

# COOLING PROSPECTS FOR RUSSIA'S ARCTIC DEVELOPMENT?

Russia's Global Energy Role – Working Paper No. 4

By **Timur Kulakhmetov**

Series Editor, Paul J. Saunders

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# EXECUTIVE SUMMARY

- Russian President Vladimir Putin has designated development of Russia's Arctic regions as a strategic priority for both security and economic reasons and has continued to reiterate this view following Russia's invasion of Ukraine in February 2022. Russia's economic goals include expanding oil and natural gas production and developing infrastructure for the Northern Sea Route, an emerging shipping route from Europe to Asia.
- State-owned nuclear energy monopoly Rosatom has won a leading role in managing Russia's Arctic, including the Northern Sea Route (NSR). Sergei Kirienko serves simultaneously as first deputy head of Russia's Presidential Administration and chairman of Rosatom's Supervisory Board. Rosatom also operates a growing fleet of nuclear-powered icebreakers, which are important to year-round navigation along the NSR.
- Russia appears unlikely to meet its ambitious cargo volume goals for the NSR. Cargo volumes have not yet reached half of the 2024 goal of 80 million metric tons (Mmt); the 2030 goal is 150 Mmt. Oil and natural gas comprise around 80% of current cargo along the NSR. Russia lacks Arctic-capable oil and liquified natural gas (LNG) tankers and cannot easily obtain these vessels on international tanker charter markets. Existing Arctic-capable LNG tanker construction plans would provide only 29 of 60 ships needed. Western sanctions appear to have delayed construction of some of these tankers.
- In addition to sanctions, Russia faces both financial and technological constraints in its Arctic tanker plans. Russia also faces financial constraints in developing supporting infrastructure for the NSR and has delayed construction of the Northern Latitudinal Railway due to lack of financing for a major bridge across the Ob River.
- Nevertheless, Russia's government appears likely to continue treating Arctic development as a priority and may seek creative or unconventional approaches to advance its goals.

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## About the Author

Timur Kulakhmetov is an independent analyst studying Russia's energy sector.

## Current situation

Russia's invasion of Ukraine has highlighted the Arctic region's strategic and economic importance. Strategically, the Arctic has in many respects resumed its Cold War-era military role as a bastion for Russian submarines armed with intercontinental ballistic missiles, though with greater access due to warming temperatures. Economically, this same expanding access – and expectations that it will continue to increase – has boosted Russian hopes that the combination of Arctic energy and mineral resources with an emerging Northern Sea Route (NSR) can help drive and sustain a massive reorientation of the country's energy exports from west to east following US and European economic sanctions. Over time, however, Russia will require additional investment, possibly including new Arctic projects, simply to continue its existing oil and gas production and exports. Russian companies and officials are likely to confront considerable challenges in fulfilling their ambitious Arctic plans.

Russian officials' optimism is not baseless. Cargo transportation volumes along the NSR have grown in recent years. Official Russian statistics show that the volume of cargo transportation along the NSR reached

approximately 34.9 million tons in 2021,<sup>1</sup> up from 32.9 million tons in 2020, an increase of about 5.9%.<sup>2</sup> Rosatom has set a target of 36 million tons in 2023.<sup>3</sup>

Economic activity in the Russian Arctic is changing significantly for several reasons, including a massive exodus of Western stakeholders (leading to the abandonment of region-wide planning and joint projects involving Western governments or firms), a shifting balance between Russian state and private interests, and increased reliance on state financing and decision-making. From the perspective of Russia's government, the industrial and logistical development of the Russian Arctic has emerged as a crucial means to develop the country's economy and sustain energy export revenues. Thus, notwithstanding Russia's isolation from the West, officials have continued to announce and to pursue Arctic development plans.

