
“Russia and the energy crisis”

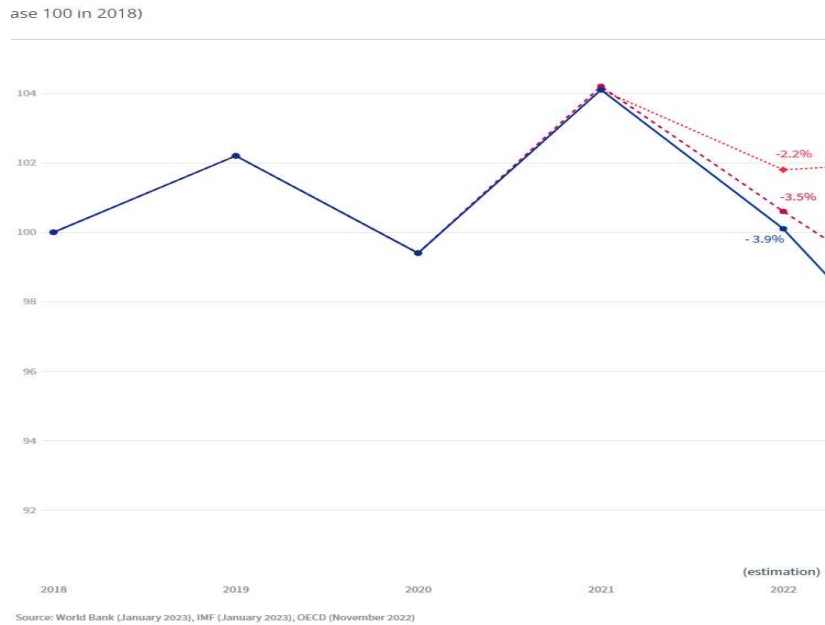
Dr. Tatiana Mitrova

Most significant geopolitical transformation since WWII

- First large-scale war in Europe and Eurasia in the last 80 years.
- Changing global geopolitical order: back to the Cold War confrontation between Russia and the West; the position of China is not clearly announced yet.
- Tremendous implications for the global economy (energy supplies, food security, flows of migrants, galloping inflation).
- All energy exports from Russia to OECD countries challenged. Massive redirection of energy flows globally.
- Changing rules of energy trade, growing role of the state interventions in the energy markets internationally, much higher role of the energy security considerations.

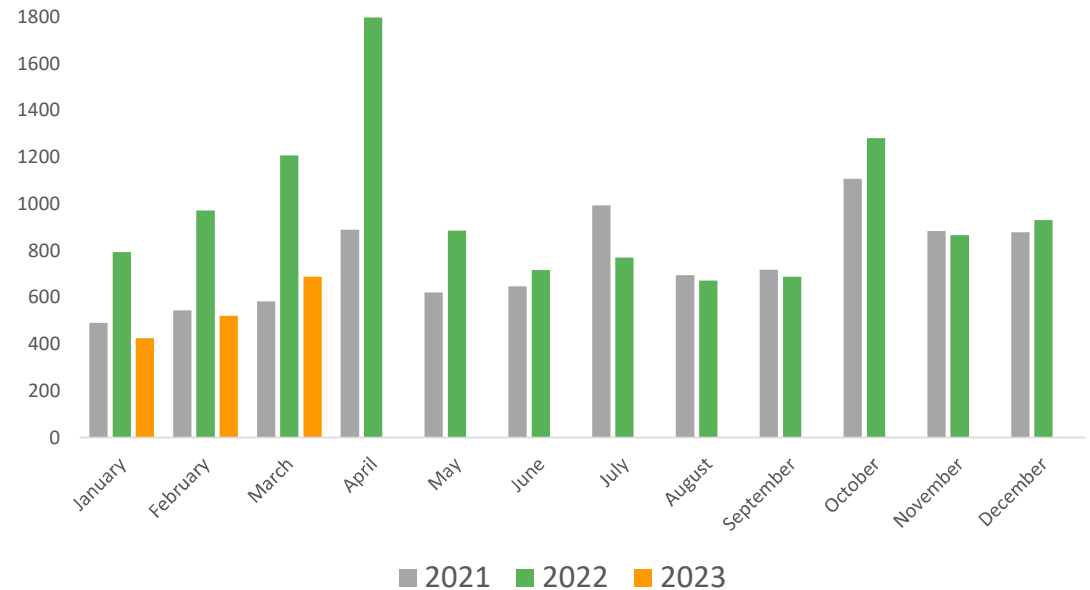
Russian economy is still quite resilient

Russian economic performance



Source: World Bank (January 2023), IMF (January 2023), OECD (November 2022)

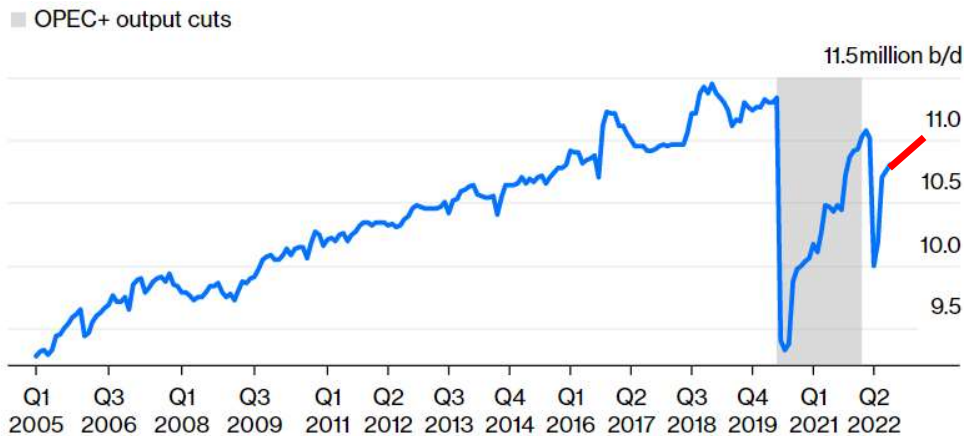
Russian budget oil&gas revenues, bln rubles



