Analyses OSW

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Ukraine: how the gas sector performed in 2022

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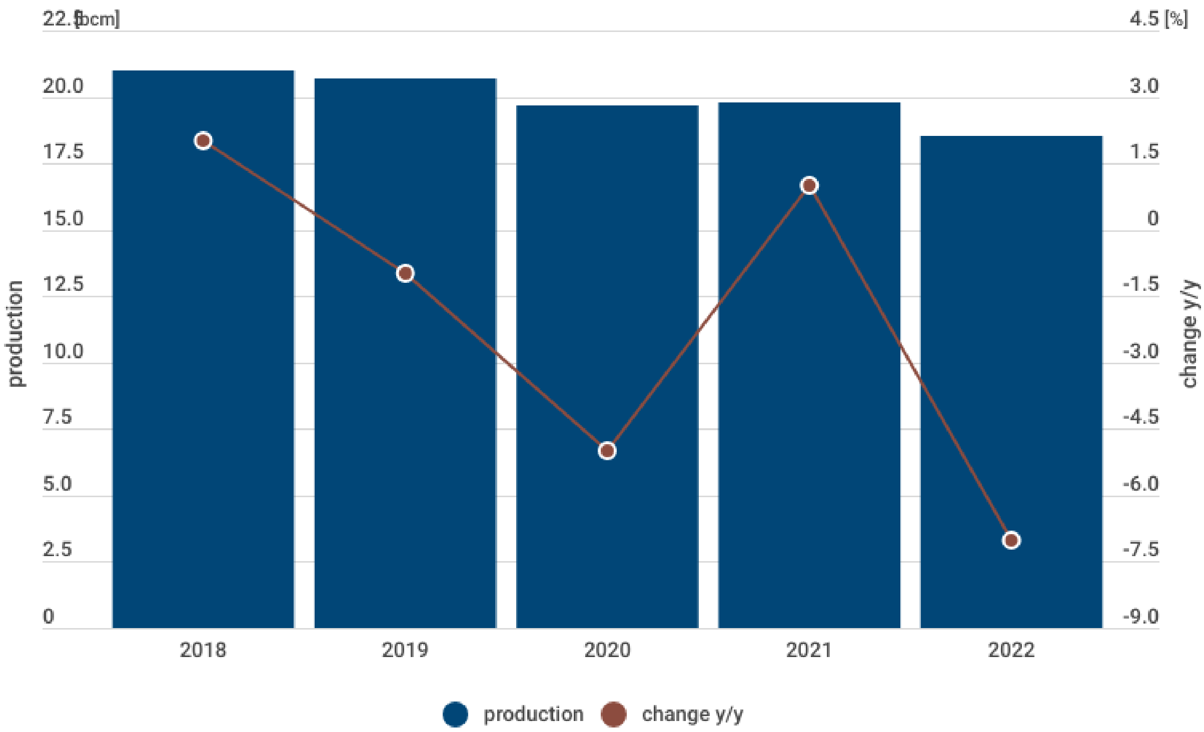
The Russian aggression has caused significant changes in the gas sector in Ukraine. Gas consumption fell by a quarter compared to the corresponding period last year, and was the lowest since the country gained independence. Although domestic production also fell, in 2022 it enabled Ukraine to attain almost complete gas self-sufficiency, which in turn helped it to reduce its imports to the minimum. In the coming months, the greatest concern involves the risk of artillery damage to the infrastructure related to gas production, storage and transmission, which could potentially paralyse the gas system as a whole.

