Congressional Research Service
Informing the legislative debate since 1914

IN FOCUS

August 28, 2024

Power of Siberia 2: Another Russia-China Pipeline

Overview

After suspending natural gas exports to certain European Union (EU) countries in April 2022, Russia has expedited negotiations with China for a new natural gas pipeline named the Power of Siberia 2 (PS-2). Russia's leaders seek to replace exports lost since Russia launched a full-scale invasion of Ukraine in 2022. Moscow reportedly sought to begin construction of the pipeline in 2024, with the aim of starting gas deliveries in 2030. However, news reports suggest China National Petroleum Corporation (CNPC), a state-owned entity, may be reluctant to sign a deal until it can secure an "attractive" price for PS-2 gas. Congress may consider how a new major gas pipeline between Russia and China could affect U.S. foreign policy and security, as well as the United States' role as an international energy supplier.

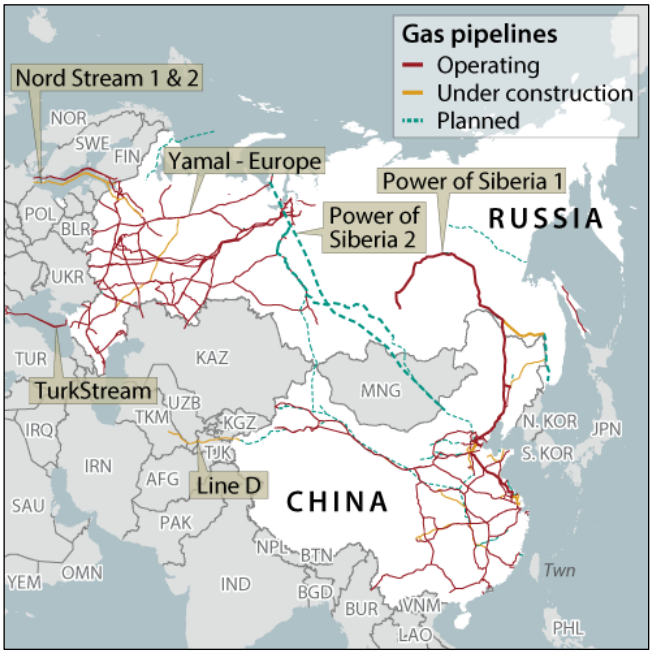
Background

Russia's invasion of Ukrainian Crimea in 2014 and resulting Western sanctions led Moscow to seek greater economic partnership with China. Russia and China signed a natural gas contract in 2014 for the Power of Siberia 1 pipeline (PS-1), which went into operation in 2019. PS-1 runs over 1,400 miles from Russia's Chayanda natural gas field into China's Heilongjiang province (see **Figure 1**). In 2020, Russia exported about 4.1 billion cubic meters (BCM) of gas to China. Operating at a full capacity of 38 BCM (estimated for 2025), PS-1 would account for almost 10% of China's 2023 natural gas consumption.

Revenues from PS-1 had the potential to offset some lost revenues from suspended European exports. However, PS-1 did not have the capacity to make up for the eventual shutdown of the Nord Stream 1 pipeline in August 2022. Completed in 2011, Nord Stream 1 was the largest pipeline sending Russian gas to the EU, exporting 59.2 BCM of natural gas in 2021, above the pipeline's design capacity of 55 BCM. The Nord Stream 2 pipeline, a twin to Nord Stream 1, was constructed but never activated. The proposed PS-2 pipeline would replace lost export capacity from Nord Stream 1, as PS-2 is projected to have a 50 BCM per year design capacity.

PS-2 is expected to transport natural gas from the Yamal peninsula in West Siberia through Mongolia into northern China. Mongolia would need to approve construction and transit across its territory. In the past, the Yamal-Europe pipeline transported gas from Yamal to Germany via Belarus and Poland. However, following Russia's 2022 invasion of Ukraine, Poland began reversing the flow of gas. In May 2022, Gazprom, Russia's state-owned gas giant that managed parts of the pipeline, shut off all gas exports through the pipeline.

Figure 1. Major Russian and Chinese Natural Gas Pipelines



Source: Compiled by CRS with data from the S&P Global Midstream Essentials Database, *Financial Times*, and U.S. Department of State.

Notes: The figure does not show every pipeline in Russia, China, or the region. The route for Power of Siberia 2 has not been finalized.

Russia's Necessities and Diversifications

While Russia is still one of the largest exporters of natural gas by pipeline to the EU, second only to Norway, its exports to the EU fell by over 75% between 2021 and 2023. This decline was primarily a Russian response to a joint statement between the EU and the United States in March 2022, which pledged to terminate Europe's dependence on Russian fossil fuels by 2027.