Source: Russian Ministry of Finance

Russian oil industry: rebound to the pre-war level

Historical crude oil production in Russia
(2005-2022, million bpd)



Source: Bloomberg and industry estimates

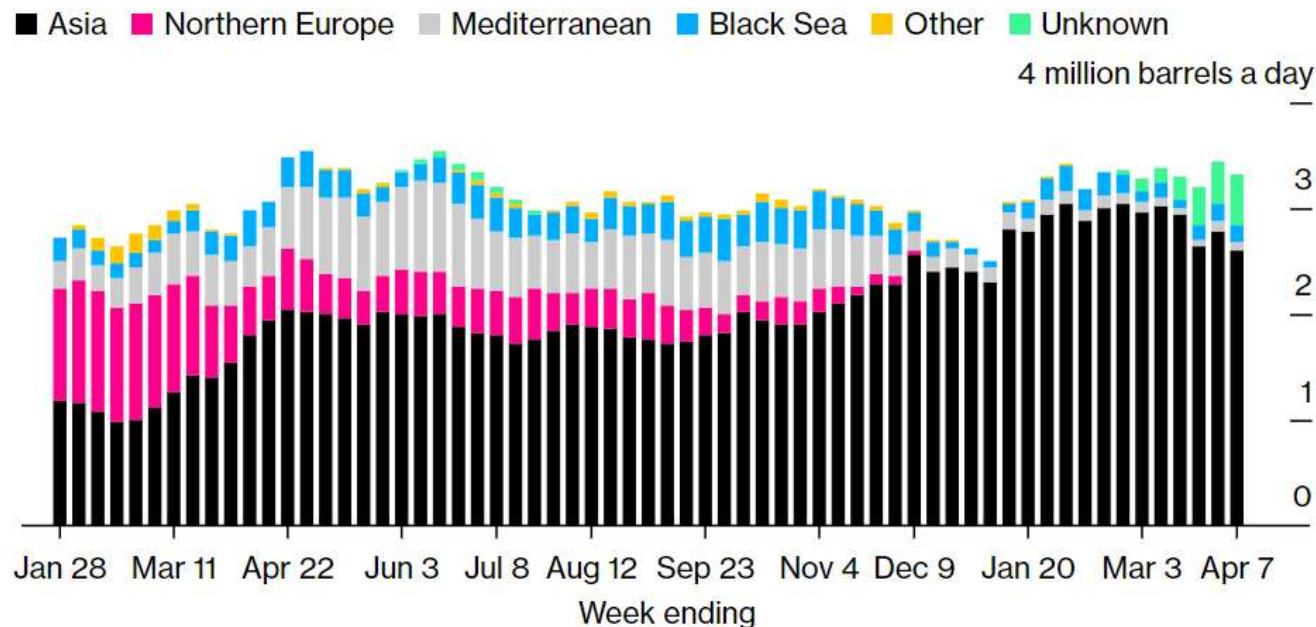
Note: August data is for early days of the month, based on industry estimates

- In April Russian oil output dropped by nearly 12% compared to the pre-war level – a significant decline, but lower than the 20% drop in June 2020 due to COVID disruptions and the OPEC+ cuts.
- In July production has restored
- By the end of 2022 oil and condensate production increased by 2% compared to 2021 (to 535 million tons = 10.7 mb/d)
- Exports grew by 7%

Russian oil exports: although the US and the EU reduced their imports, Asia and Middle East are buying more

