PROSPECTS FOR RUSSIAN GAS IN CHINA

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The "Power of Siberia" gas pipeline is just starting its full-fledged work on gas transportation to China. In the future, it may not only become the main gas export channel but also provide supplies to the regions of the Russian Far East. At the present time, a number of questions have been formed regarding the situation on the hydrocarbon market in this region.
What is happening on the PRC gas market now? Can China meet its own demand? Does China really need Russian gas, and is it profitable to buy it? And what are the prospects for the "Power of Siberia 2" gas pipeline?

Russia's main project of the decade

The "Power of Siberia" gas pipeline was invented 1,5 years ago, and so far small volumes of gas pass through it. But in the next 5 years the pipeline will reach its full capacity and provide gas to China and Russia's eastern regions. The biggest gas processing plant in Russia is also being developed based on "Power of Siberia".

The construction of the gas pipeline took five years, and it was one of the most important projects for Russia in the past decade. The contract for gas supplies to China was signed for 30 years, and the project capacity of the pipeline is 38 bcm per year. However, in the next few years, Gazprom will not be able to supply such volumes of gas. In 2020, the company transported only 4.1 bcm to China instead of 4.25 bcm as contracted. In 2021, Gazprom plans to increase transport volumes to 10 bcm. In the first quarter of 2021, the company has already transported 2.6 bcm to China.

A 2200 km of the gas pipeline has already been built from Yakutia to the border with China. So far, the main source of gas is the Chayandinskoye field in Yakutia. In 2020, it produced 4.6 bcm of gas, most of which was transported to China. The recoverable reserves of the field are estimated at 1.2 trillion cubic meters, and the project level of production is 25 bcm. Gazprom plans to reach this level by 2024.

In addition, by the end of 2022, the construction of another 800 km of the pipeline will be completed, which will extend it to the Kovykta field in the Irkutsk Oblast. According to some estimates, Kovykta is the largest gas field in eastern Russia. Its reserves are estimated at 1.8 trillion cubic meters. Geological exploration and infrastructure preparation are underway there. Full-fledged gas production and supplies are planned to begin in 2023-2024. Reaching the project production level, which is also 25 bcm, is expected after 2025.

Gazprom's annual financial report states that the company plans to reach its project capacity for "Power of Siberia" in 2024. It can be achieved by increasing gas production at the Chayandinskoye field and developing production at Kovykta. However, most likely, the gas pipeline will start operating at full capacity only in 2025.

In addition to supplies to China, gas from the pipeline will also be processed in Russia. On June 9, 2021, the first stage of the Amur Gas Processing Plant (GPP) was launched. The launch of the remaining phases of the GPP will be synchronized with the growth in transportation volumes via the "Power of Siberia". GPP is planned to reach the project processing capacity of 42 bcm by 2025.

The main goal of the plant is to extract valuable components such as butane, ethane, propane, and helium from the gas flowing through the pipeline. Then chemical products will be produced, and the purified gas will be sent to China. The main stake Gazprom is going to make on the production of helium. After processing, it will be sent to Vladivostok, and then for export.

However, "Power of Siberia" has two significant drawbacks that negatively affect all the advantages. This is its cost and payback period. According to Gazprom, about $ 55 bln was spent on the construction of the gas pipeline, the Amur GPP, and the development of the Chayandinskoye and Kovykta fields, but most likely the total amount will be even higher. Even analysts from Gazprom and Gazprombank do not expect the project to pay off quickly. Under the most favorable conditions, it will be able to cover all construction costs no earlier than 2032, and this is taking into account the fact that China will actually buy the declared volumes of gas (which no one can promise).

Chinese gas market

In the past 10 years, gas consumption in China has been growing rapidly. Earlier the main emphasis in the energy sector was placed on coal, now this trend is changing. With the change in the country's environmental policy in the coming years, the demand for gas will only increase.

In the 14th Five-Year Plan, adopted in March 2021, China set to achieve peak emissions in 2030 and become carbon neutral by 2060. The new plan focuses not only on renewable energy sources and nuclear energy, but also on gas-fired power plants.