Russia's government renewed and intensified its focus on the Arctic almost immediately following its invasion of Ukraine. After the United States and European nations introduced economic sanctions on Russia in April 2022, President Putin convened a meeting to discuss Arctic development. In his public remarks, Putin stressed the NSR's importance for Russia and instructed officials to move ahead with plans to develop

- 1 «Минпромторг предложил новые механизмы для поддержки судостроения в Арктике,» TASS, June 23, 2022, <https://tass.ru/ekonomika/15017325>.
- 2 Алексей Михайлов, «Перевозки по Северному морскому пути побили новый рекорд,» *Rossiyskaya Gazeta*, January 18, 2022, <https://rg.ru/2022/01/18/reg-szfo/perevozki-po-severnomu-morskomu-puti-pobili-novyyj-rekord.html>.
- 3 РЖД-Партнер, «Грузоборот по Севморпути в этом году должен составить 36 млн т грузов,» January 18, 2023, <https://www.rzd-partner.ru/wate-transport/news/gruzooborot-po-sevmorputi-v-etom-godu-dolzhen-sostavit-36-mln-t-gruzov/>.

the NSR and to work to produce necessary equipment domestically.<sup>4</sup> Notably, Putin began by emphasizing the need to assist communities in Russia’s Arctic that were suffering from supply disruptions due to the sanctions. He also urged attention to environmental and climate goals. During a government meeting a year later (May 17, 2023), Putin called the NSR an “obvious strategic priority” and asserted that despite “certain questions to resolve in the sphere of finances,” it did not make sense to “economize or cut something” in developing the NSR.<sup>5</sup>

Rosatom – Russia’s state nuclear company – swiftly assumed a leading role in these plans. Rosatom had already won authority over Arctic infrastructure, access, and security under a 2018 law.<sup>6</sup> In June 2022, Putin signed a new law granting the company the power to manage navigation along the route as well.<sup>7</sup> The Federal Agency for Sea and Inland Water

Transportation (Rosmorrechflot) had previously held this authority, though the agency had to coordinate with Rosatom, which owns and operates a fleet of nuclear-powered icebreakers.<sup>8</sup> Sergei Kirienko, former Rosatom general director (and former prime minister) has served as first deputy head of Putin’s Presidential Administration since 2016<sup>9</sup> and is simultaneously chairman of Rosatom’s Supervisory Board, which includes the firm’s current general director and several senior government officials.<sup>10</sup>

In parallel with steps to promote the Northern Sea Route, President Putin instructed the government to commence construction of the Northern Latitudinal Railway, a 707 km line proposed to run eastward from Obskoy across the Yamalo-Nenets Autonomous Region through Salekhard, Nadym, and Novy Urengoy to Korotchaevo. The project aims to connect an existing rail line that runs from western Russia to the base of

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4 Президент России, «Совещание по вопросам развития Арктической зоны,» April 13, 2022, <http://kremlin.ru/events/president/news/68188>.

5 «Путин назвал Севморпуть одним из стратегических приоритетов,» *RIA Novosti*, May 17, 2023, <https://ria.ru/20230517/sevmorput-1872409758.html>.

6 Charles Digges, “Legislation Grants Rosatom Control of the Russian Arctic,” *Bellona*, December 19, 2018, <https://bellona.org/news/nuclear-issues/2018-12-legislation-grants-rosatom-control-of-the-russian-arctic>.

7 «Путин подписал закон о передаче ‘Росатому’ полномочий по организации судоходства на СМП,» *Interfax*, June 28, 2022, <https://www.interfax.ru/russia/849200>.

8 “Winter-Spring Navigation Season Begins on the Northern Sea Route,” *PortNews*, December 2, 2022, <https://en.portnews.ru/news/339502/>.

9 «В ‘Росатоме’ все больше государства,» *Kommersant*, November 21, 2017, <https://www.kommersant.ru/doc/3473355>.

10 Rosatom, “Supervisory Board,” <https://rosatom.ru/en/about-us/governance/supervisory-board/>.

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the Yamal Peninsula with a line running to the Trans-Siberian Railway at Tyumen.<sup>11</sup> Putin has described the project's role in easing congestion on other rail lines as "a matter of fundamental importance in light of redirecting our basic exports to the east."<sup>12</sup> The proposed rail line also strengthens land-based connections to the NSR and facilitates its development.