Russia's Seaborne Crude

Four-week average crude shipments from Russia by destination



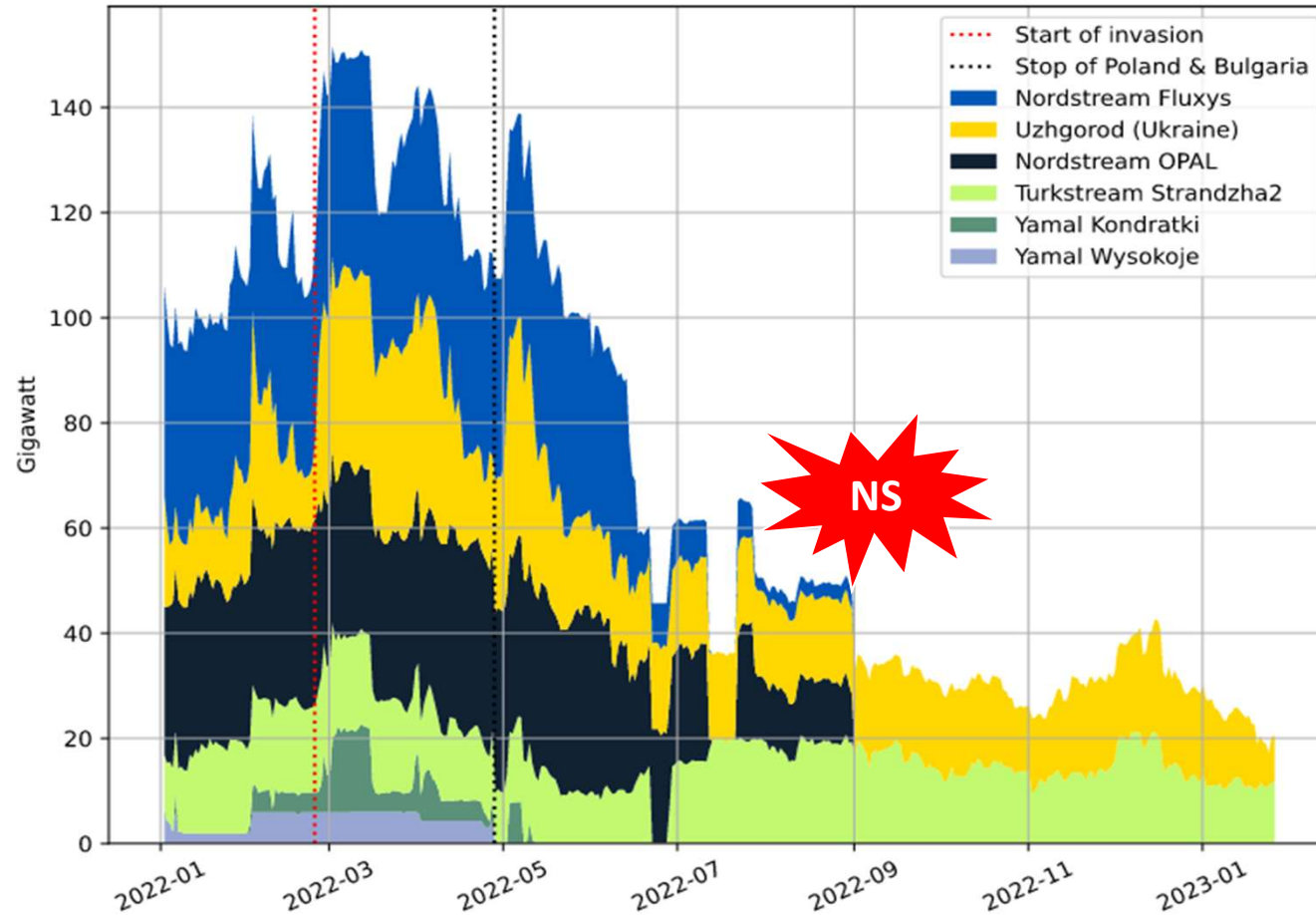
Source: Vessel tracking data monitored by Bloomberg

- After that initial struggle, Russia has found new customers.
- Exports rebounded in April after the initial sanctions, they've rebounded in January after "price cap" introduction.
- Most of that crude is ending up in Asia — notably India — but also in Turkey and elsewhere in the Middle East.

Russian oil and the price cap



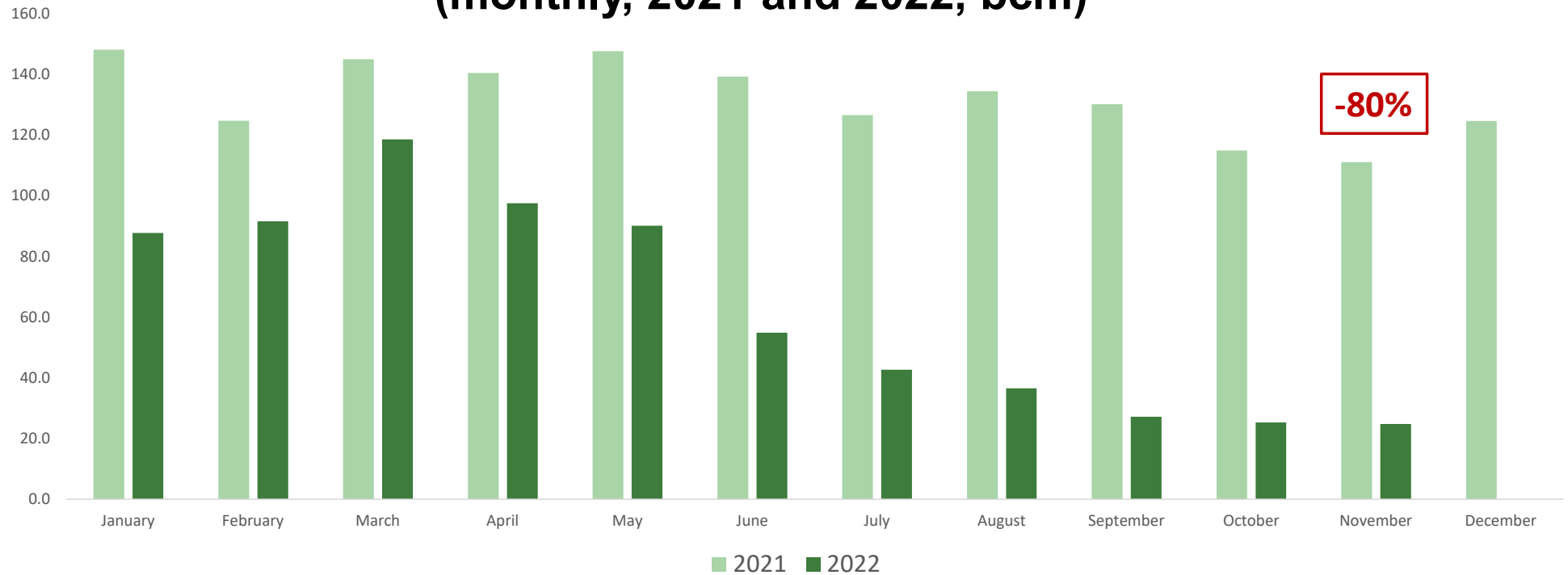
Gas crises: sharp reduction of the Russian pipeline gas flows to Europe in 2022 and finally only 2 routes left operational



Source: ENTSOG

Declining gas exports, but...