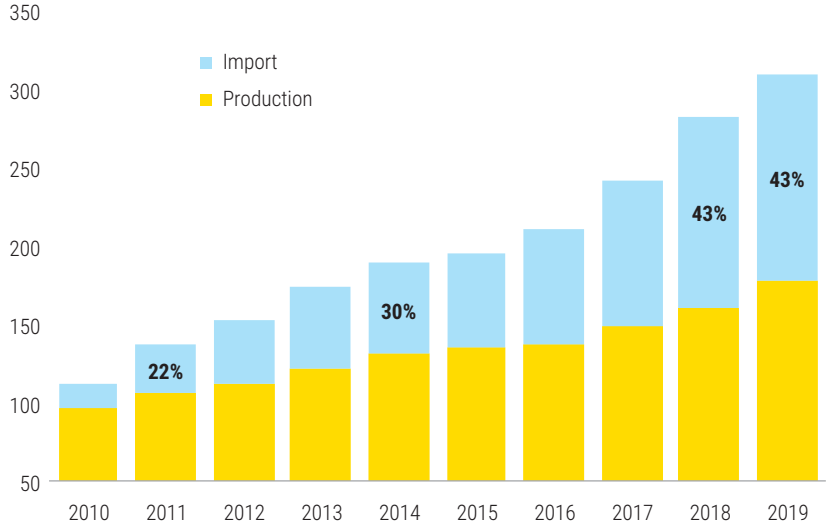
In the new decade, the dynamics of growth in gas consumption in China will depend on several factors. One of them is the rate at which current fossil-fueled capacities are replaced by gas ones. Typically, such substitution depends on the relative level of gas prices compared to alternative sources, on the environmental impact, and the availability of reliable sources of supply.

The second factor is the regional structure of the economy. In regions with a high share of industry, most of the gas is used by enterprises, but the share of industry in total gas consumption is decreasing.

In regions with a high share of the service sector in the economy, gas is used mainly in the commercial and residential sectors. According to forecasts, in the near future, these sectors will become the main drivers of gas consumption, since in the 14th five-year plan, the PRC government plans to increase the level of urbanization from 60% to 65%. As a result, the population of cities will grow by 70 million, which will affect gas consumption.

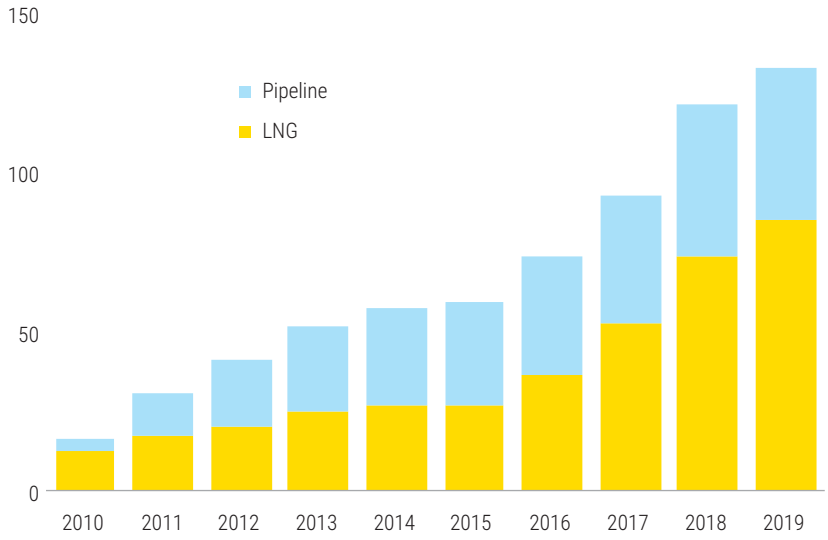
In 2010, gas consumption in the PRC was 109 bcm, by 2020 this figure increased to 330 bcm, almost three times. At the same time, production capacities also showed significant growth, but they cannot meet demand. Therefore, China has to increase its

Gas Consumption in China in 2001-2020, bcm



Source: BP

The structure of gas imports by China in 2001-2020, bcm



Source: BP

gas imports. If in 2010 imports accounted for only 15% of the gas consumed, then in 2020 it has already reached 42% (see "Gas Consumption in China in 2001-2020").