### Russia's Arctic development plan

On August 1, 2022, Russian prime minister Mikhail Mishustin signed a decree approving the development plan for the NSR until 2035. The plan – at a cost of Rub 1.8 trillion (\$21.6 billion) – aims both to improve navigation and to expand use of the NSR. This means not only increasing traffic volumes, but also synchronizing planned increases with ship and icebreaker construction efforts.<sup>13</sup> The development plan encompasses a wide range of projects, over 150 in number, to boost economic activity in the Arctic region. This includes several proposed shipping terminals, such as the Utrenniy terminal for liquified natural gas (LNG) and gas condensate, the Bay North oil terminal, and the Yenisei coal terminal, as well as infrastructure for the Baimskaya copper field in Chukotka.<sup>14</sup> Baimskaya's Peschanka deposit – one of many deposits making up the field – likely contains around 9.5 million metric tons (Mmt) of copper and 16.5 million ounces (about 470 metric tons) of gold.<sup>15</sup>

To support the growing maritime industry, the plan outlines the creation of marine LNG transshipment

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- 11 «Путин поручил правительству к 1 августа утвердить план развития Северного морского пути,» TASS, May 23, 2022, <https://tass.ru/ekonomika/14705713>.
  - 12 Президента России, «Совещание по вопросам развития Арктической зоны,» April 13, 2022, <http://kremlin.ru/events/president/news/68188>.
  - 13 Russian Government, «Михаил Мишустин утвердил план развития Северного морского пути до 2035 года,» August 4, 2022, <http://government.ru/news/46171/>.
  - 14 Russia Briefing, "Russia Issues Northern Sea Route Development Plan to 2035," August 8, 2022, <https://www.russia-briefing.com/news/russia-issues-northern-sea-route-development-plan-to-2035.html/>.
  - 15 NS Energy, "Baimskaya Copper Project," <https://www.nsenergybusiness.com/projects/baimskaya-copper-project/#>.

complexes in the Kamchatka territory and the Murmansk region, as well as the development of a port hub in Vladivostok to facilitate transit traffic.<sup>16</sup> Similar infrastructure projects include building a transport and logistics hub in the Korsakov port on Sakhalin, and enhancing existing transport hubs in Murmansk and Arkhangelsk. Moscow also foresees building bunkering and maintenance facilities at the ports of Dikson (on the Kara Sea, eastward from Yamal) and Tiksi (further east, on the Laptev Sea). These would create new waystations for vessels traveling along the NSR.

The development plan sets high goals for the NSR, aiming for liquid fuel volumes of over 102.09 Mmt and LNG volumes of 67.7 Mmt by 2035. Total annual cargo traffic goals (including liquid fuels and LNG) are 80 Mmt by 2024, 150 Mmt by 2030, and 220 Mmt by 2035. Yet while cargo traffic on the Northern Sea Route exceeded earlier goals by 2 Mmt in 2022, it totaled only 34.034 Mmt, far short of the 80 Mmt target for 2024.<sup>17</sup> Oil and gas made up the bulk of the cargo traffic, with crude oil and oil products accounting for 7.2 Mmt and

LNG and gas condensate amounting to 20.5 Mmt. Coal transportation totaled 295,000 metric tons and ore concentrates just 43,500 metric tons, while general cargos were 4.2 Mmt.<sup>18</sup>

The Russian government is not executing the development plan alone; officials expect leading Russian firms to participate. Examples include prominent Russian energy companies such as Rosneft, Gazprom Neft, Novatek, and Rosatom; mining companies like Norilsk Nickel, Severnaya Zvezda, and Baimskaya Mining Company; transportation giant Russian Railways; and Roscosmos, Russia's state-owned space launch company.

Even after the plan's approval, stakeholders are jockeying to include additional Arctic projects. One is to expand the port of Indiga, which lies to the east of Arkhangelsk and to the west of Yamal, to serve as a transshipment hub for coal from the Kuzbass region.<sup>19</sup> This expansion could support shifting dynamics of the

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16 A transshipment complex allows for direct ship-to-ship transfers. "Novatek Plans to Commission LNG Terminal at Kamchatka at End of 2023–Corporation," *Interfax*, January 30, 2023, <https://interfax.com/newsroom/top-stories/87414/>.

17 "Russia Plans Accelerated Development of Its Eastward Railways and the Northern Sea Route—Vladimir Putin," *PortNews*, February 21, 2023, <https://en.portnews.ru/news/343345/>.

18 "Cargo Traffic on the Northern Sea Route Exceeded 32 Million Tonnes," *PortNews*, December 16, 2022, <https://en.portnews.ru/news/340247/>.