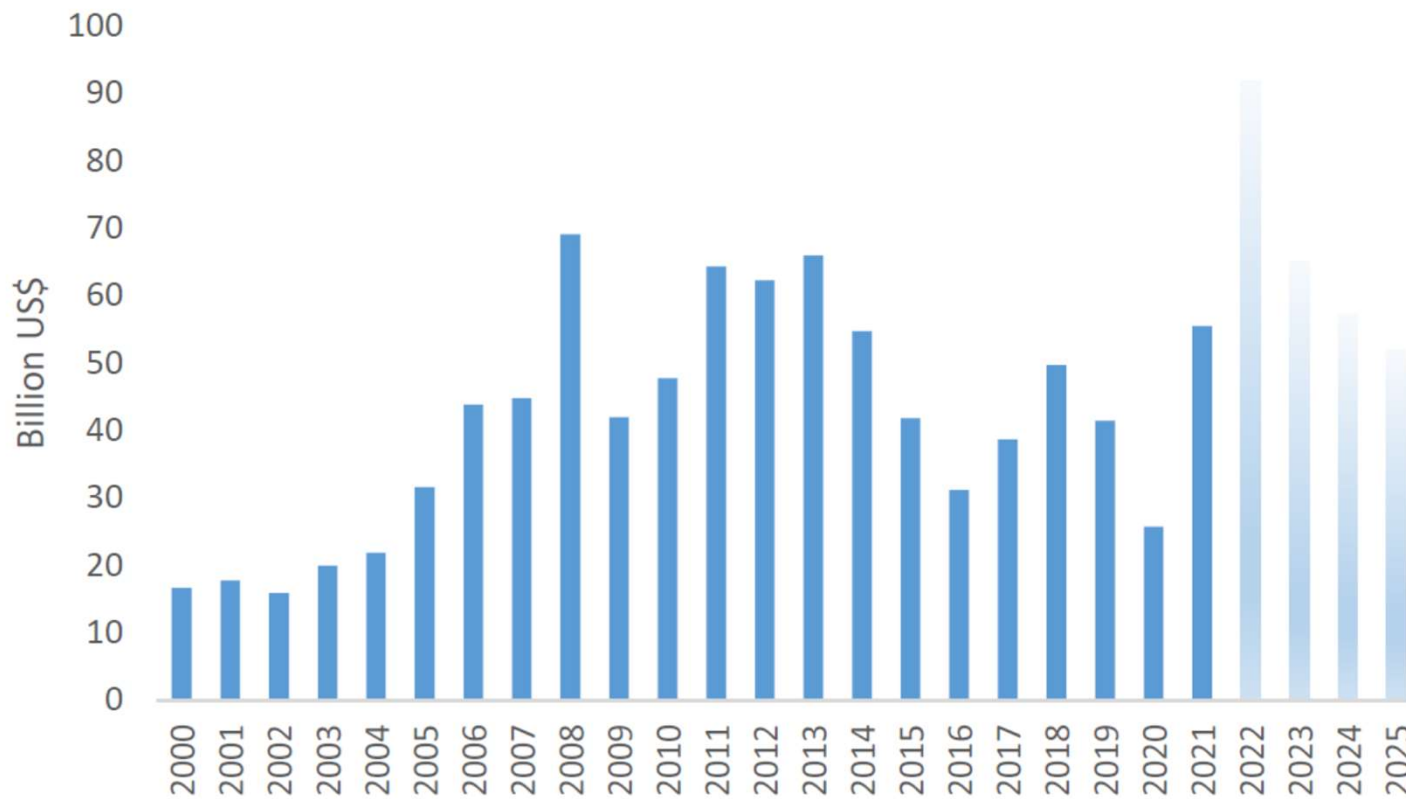
Russian gas exports to Europe (monthly, 2021 and 2022, bcm)



Source: Rosstat

Gas export revenues will still remain rather high due to the high prices

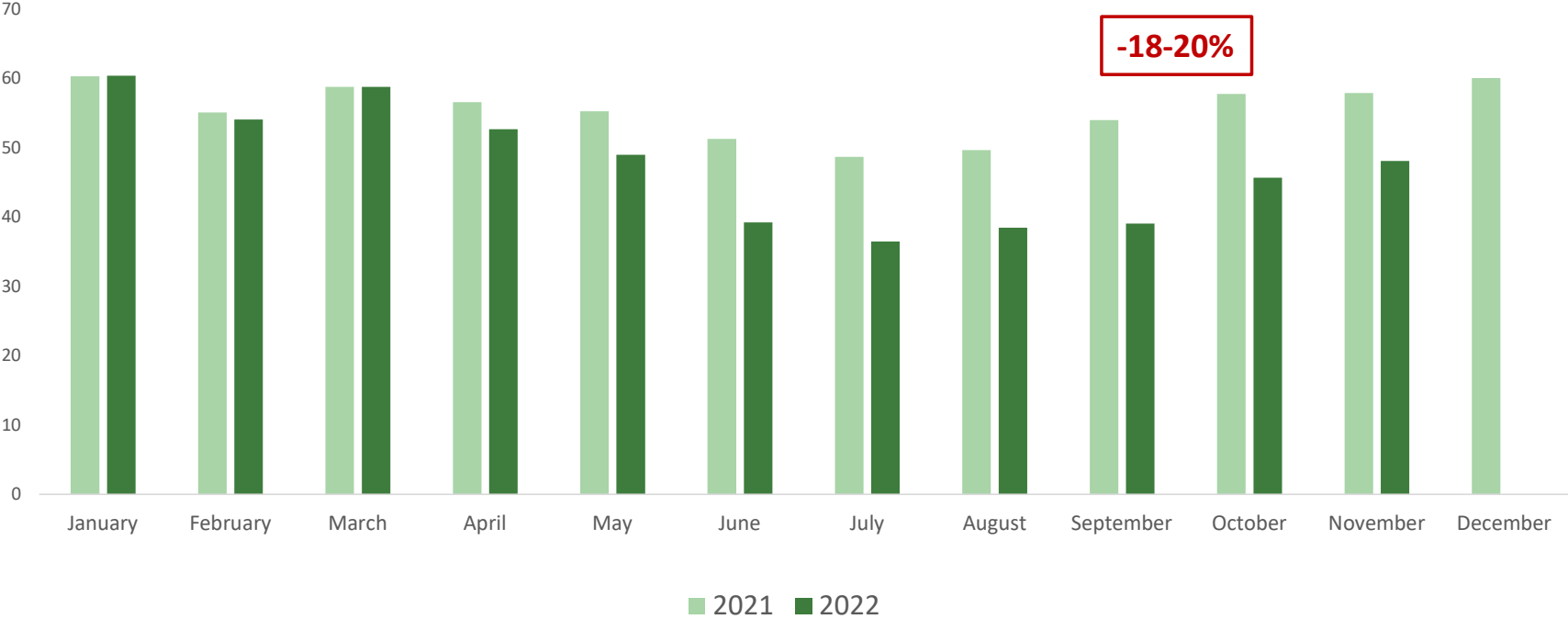
Russian revenues from pipeline gas exports