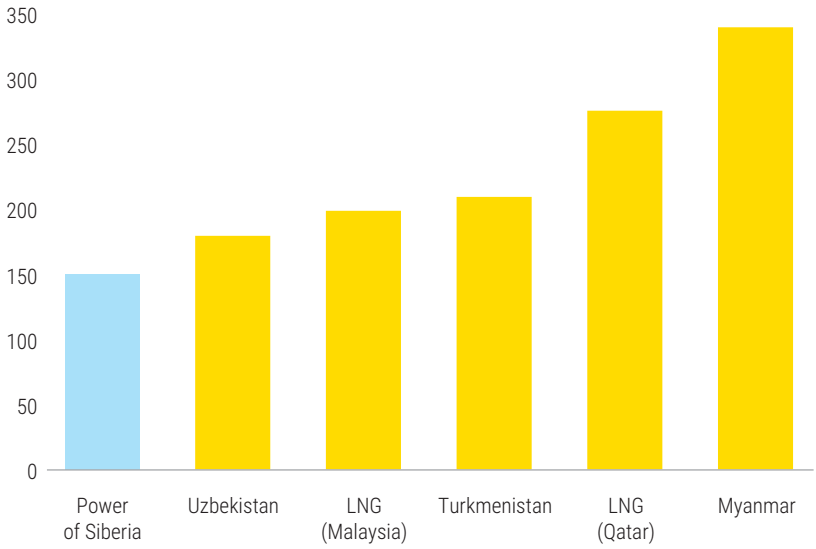
At the same time, China has several problems in gas production. The main reserves and new gas fields are being developed in the west of the country, while most of the population and industry are located in the coastal zone in the east. This factor, together with the low price of gas, makes imports more attractive.

Currently, pipeline gas to China comes from three regions: Russia, Central Asia, and Myanmar. "Power of Siberia" has only recently started transporting gas to China, while the "Central Asia-China" gas pipeline has been operating since 2009. It accounts for 40-50% of China's total imports. The maximum supply volume was recorded in 2018 and amounted to 44 bcm (80% of the maximum pipeline capacity). And imports through the "Myanmar-China" gas pipeline do not exceed 5 bcm per year.

In modern conditions, the import of LNG has a huge potential. Over 10 years, its volumes increased 6.5 times, up to 85 bcm (see "The structure of gas imports by China in 2001-2020"). An important advantage of LNG is the ability to diversify supplies, which reduces China's dependence on certain exporters. In addition, the low oil prices observed in 2014-2019 make LNG imports more affordable. Sea supplies are also more attractive to China, as most of the population and manufacturing are located close to the sea.

However, despite the possibility of diversification, half of the LNG imports come from Australia. Qatar and Malaysia account

Cost of imported gas for China in 2020, $/ 1000 cubic meters



Source: Gazprom, Finam

for about 10% each. The share of other countries is very small. But as relations with Australia deteriorate, China may have to look for new channels for gas imports.

Of course, China can increase purchases in Qatar and Malaysia, but they will not be able to completely replace Australia. This scenario looks very favorable for Gazprom. In 2022, "Power of Siberia" will be able to partially replace imports from Australia. And given the redistribution of LNG supplies, China will be able to completely abandon the services of this country.

The cheapest gas on the market

Another important advantage of the "Power of Siberia" is the low cost of supplies. At a press conference on June 16, 2021, Deputy Chairman of the Gazprom Management Committee Famil Sadigov for the first time officially disclosed data on revenues from gas exports to China. In 2020, it amounted to $613 million. Thus, with a volume of supplies of 4.1 bcm, the average price of Russian gas was at the level of $150 per 1,000 cubic meters.

The price of Russian gas for China depends on the cost of oil products with a delay of nine months. That is, the COVID-19 pandemic in 2020 did not affect the price of gas, so values around $150 can be called the standard price for exports to China. In 2020, Russian gas was the cheapest for China. Thus, the average price of LNG was $230 per 1,000 cubic meters, while pipeline gas from Myanmar cost $340 per 1,000 cubic meters. Gas in Central Asia is also relatively cheap. Uzbekistan exported gas at a price of $180, and Turkmenistan – $210 per 1,000 cubic meters (see "Cost of imported gas for China in 2020").