19 «Дорога до Индиги осталась в тумане,» *Kommersant*, April 12, 2022, <https://www.kommersant.ru/amp/5305562>.

coal market as Russia redirects exports from Europe to Asia. A coal transshipment complex at the port of Lavna (in Murmansk) has also been under discussion.<sup>20</sup>

Expanding and modernizing Russia's icebreaker fleet is a crucial part of the plan, including constructing the lead ship in the "Leader" class, a state-of-the-art nuclear-powered vessel designed to navigate through challenging ice conditions. Icebreakers are essential for year-round navigation along the NSR; Alexey Likhachev, the head of Rosatom, has said that the company will start year-round navigation in the eastern portion of the NSR next year, in collaboration with Novatek.<sup>21</sup>

Recognizing the importance of safety and emergency response capabilities, the plan calls for building 46 new vessels as part of an emergency rescue fleet as well as deploying helicopters at integrated Arctic rescue centers subordinate to the Ministry of Emergency Situations.<sup>22</sup> A dedicated Arctic satellite constellation would support navigation and weather forecasting in the region in addition to buttressing Russia's ability

to assess climate change impacts. Russia is currently working to procure satellite imagery from China to replace Western commercial data.<sup>23</sup>

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20 Корпорация развития Мурманской области, «На площадке строительства порта 'Лавна' активно продолжается возведение объектов Комплекса перегрузки угля,» Murmansk Region Development Corporation, <https://invest-murman.ru/news/na-ploshhadke-stroitelstva-porta-lavna-aktivno-prodolzhaetsja-vozvedenie-obektov-kompleksa-peregruzki-uglja/>.

21 Rosatom, "Alexei Likhachev Took Part in the Northern Sea Route: New Challenges Session at SPIEF 2023," June 15, 2023, [https://www.rosatom.ru/en/press-centre/news/alexei-likhachev-took-part-in-the-northern-sea-route-new-challenges-session-at-spief-2023/?sphrase\\_id=4376614](https://www.rosatom.ru/en/press-centre/news/alexei-likhachev-took-part-in-the-northern-sea-route-new-challenges-session-at-spief-2023/?sphrase_id=4376614).

22 "Russian Govt Expands Development Plan for Northern Sea Route," *Interfax*, May 2, 2023, <https://interfax.com/newsroom/top-stories/90167/>.

23 "Lacking Own Satellite Coverage Russia Is Looking to China for Northern Sea Route Data," *High North News*, March 30, 2023, <https://www.highnorthnews.com/en/lacking-own-satellite-coverage-russia-looking-china-northern-sea-route-data>.

## Longer-term prospects

Notwithstanding the Russian government's apparent commitment to developing the NSR, leading non-governmental experts have expressed skepticism that traffic volumes will reach official targets. As one Russian expert put it, "One gets the impression that this a game played by officials, nothing more. Talk to people on the ground – these numbers would make their hair stand on end."<sup>24</sup> There are many reasons to question Russia's ability to meet its NSR traffic targets.

The outcome of Russia's war on Ukraine and the evolution of the related conflict between Russia and the West will powerfully affect prospects for lifting the current sweeping sanctions and help to shape what kind of Russia may emerge after the war. Today, the level of uncertainty is so high that there is no way to predict what the Russian economy and political system will look like after the current crisis. Various scenarios are possible, but long-term Western investments seem improbable without regime change in Russia – and few signs of such change are evident. In most scenarios, it is highly likely that Russia will remain under significant sanctions and in partial isolation, especially with respect to Western economies, trade, and investment. Russia will probably also be more oriented toward the East.

However the war progresses and wider geopolitical tensions evolve, the Arctic will remain a key element in Russia's military and economic strategy. Yet the prospects for large-scale industrial development under Western sanctions are murky: investment, critical technologies, and equipment (for offshore drilling, liquefaction, shipping, telecommunications, and renewable energy) are much less readily available than in the past. Market access for Russian firms under sanctions is likewise limited not only in the West, but also in the East. Moreover, it is difficult to predict which firms are likely to be the major players within Russia: the country's economy is undergoing a painful transformation that includes de facto nationalization of foreign firms trying to exit the country and transfer of their assets to domestic political supporters. Russia's economic elite is therefore evolving. This process could substantially change the stakeholder landscape, as even some established players might disappear or face acquisition by rivals or new actors.