Source: OIES, data from the Central Bank of Russia

Lower exports correspond to lower gas production

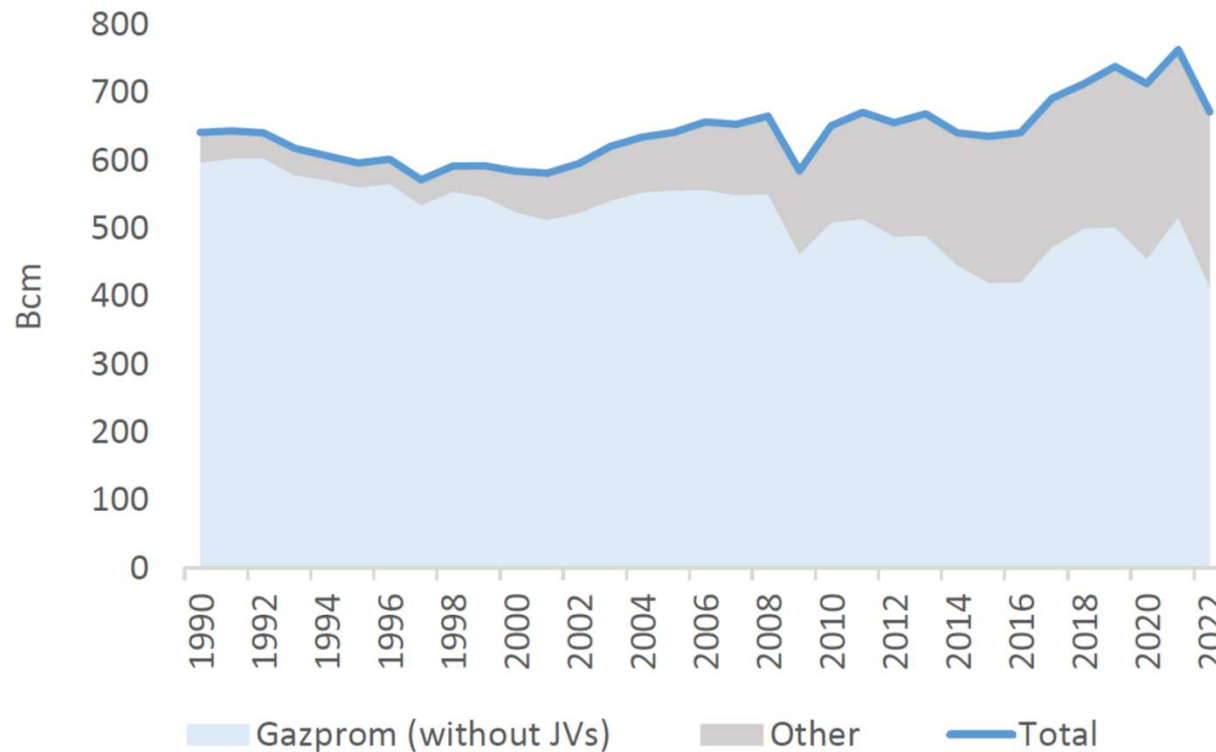
Natural gas production in Russia (monthly, 2021 and 2022, bcm)