Gas production

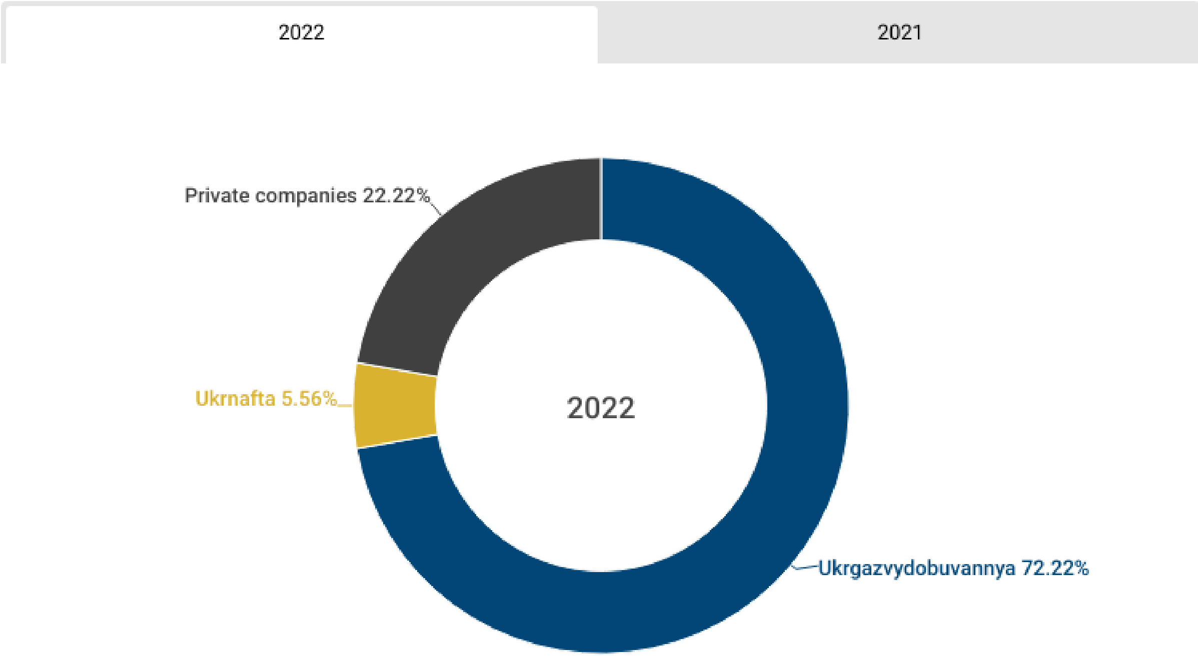
In 2022, Ukraine's gas production amounted to 18.5 bcm, a decrease of 7% versus 2021. The largest volume was extracted by Ukrgazvydobuvannya, a part of the Naftogaz company (13.2 bcm, down 3%) and Ukrnafta (1 bcm, down 7%). The remaining volume was extracted by privately-owned companies (4.3 bcm, down 15%).

Chart 1. Gas production and its dynamics in 2018–2022



Source: Gas Transmission System Operator of Ukraine.

Chart 2. Gas production in 2021 and 2022 according to the share of specific companies