Still, some things are clear. Though Russia is unlikely to meet prewar targets for transportation volumes due to the absence of Western shipping and postponement of several Russian projects, the NSR will remain significant. Transportation of fossil fuels through the Arctic will continue to increase to replace traffic formerly originating at ports on the Baltic Sea and Black Sea. That said, mining projects, including mining of metals critical to the global energy transition, are unlikely to attract funding if they had not secured it prior to

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24 Олег Гненной, «Северный морской путь: что день грядущий нам готовит?» *Korabel.ru*, no. 2 (56), July 2022, <http://newsite.gecon.ru/wp-content/uploads/2022/08/Korabel.ru-2-22-pp-50-58.pdf>.



the war. Transportation volumes are unlikely to grow rapidly and thus will generate less demand pressure for related NSR infrastructure projects. Investors, shippers, and others also cannot ignore the possibility of new Western sanctions targeting the Northern Sea Route, the Baikal-Amur Railway, the Trans-Siberian Railway, and Russia's resource-rich regions in the Arctic, Siberia, and the Far East.

While China, India, and other non-Western countries might be more amenable to trade and investment with Russia, long-term investment and expanded trade in sensitive technology seem unlikely without more obvious cooling of the conflict between Russia and Western powers; China, India, and other governments on the sidelines are wary of the risks to their relations with Washington and European capitals. Because Russia's relationship with the United States and Western countries appears unlikely to improve in the near to medium term, non-Western nations will become much more important for Russia generally and for the Arctic in particular.

Since the NSR could cut travel times from European Russia to Asia by 40%, some Asian countries may see advantages to participating in Russia's Arctic development. Some may also see the appeal in a route that avoids the Suez Canal and its transit fees, its congestion, and the piracy risks in the Gulf of Aden. In June 2023, Rosatom signed an agreement with DP World, a major port and logistics firm based in the United Arab

Emirates, to expand container shipping along the NSR. In describing the NSR's appeal, DP World's CEO referred to a 2020 incident in which a massive container ship ran aground in the Suez Canal.<sup>25</sup>

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25 Rosatom, "Rosatom and DP World Agree to Jointly Develop the Eurasian Logistics," June 15, 2023, [https://www.rosatom.ru/en/press-centre/news/rosatom-and-dp-world-agree-to-jointly-develop-the-eurasian-logistics/?sphrase\\_id=4376614](https://www.rosatom.ru/en/press-centre/news/rosatom-and-dp-world-agree-to-jointly-develop-the-eurasian-logistics/?sphrase_id=4376614).

## Constraints on Arctic energy

Nevertheless, Russia faces major challenges. One of the leading problems is likely to be shipbuilding; Vyacheslav Ruksha, who heads Rosatom's NSR Directorate and seems not to share the CEO's optimism, said in late 2021 that achieving year-round navigation on the NSR would likely be impossible even by 2030 due to Russia's limited domestic shipbuilding capacity. He stated that Russia would require a fleet of at least 12–14 icebreakers by 2030, but that plans at the time would yield only 7. Moreover, he added, 3 of 4 currently operating icebreakers would soon reach the age of 32–35 years and need decommissioning. Each ship requires two to three years to build.<sup>26</sup>

Where other vessels are concerned, only one ship meets the requirements of government decree no. 397 issued on March 18, 2022, which sets legal and technical standards for firms seeking Russian federal subsidies for NSR shipping.<sup>27</sup> That ship is Rosatom's

nuclear-powered lighter carrier *Sevmorput*.<sup>28</sup> Russian shipping companies such as Eco Shipping, Northern Project, and Northern Shipping Company have been expanding their Arctic fleets by acquiring ships on the secondary market, but these are not Russian-flagged vessels. A significant number of Russia's shipping lines are under Western sanctions, including Oboronlogistika, Sovcomflot, Gazpromneft Shipping, Northern Shipping Company, and Northern Project.