Source: Rosstat

Gazprom had to absorb the main part of this reduction

Russia's gas output, 1990-2022

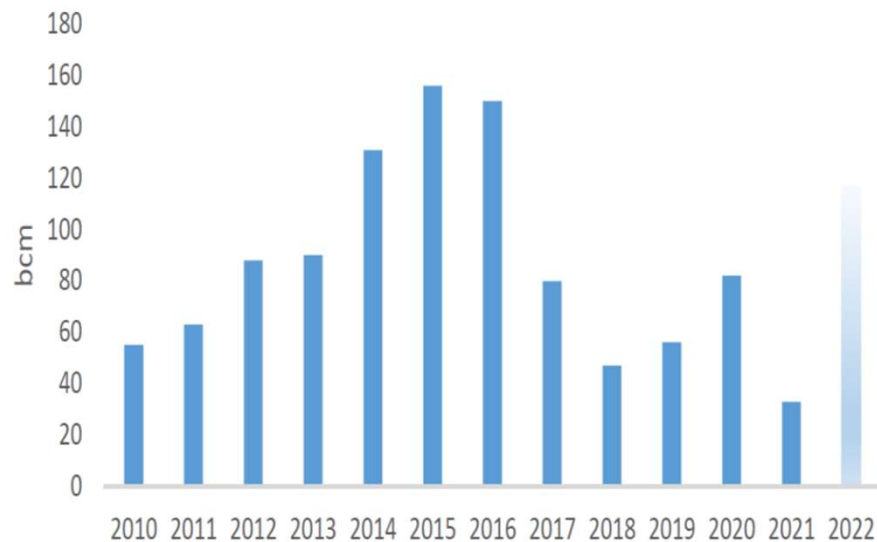


In the overall gas output decline in Russia, Gazprom's own gas production in 2022 was affected disproportionately, while Russian oil companies and independent gas producers launched some of their long-delayed projects and actually increased gas production year-on-year.

Source: OIES, data from Rosstat and Gazprom

Growing Gazprom`s spare capacity

Gazprom`s spare gas productive capacity



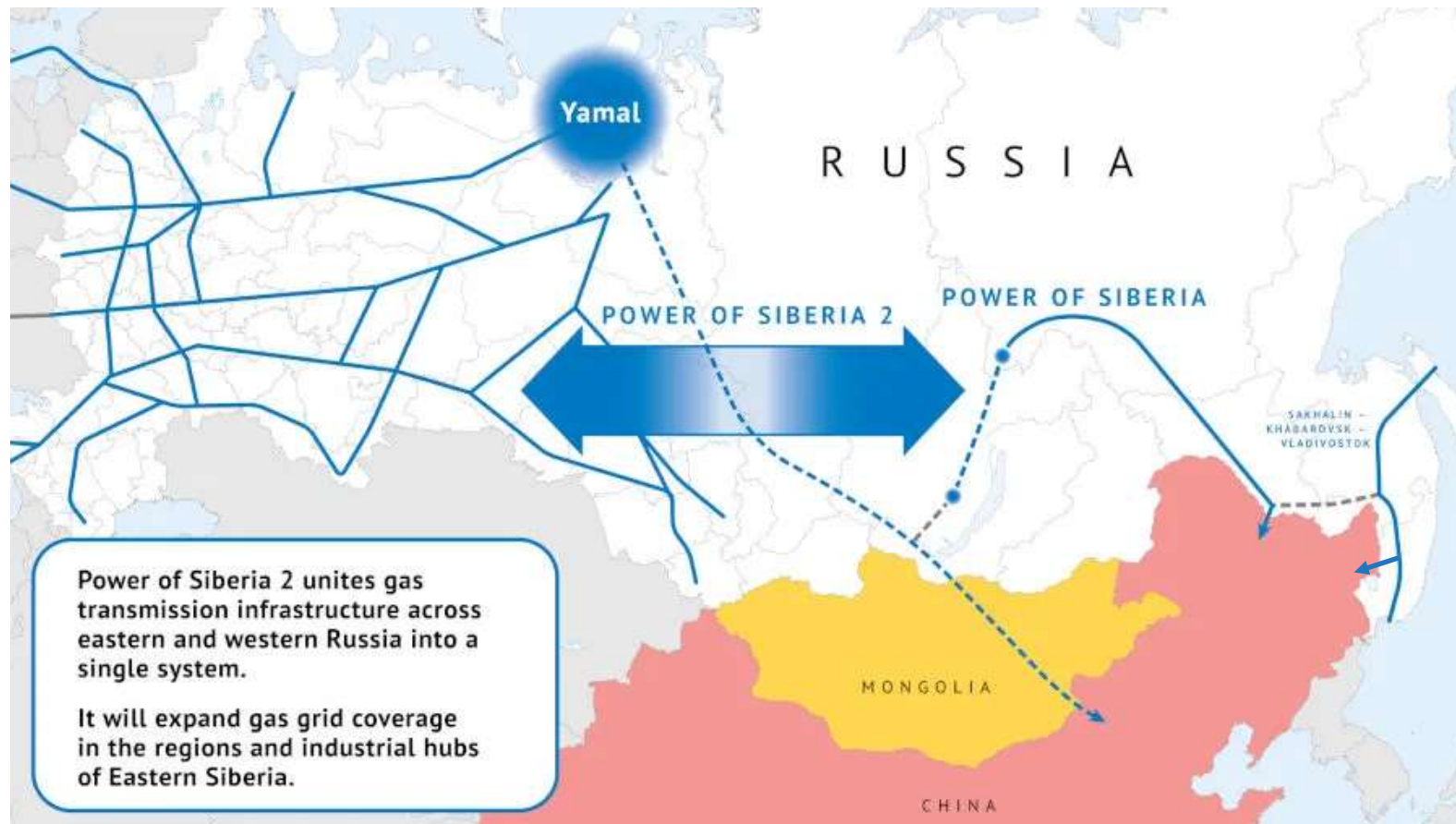
Source: OIES

- The situation in 2022 was extreme, requiring immediate and extreme adjustments to the production side of the balance on a scale that could only be managed by Gazprom due to the characteristics of its assets (super-giant Cenomanian fields) and customer base (significant share of residential users with very seasonal demand patterns).
- Re-emergence of very significant spare gas productive capacity for Gazprom, estimated at about **117 bcm for 2022** on an annual basis. While this is one of the highest for a decade, it is less than ~150 bcm of spare capacity that Gazprom had in 2015-2016.

Where to put all excess gas?

