 2034, dovedy musíme za ruský plyn platiť, hovorí šéf SPP](#)

⁶¹ Hospodářské noviny (2023): [Stát přeplatil Křetínského. Sází na větší spotřebu plynu v Česku a kupuje jeho přepravce Net4Gas](#)

gas consumption to be reduced by 2030, driven primarily by savings in the building sector. Its actual outlook will depend on feasibility and implementation of new Combined cycle power plants (CCGTs) planned to meet increased electricity and industrial demand. A pace of decline of Hungary's gas use after 2030 would depend on marked increase in nuclear energy generation but also on the success of government programmes on energy efficiency for buildings and industry.⁶² The final outlook will be related to the pace of implementation and commissioning of the Paks-II power plant project. In Poland, which had planned for more gas consumption before the war, the situation is also uncertain. It seems that we may expect a rebound and slower-than-assumed increase in gas demand also in Poland in the medium term. It would be related to the investments made in infrastructure; availability of gas supply and the emerging path of the energy transition (increase in renewable energy sources deployment and only in longer term construction of nuclear power plant(s)) where gas is to play a balancing role.

The importance of gas in the Hungarian and Slovak energy mixes, the continued market challenges, and the lack of sufficient viable alternatives to the majority of gas imports from Russia can be expected to influence their willingness to keep this supply source. In the case of Slovakia, the likelihood of such a position increases with the election victory of Robert Fico, which will change Slovakia's policy towards the Ukraine-Russia war to some degree and align more with Hungary in the field of energy.⁶³ In the case of Hungary, this would consolidate an earlier position. Both countries are therefore likely to oppose new EU sanctions on Russian gas supplies, which is counter to the positions of the Czech Republic and Poland. Moreover, Slovakia may be the country actively seeking (with Austria, which is in a similar situation) to find a way to continue the transit of Russian gas through Ukraine after 2024 and the expiry of the transit contract, despite Kiev's clear messaging that it will not sign a new contract. Thus, the issue of energy cooperation, the different political positions on gas imports from Russia and for general support of Ukraine, seems likely to continue dividing the V4 and limit its ability to be effective at shaping EU policy related to the future role of natural gas. At the same time, diverging political interests and choices should not completely derail pre-existing working relations and cooperation at the technical and expert levels. In fact, the continuity of working-level dialogue would enable V4 countries to better understand each other and prepare for renewed cooperation when the time comes.

In this context, the development of alternative gas supplies and routes to the V4 is crucial. For Slovakia, and to some extent for Hungary, cooperation with Poland and possible access to the capacities of the newly planned FSRU terminal in Gdansk should be of particular importance. The two countries could also work in the coming years to increase gas supplies via Trans-Balkan reverse flow to access LNG terminals in Turkey and Greece and via Bulgaria and Romania. Its value was shown in 2023 when Moldova used it to import gas from Greece and other sources. It would be important for the two countries to effectively cooperate with Ukraine since gas

⁶² Hungary (2023): [National Energy and Climate Plan](#)

⁶³ Krzysztof Dębiec (2023): [Parliamentary elections in Slovakia: Fico close to regaining power](#)

would need to pass its infrastructure. With imports from the Trans-Balkan pipeline, it is important to work out clear and transparent rules for EU companies to access to Turkish infrastructure and gas imports from Azerbaijan, Turkey and, third countries via Turkey. Cooperation with Greece, a member state that has implemented EU network codes and complies with transparency requirements could be easier to work with but is subject to limited available capacities.

All V4 countries will need to reduce their gas consumption to meet EU climate goals, with the by-product of improving their energy security position. This will be accomplished primarily through increased deployment of renewable generation and energy efficiency. Although this has received less attention over the last decade, there are promising options and opportunities for V4 countries to reduce gas consumption in the building sector with national strategies focusing more on energy efficiency programmes coupled with renewables in heating where possible and feasible.⁶⁴ In the long-run, low carbon gases (biomethane and hydrogen) will play more of a role substituting natural gas for industry, and planned expansion of V4 nuclear power generation would reduce the role of natural gas in electricity generation.

⁶⁴ These options are detailed and assessed in a separate V4ETTP paper „[Decarbonisation of the household heating sector in the Visegrad Countries](#)”.