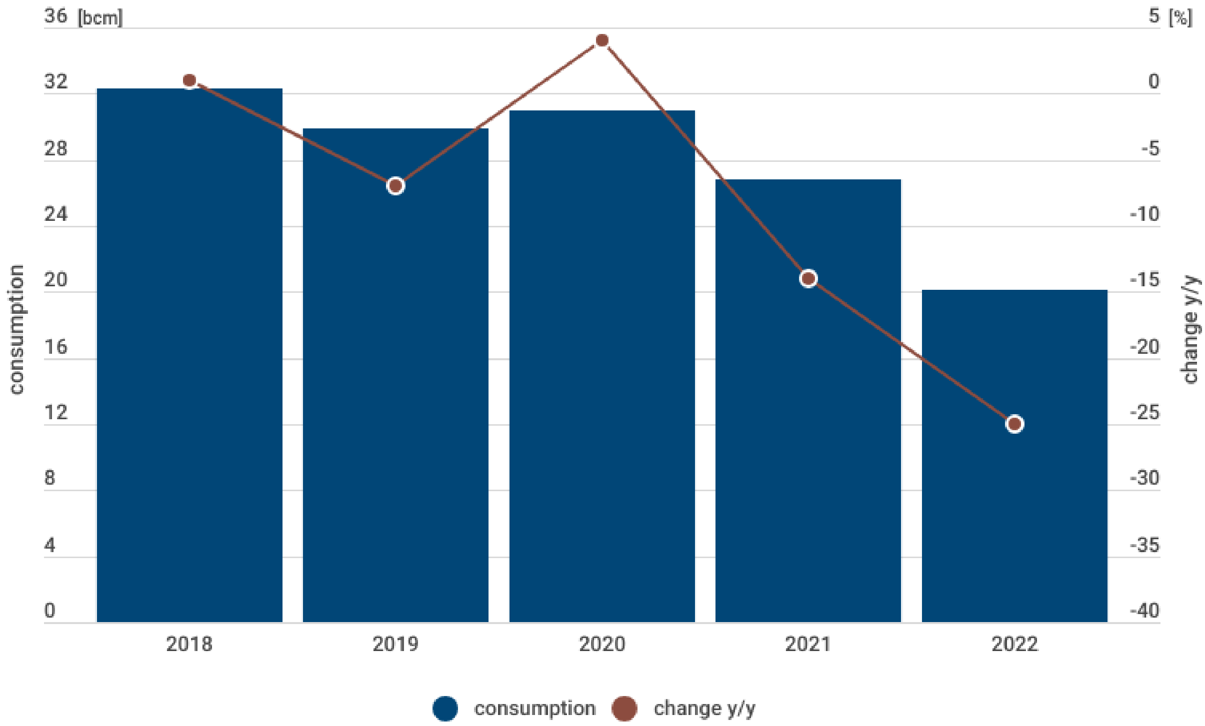
Source: ExPro Consulting.

The decline in production was primarily due to the ongoing hostilities in portions of Kharkiv oblast, in regions where natural gas fields are located or in their vicinity. Although gas infrastructure has not so far been the target of regular massive shelling, in contrast to the electricity sector and its infrastructure, several such instances have been recorded. For example, on 17 November 2022 ten facilities, which account for a third of Ukraine's domestic gas production, were shelled. Although no detailed information on the resulting damage was provided, Naftogaz estimates its losses at US$700 million. Despite the difficulties, investments intended to increase gas production are continuing: in 2022 Ukrgazvydobuvannya performed 47 new drillings.

Gas consumption and import

According to preliminary data, in 2022 Ukraine's gas consumption amounted to 20.1 bcm (a drop of 25% y/y), which is the lowest figure in the history of the independent state. Although at present no information is available regarding the consumption of gas by specific customer groups, the decline in gas consumption most likely results from the fact that several million citizens have left the country and industrial facilities have significantly limited their operations (this is particularly evident in the heavy industries).