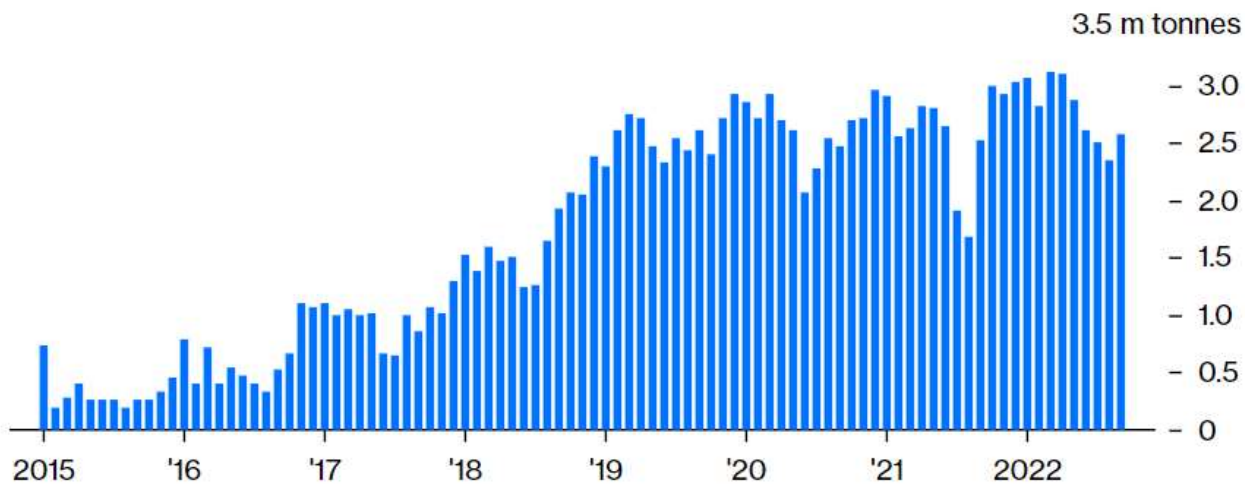
Domestic demand	Gasification of the regions was intensified, but it is not sufficient – in 2022 domestic demand has increased by 3%.
Gas chemistry	Domestic demand for gas chemistry and fertilizers is limited with the Russian economy in stagnation and sanctions pressure unlikely to let up anytime soon. Moreover, any export-oriented, gas-intensive project requires capital and technologies, which are not available in Russia at present and have a longer lead time.
Exports to CIS countries	Putin proposed the formation of a “gas alliance” with Kazakhstan and Uzbekistan to utilize the gas infrastructure shared among the three countries, and in particular to supply Russian gas to the domestic markets of the two neighboring countries. Both Kazakhstan and Uzbekistan initially reacted to this proposal with skepticism. But later on, facing domestic gas shortages, they became more supportive and are working now on the gas transit options.
Exports to Asia	<p>Gazprom tried to increase its pipeline exports to China, but despite all the efforts in 2022 utilization of Power of Siberia-1 has reached only 15,5 bcm (out of 38 bcm nominal capacity).</p> <p>Power of Siberia-2 in limbo.</p> <p>Eastern Route contract signed for 10 bcm, construction to start shortly.</p>

Russia is trying to push forward new China-oriented projects



Russian LNG export volumes remain high

Russian LNG exports



Source: Tanker tracking by Bloomberg News

- Russia has been able to keep its exports of LNG at historically high levels.
- In 2022 Russian LNG production rose by 8% to 46 bcm.
- The reduction in the supply of Russian pipeline gas to the EU has led to a 25% increase in the previously insignificant share of LNG in Russian gas exports.
- Novatek has increased shipments from the Yamal LNG plant to Europe by about 13.5% this year.
- Russian LNG is increasingly moving to Asia, but still nearly half ends up in Europe

Russian gas export scenarios - 1

Scenario	Maximum gas flows in operation based on available capacity		EU restrictions	Russian restrictions	Potential Russian export
	Pipeline flows to EU	Pipeline flows to non-EU countries and LNG exports			
1. Further intensification of hostilities (e.g., use of tactical nuclear or chemical weapons)	None	<ul style="list-style-type: none"> PS1: 38 bcm/yr Far Eastern Route (PS3): 10 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Sakhalin LNG: 13.1 bcm/yr Yamal LNG: 23.7 bcm/yr (note that due to a complete LNG embargo from Europe, it is unclear whether European terminals will be allowed to offer "transshipment" services to Yamal LNG flowing via Europe to other destinations) Portovaya LNG: 2.0 bcm/yr Arctic LNG T1: 9.0 bcm/yr 	Complete embargo (pipeline gas and LNG)	All sanctions remain in place	<ul style="list-style-type: none"> Pipeline to the EU: 0 Pipeline to China: 48 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr LNG: 47.8 bcm/yr
	Total pipeline to EU: 0 bcm/yr	Total non-EU pipeline and LNG: 127.6 bcm/yr			Total export: 127.6 bcm/yr
2. Continuation of the status quo (i.e., large-scale military conflict)	<ul style="list-style-type: none"> TurkStream: up to 16.5 bcm/yr Ukrainian transit: up to 15 bcm/yr (with significant risk of reduction due to military accidents and commercial disputes) 	<ul style="list-style-type: none"> PS1 and Far Eastern Route (PS3): 48 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5-15 bcm/yr Sakhalin LNG: 13.1 bcm/yr Yamal LNG: 23.7 bcm/yr Portovaya LNG: 2.0 bcm/yr Arctic LNG T1: 9.0 bcm/yr Arctic LNG T2: 9.0 bcm/yr Arctic LNG T3: 9.0 bcm/yr 	No restrictions	All sanctions remain in place	<ul style="list-style-type: none"> Pipeline to the EU: 31.5 bcm/yr Pipeline to China: 48 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5-15 bcm/yr LNG: 65.8 bcm/yr
	Total pipeline to EU: 31.5 bcm/yr	Total non-EU pipeline and LNG: 150.6-160.6 bcm/yr			Total export: 182.1-192.1 bcm/yr