But transporting gas from Central Asia brings additional expenses to China. To deliver gas to the eastern regions of the PRC, it is forced to pump it across the country via the "West-East" gas pipeline. And to deliver gas from Turkmenistan to Shanghai, you first need to pump it through the "Central Asia-China" gas pipeline 1800 km long and then transport it through the country's territory for 4000 km. Such a long transport leg increases the final gas cost. Also, most of the transportation route passes through China and transactions for payment of transportation costs are calculated in yuan, not dollars. If the gas pipeline went through other countries, China would have the opportunity to speculate on exchange rates.

Among all pipeline gas, Russian gas is the most profitable for China. On the territory of the PRC, it is transported through the most densely populated coastal provinces via the "Heihe–Shanghai" pipeline. Its length in China is also significant – about 5000 km, but unlike supplies via the "West-East" gas pipeline, Russian gas on the way to Shanghai can be supplied to the largest cities in the country's northeast, including Beijing.

Power of Siberia 2

It is still not completely clear whether "Power of Siberia" is a profitable project even in the long term. However, even before its launch, there was talk that after the start of this pipeline, Gazprom plans to start another large-scale project – the "Power of Siberia 2" gas pipeline.

The shift of Gazprom's export flows to the east is understandable. Since 2014, Russia has been under constant sanctions from Europe and the United States. Europe is the main market for Gazprom, so the company needs to look for new regions for export. China, with its huge economy and large population, is excellent for expanding the sales geography of the Russian gas concern.

Initially, Gazprom wanted to build a new gas pipeline based on existing lines stretching from Yamal to the Altai Republic, and it was planned to build a section to the border with China through the Altai Mountains. The design capacity of the pipeline was estimated at 30 bcm. The gas pipeline was supposed to go to China in the Xinjiang Uygur Autonomous Region in the west of the country, and then connect to the Chinese "West-East" gas pipeline. However, Beijing is unlikely to be delighted with such a prospect, since it would again have to transport Russian gas from the sparsely populated west to the east across the country. In addition, construction in the Altai Mountains is difficult from a technical point of view, requires high costs, and also negatively affects the ecosystem.

In March 2020, at a meeting with President Vladimir Putin, Gazprom CEO Alexei Miller said that the route had changed and that a new feasibility study for the project would begin in the near future. Gazprom plans to run the gas pipeline to China via Eastern Siberia and Mongolia. This will allow the company to cover gas needs in a number of regions: Krasnoyarsk Krai, Irkutsk Oblast, Republic of Buryatia, Zabaikalsky Krai.

The resource base for the new gas pipeline will be the fields in Yamal, and its maximum capacity may be up to 50 bcm per year.

In April 2021, a feasibility study was approved for the "Soyuz Vostok" gas pipeline, which is a continuation of "Power of Siberia 2" in Mongolia. An important advantage of the new highway is its proximity to Beijing and other major cities in the PRC. The distance from the Mongolian border to Beijing is only 600 km.

However, the project of "Power of Siberia 2" looks attractive only on paper. There is no information about the construction time or its approximate cost. If the gas pipeline is built from scratch, then only about 3000 km will have to be laid across Russia to the border with Mongolia. Most likely, the costs will be at the same level as the costs of the "Power of Siberia" construction, and the payback period will also be 10-15 years.

Of course, covering the gas demand in Eastern Siberia is the right step, but it seems more profitable to build several small gas pipelines from the Kovykta field. In addition, there is no clear understanding of whether China will need such large volumes of gas in the future. So far, gas consumption in China is growing, but this process cannot continue forever. Most likely, by 2035-2040, consumption will reach a peak, and then it may even begin to gradually decline. It is also unclear if gas will still be considered a relatively clean energy source in 15-20 years.

In fact, Russian gas is only now starting to occupy a small share in the Chinese energy sector. However, in the next 10-15 years Russia plans to significantly increase its market share in the PRC and take an almost leading position among gas importers. In the short and medium-term, there is a high probability of achieving this goal.

However, Gazprom now needs to think about a long-term strategy in the Chinese market, taking into account global environmental trends. Even Beijing, which for a long time did not pay attention to the environment, is gradually beginning to apply measures to reduce emissions. The company should also be prepared for changes in the global energy market, in order to offer its partners alternative products in the event of a decrease in gas demand.