Since its 2022 invasion of Ukraine, Russia has mostly relied on the TurkStream pipeline for gas exports to Europe. TurkStream runs under the Black Sea in Eastern Europe, connecting Anapa, Russia, to Kiyiköy, Turkey, delivering 15 BCM per year of natural gas. Unlike EU members, Turkey has been resistant to halting imports of Russian gas; instead, it continues to seek to serve as a major gas transportation hub for Russia. However, as the invasion and international sanctions continue, TurkStream has been under increased scrutiny.

In 2021, natural gas exports by pipeline from Russia to the EU made up 66% of Russia's pipeline exports; in 2023, they made up 27% of Russia's total pipeline exports. PS-2

would enable Russia to diversify its customers, allowing new long-term deals. Additionally, PS-2 could strengthen the weakened Russian economy; the International Energy Agency has predicted that existing sanctions on natural gas would cost Russia upwards of $1 trillion by 2030.

The proposed PS-2 could strengthen economic ties between Russia and China. However, China may have more leverage on the project than it did on PS-1; it is unclear how much more natural gas China needs and how much it is willing to pay for it. At the same time, with Gazprom posting a net loss of $6.9 billion in 2023, Russia may accept a lower export price to make up for its financial losses.

China's Market Necessities

China currently has sufficient natural gas supply to fill domestic demand. Between 2018 and 2023, China's consumption of natural gas increased nearly 43% (from 284 BCM to 405 BCM). China's current gas production accounts for 58% of its total consumption. Its remaining demand for natural gas can be fulfilled through liquefied natural gas (LNG) imports—predominantly from Australia and Qatar, from which China purchased 98 BCM in 2023—and pipeline imports from Turkmenistan and Burma. U.S. LNG exports to China were 4.3 BCM in 2023.

Projections of China's natural gas consumption and import capacity show that, in 2030, China's consumption will likely be met with LNG imports under existing contracts. In addition, in a keynote speech at the 2023 Inaugural China-Central Asia Summit, Chinese President Xi talked about expediting the construction of Line D, a part of the China-Central Asia natural gas pipeline network. This line, with a proposed capacity of 30 BCM per year, would connect Turkmenistan's Galkynysh gas field—one of the largest in the world—to China's Xinjiang Uyghur Autonomous Region via Uzbekistan, Tajikistan, and Kyrgyzstan.

The combination of LNG import contracts and planned enhanced pipeline imports from Central Asia could give China bargaining power to negotiate with Russia for lower natural gas prices. During PS-1 negotiations, China signed a contract at around $360 per thousand cubic meters of natural gas, similar to the price paid by Germany, Russia's biggest importer at the time.

With the goal of net-zero greenhouse gas emissions by 2060, China has pledged to increase industrial coal-to-gas switching to limit its carbon emissions. By negotiating for long-term, inexpensive natural gas deals with Russia, China could effectively fulfill its gas demand past 2040 without having to further increase LNG trade with Western suppliers such as Australia and the United States.

U.S. Energy Interests in the Growing Russia-China Natural Gas Relationship

While no deal has been made yet for PS-2 gas, Russian officials have reportedly sought to quickly conclude negotiations. An expedited deal on PS-2 could have a significant impact on U.S. LNG exports. Since 2023, the United States has been the largest exporter of LNG in the world, with exports increasing nearly 30-fold between 2016 and 2023. During this time, the United States has been the sixth largest exporter of LNG to China, and China is seen as a possible growing market for U.S. LNG exports.

However, if China were to increase its pipeline supply of natural gas, it could limit future LNG contracts. While China accounts for around 4% of total U.S. LNG exports, PS-2 could strengthen China's bargaining position with LNG suppliers, including the United States. With a steady supply of pipeline natural gas from Russia, it could be difficult for U.S. suppliers to negotiate profitable terms for long-term LNG contracts.

U.S. Security Considerations

PS-2 could also help Russia avoid sanctions imposed by the EU and the United States. In June 2024, the EU adopted a 14th package of sanctions on Russia, with the aim of closing existing loopholes on Russian gas exports, specifically LNG. These sanctions were adopted to restrict Russia's future revenue from LNG by banning trans-shipments from EU ports, which involve transferring LNG cargoes from one ship to another.

However, since PS-2 would involve pipeline trade of natural gas, no existing sanctions would impact this trade. By completing a deal with China, Russia could limit the financial impact of Western sanctions, allowing it to continue exporting natural gas while increasing economic ties to China.

For related products, see

- CRS In Focus IF11514, *Power of Siberia: A Natural Gas Pipeline Brings Russia and China Closer*, by Michael Ratner and Heather L. Greenley
- CRS Insight IN11900, *The Role of Russian Natural Gas*, by Michael Ratner
- CRS In Focus IF11177, *TurkStream: Russia's Southern Pipeline to Europe*, by Sarah E. Garding et al.

Acknowledgement: CRS research intern Connor Smith contributed to the conception, research, and drafting of this In Focus.

Michael Ratner, Specialist in Energy Policy

IF12748

Disclaimer