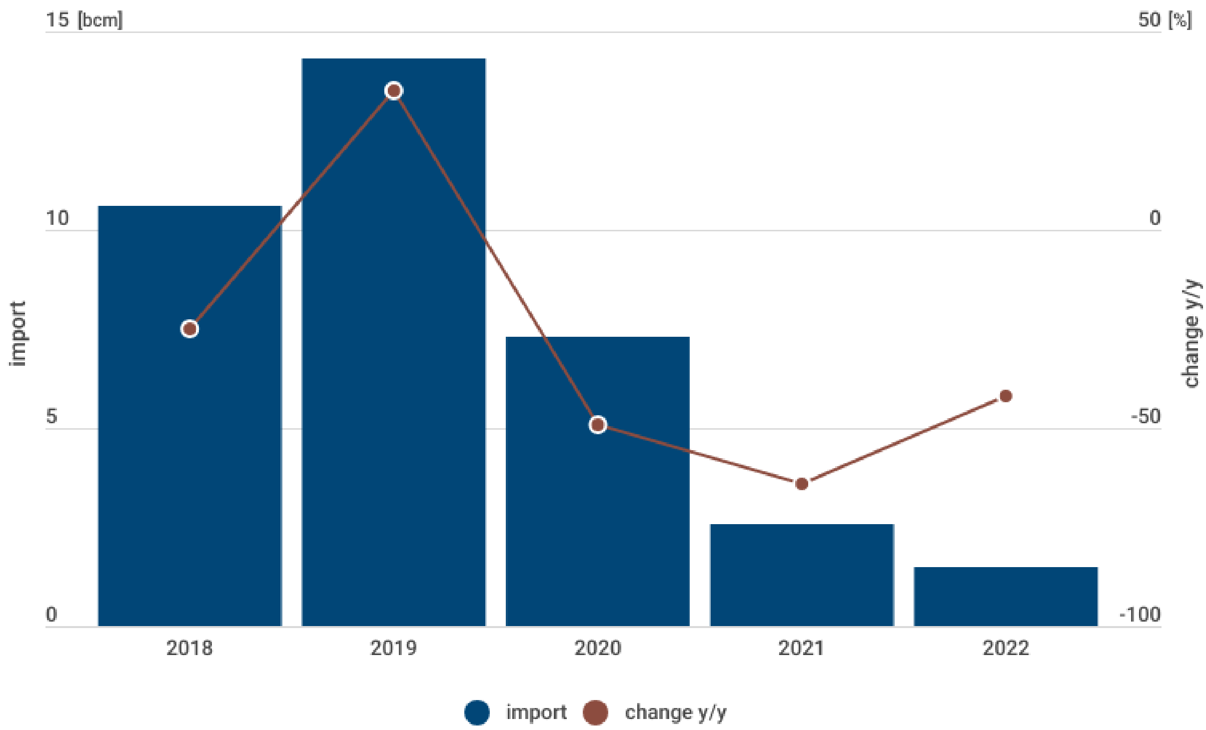
Chart 3. Gas consumption and its dynamics in 2018–2022



Source: Naftogaz.

According to preliminary (unofficial) reports, in 2022 Ukraine's gas imports amounted to 1.5 bcm (a drop of 42% y/y). Combined with the decline in gas consumption and the relatively insignificant reduction of domestic production, this indicates that in 2022 Ukraine had become almost entirely self-sufficient in its gas demand (domestically-produced gas accounted for 92% of this demand).