Russian gas export scenarios - 2

Scenario	Maximum gas flows in operation based on available capacity		EU restrictions	Russian restrictions	Potential Russian export
	Pipeline flows to EU	Pipeline flows to non-EU countries and LNG exports			
3. Deescalation toward limited military action along the line of contact	<ul style="list-style-type: none"> TurkStream: up to 16.5 bcm/yr Transit through Ukraine: up to 15 bcm/yr 	<ul style="list-style-type: none"> PS1 and Far Eastern Route (PS3): 48 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5-15 bcm/yr Sakhalin LNG: 13.1 bcm/yr Yamal LNG: 23.7 bcm/yr Portovaya LNG: 2.0 bcm/yr Arctic LNG T1: 9.0 bcm/yr Arctic LNG T2: 9.0 bcm/yr Arctic LNG T3: 9.0 bcm/yr 	No restrictions	All sanctions remain in place	<ul style="list-style-type: none"> Pipeline to the EU: 31.5 bcm/yr Pipeline to China: 48 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5-15 bcm/yr LNG: 65.8 bcm/yr
	Total pipeline to EU: 31.5 bcm/yr	Total non-EU pipeline and LNG: 150.6-160.6 bcm/yr			Total export: 182.1-192.1 bcm/yr
4. Temporary stabilization and transition to a frozen conflict/ temporary truce	<ul style="list-style-type: none"> TurkStream: up to 16.5 bcm/yr Transit through Ukraine: up to 40 bcm/yr, in line with the 2020-24 transit contract due to repairs of the Sokhranovka entry point that can be used by Gazprom 	<ul style="list-style-type: none"> PS1 and Far Eastern Route (PS3): 48 bcm/yr PS2 start ramping up: up to 5.5 bcm/yr (ca. 10% of nominal capacity) Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5 bcm/yr Sakhalin LNG: 13.1 bcm/yr Yamal LNG: 23.7 bcm/yr Portovaya LNG: 2.0 bcm/yr Arctic LNG T1: 9.0 bcm/yr Arctic LNG T2: 9.0 bcm/yr Arctic LNG T3: 9.0 bcm/yr 	Security of supply restrictions (limiting share of Russian gas for each EU member state, storage obligations, etc.)	Russian sanctions and restrictions on gas supplies via Yamal-Europe to Finland and the Baltics could be lifted	<ul style="list-style-type: none"> Pipeline to the EU: 56.5 bcm/yr Pipeline to China: 53.5 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5 bcm/yr LNG: 65.8 bcm/yr
	Total pipeline to EU: 56.5 bcm/yr	Total non-EU pipeline and LNG: 156.1 bcm/yr			Total export: 212.6 bcm/yr

Russian gas export scenarios - 3

Scenario	Maximum gas flows in operation based on available capacity		EU restrictions	Russian restrictions	Potential Russian export
	Pipeline flows to EU	Pipeline flows to non-EU countries and LNG exports			
5. Conclusion of a peace agreement and lifting of all sanctions on Russia	<ul style="list-style-type: none"> Supplies to Finland (1.7 bcm/yr in 2021) and the Baltics (2.4 bcm/yr in 2021) resume, as does transit via Poland (33 bcm/yr) Nord Stream's string that remained undamaged is available (27.5 bcm/yr) Transit through Ukraine: up to 62 bcm/yr (technical capacity on Ukraine-Slovakia border) TurkStream: up to 16.5 bcm/yr 	<ul style="list-style-type: none"> PS1 and Far Eastern Route (PS3): 48 bcm/yr PS2 start ramping up: up to 5.5 bcm/yr (ca. 10% of nominal capacity) Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5 bcm/yr Sakhalin LNG: 13.1 bcm/yr Yamal LNG: 23.7 bcm/yr Portovaya LNG: 2.0 bcm/yr Arctic LNG T1: 9.0 bcm/yr Arctic LNG T2: 9.0 bcm/yr Arctic LNG T3: 9.0 bcm/yr 3 small-scale LNG units: 4 bcm/yr 	Security of supply restrictions (limiting share of Russian gas for each EU member state, storage obligations, etc.); sales of Russian gas at the Russian border	No Russian sanctions or restrictions and no informal limitations on transit via Ukraine	<ul style="list-style-type: none"> Pipeline to the EU: 143.1 bcm/yr Pipeline to China: 53.5 bcm/yr Pipeline to Turkey's market: 31.8 bcm/yr Pipeline to Central Asia and Iran: 5 bcm/yr LNG: 69.8 bcm/yr
	Total pipeline to EU: 143.1 bcm/yr	Total non-EU pipeline and LNG: 160.1 bcm/yr			Total export: 303.2 bcm/yr

Conclusions

- The war has changed global geopolitical order, it doesn't seem that this conflict can be settled down quickly.
- Despite incredible sanctions Russian economy and energy sector seem to be quite resilient.
- Oil and petroleum product embargo and price cap have limited effect. Russia is reducing output and changing taxation, but generally situation is quite sustainable.
- Russia itself cut 80% of gas supplies to its most lucrative market – Europe – and now has to look for the new markets.
- Even in the most negative scenario for Russia, the country will be still exporting ~125 bcm/yr in 2030 (nearly half of its exports in 2021), which still allows it to keep leading position in the global gas market. Russia has some chances to re-position itself as LNG exporter.