Chart 4. Gas import and its dynamics in 2018–2022

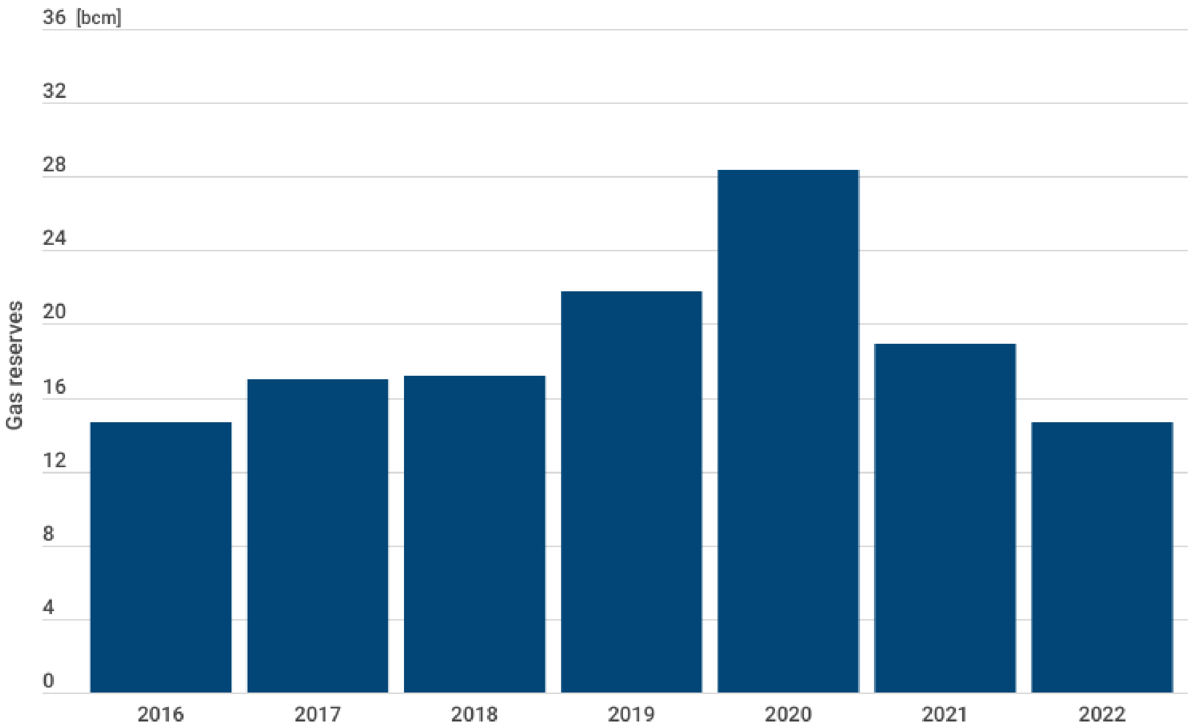


Source: Gas Transmission System Operator of Ukraine.

Gas reserves

Due to the invasion, in 2022 Ukraine began to draw gas later than in previous years (on 8 November rather than in mid-October). At that time, its gas storage facilities contained around 14.7 bcm of gas. Although this volume was smaller than in previous years, in 2016 Ukraine entered the heating season with a similar volume of gas stored in its facilities. Taking the reduced consumption into account, this volume is likely sufficient for Ukraine to get through the current winter. On 6 January 2023, the volume of gas in storage facilities was 11.7 bcm.

Chart 5. The volume of gas available in storage facilities at the beginning of the heating season

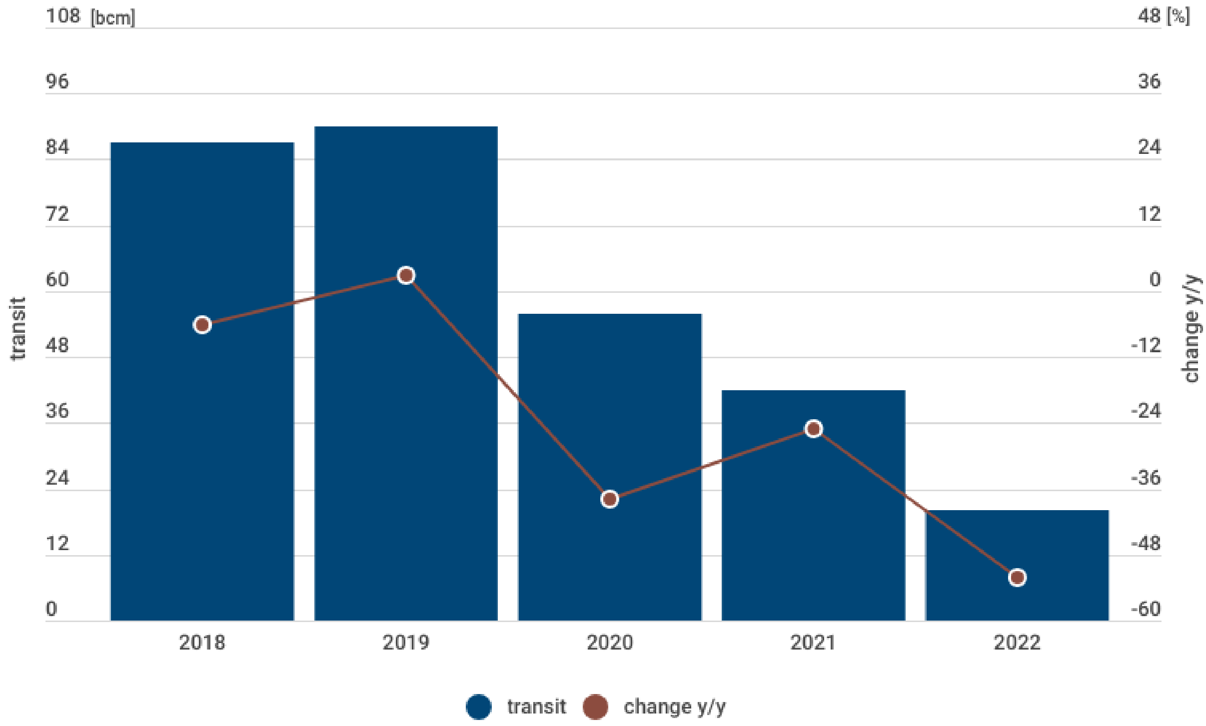


Source: Gas Transmission System Operator of Ukraine.

The transit of gas from Russia

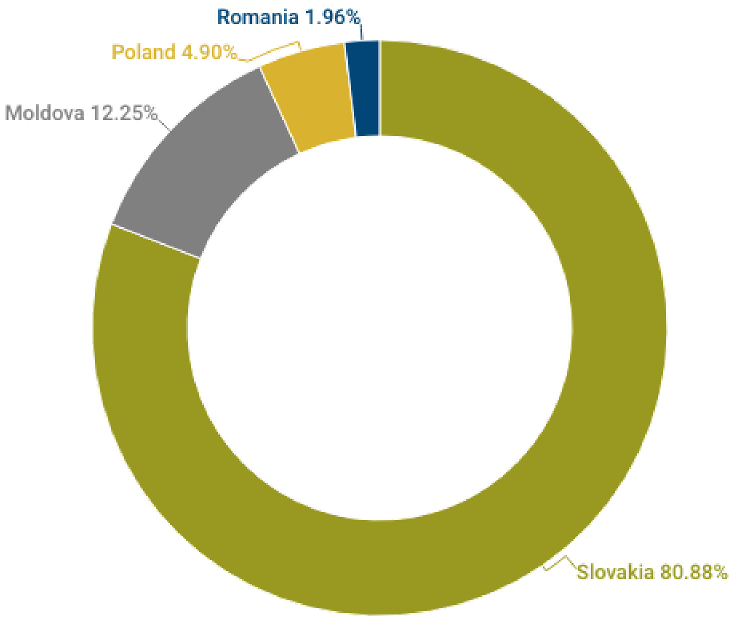
In 2022, the transit of Russian gas via the territory of Ukraine amounted to 20.4 bcm, which is the lowest figure since 1991 (in 2021 it was 41.6 bcm). Most of this gas was transmitted to Slovakia (16.5 bcm, down 40% y/y) and to Moldova (2.5 bcm, down 21% y/y). In addition, gas was being transmitted to Poland (1 bcm, down 65% y/y) and Romania (400 mcm, down 10% y/y). However, supplies to these countries were only continued until May 2022.

Chart 6. Transit of Russian gas via Ukraine and its dynamics in 2018–2022



Source: Gas Transmission System Operator of Ukraine.

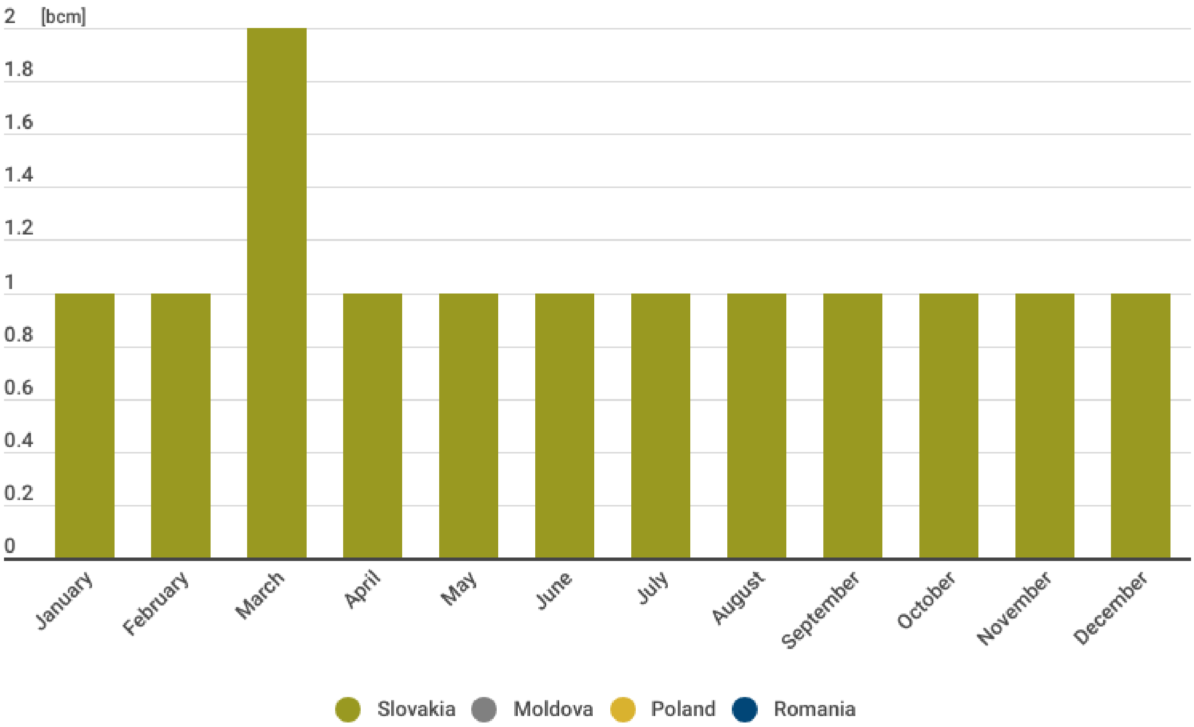
Chart 7. Recipients of gas transmitted via transit pipelines in 2022



Source: ExPro Consulting.

On the basis of a Russian-Ukrainian gas transit agreement signed in 2019, Gazprom is obliged to send 40 bcm of gas annually to Ukraine in line with the 'ship or pay' formula. In June 2022, the Russian gas giant ceased to pay the whole of the required amount in response to the fact that in May 2022 Naftogaz halted gas transit via the Sokhranivka border point, which had come under Russian occupation. On 9 September 2022, Naftogaz announced that as Russia had reduced its transit payments, it was applying to the International Court of Arbitration in Paris to launch arbitration proceedings against Gazprom. According to Yuri Vitrenko, Naftogaz's CEO at that time, the amount claimed is US$12 billion.

Chart 8. Monthly Russian gas transit bound for specific states in 2022



Source: ExPro Consulting.

Outlook

As long as the intensive hostilities continue, no increase in gas consumption should be expected, particularly in the context of Ukraine's uncertain economic future. Economic forecasts for 2023 predict only a minor increase in GDP, while some even argue that the recession will continue. Similarly, it is not known whether Ukraine will manage to maintain its high level of gas self-sufficiency in 2023: according to IMF estimates, Kyiv will need to import around 5 bcm of gas. However, some experts argue that the volume of gas Ukraine needs to import will be insignificant. In the situation of a minor increase in domestic gas production, this cannot be ruled out. The nature of Russia's further military activity is another open question. Potential massive shelling of gas infrastructure cannot be ruled out, and that could potentially paralyse gas transmission nationwide, and halt international gas transit via Ukraine.

In the longer term, once the war is over, gas consumption is unlikely to increase to the levels recorded before the war. The comprehensive reconstruction of the country which will be necessary – both its industrial base and electricity sector, and numerous residential buildings – will facilitate a large-scale nationwide energy transition, which will likely include the decision to abandon the use of natural gas in line with European trends. It could even foster revolutionary changes in the heat generation and energy sectors, among others. As a consequence, Ukraine's demand for gas imports will likely be lower than that recorded before the war (provided that Russian shelling campaigns do not significantly reduce Ukraine's gas production capacity).