The problem is that Russia lacks not only sufficient icebreakers, but also cargo vessels designed to operate in the Arctic's icy waters. For navigation along the NSR, Russia sets geographic and seasonal limits based on ship classifications ranging from Ice1–Ice3 (the least protected class, operating only from July 1 to November 15 in light ice or clear seas, largely intended for the Baltic Sea) to Arc4–Arc9 (increasingly protected, potentially operating year-round in the Arctic, even without an icebreaker in the higher classes).<sup>29</sup> Year-round oil exports from the Russian Arctic require

26 [Neftegaz.RU](https://neftegaz.ru/news/Suda-i-sudostroenie/713331-v-ruksha-stabilnoy-kruglogodichnoy-navigatsii-po-smp-k-2030-g-ne-poluchitsya/), «В. Рукша: стабильной круглогодичной навигации по СМП к 2030 г. не получится,» December 3, 2021, <https://neftegaz.ru/news/Suda-i-sudostroenie/713331-v-ruksha-stabilnoy-kruglogodichnoy-navigatsii-po-smp-k-2030-g-ne-poluchitsya/>.

27 Олег Гненной, «Северный морской путь: что день грядущий нам готовит?» *Korabel.ru*, no. 2 (56), July 2022, <http://newsite.gecon.ru/wp-content/uploads/2022/08/Korabel.ru-2-22-pp-50-58.pdf>. Decree 397 sets the rules for Russian government subsidies to NSR shippers. For the decree, see Постановление Правительства Российской Федерации от 18.03.2022 г. No. 397, «Об утверждении Правил предоставления из федерального бюджета субсидии на государственную поддержку организации регулярных перевозок по Северному морскому пути (В редакции Постановления Правительства Российской Федерации от 19.09.2022 № 1645),» Government of Russia, March 18, 2022, <http://government.ru/docs/all/139895/>.

28 “Sevmorput” is a condensed form of *Severniiy Morskiy Put'*, or Northern Sea Route. Lighter carriers are shuttles that transport barges from one location to another. They do not require ports or docks to operate.

29 Постановление от 18 сентября 2020 г. No. 1487, «Об утверждении Правил плавания в акватории Северного морского пути,» Government of Russia, September 18, 2020, <http://www.nsra.ru/files/filelist/137-ru893-2020.pdf>.

Arc6 tankers in the Pechora Sea (between Murmansk and the island of Novaya Zemlya) and Arc7 in the Kara Sea (further to the east, surrounding the Yamal Peninsula).<sup>30</sup> All cargoes proceed west to Murmansk for transshipment.

Reorienting this shipping eastward is more difficult than it might seem. Arc6 and Arc7 tankers are not available on the tanker charter market; indeed, there are virtually no large-capacity Arc4 or Arc5 vessels. Only ships with no ice reinforcement and of the non-Arctic Baltic classes (Ice1–Ice3) are available. Accordingly, oil transportation along the NSR is largely limited to July 1 to November 15, or 138 days per year. Moscow cannot exploit its so-called shadow fleet of oil tankers to carry cargo outside this time frame.

One can roughly estimate the NSR's capacity using data from previous shipments. In 2019, PAO Sovcomflot's Aframax Ice-3 tankers *Lomonosov Prospect* and *Mendeleev Prospect* made two voyages carrying oil from Primorsk (on the Baltic Sea) to China. It took 35 days to reach Qingdao and 30 days to reach Tianjin. Since both sailings took place from late September to late October, neither ship required an icebreaker

escort, and since it was late in the season, they returned via a southern route. Considering loading and unloading times, the round trip is about 65–75 days; this means that the tankers readily available to Russia can make a maximum of two trips each in one navigation season.<sup>31</sup>

Nor are there easy alternatives. Rerouting oil exports through Murmansk to shorten the sea distance would require constructing a trunk oil pipeline to an ice-free terminal with access to the Barents Sea. Oil exports from Russia's Baltic ports must pass through the Danish straits, where sanctions now prevent hiring EU pilots to guide tankers.<sup>32</sup> Because Russia's principal oil pipeline company Transneft is currently expanding pipelines to other ports, including Primorsk, Russian commentators do not expect a new line to Murmansk soon.<sup>33</sup>

Russia likewise lacks Arctic-capable LNG tankers. As of early 2022, firms had made plans to build 29 ships: 15 Arc7 LNG tankers at the Zvezda shipbuilding complex near Vladivostok, in Russia's Far East; 6 Arc7 LNG tankers at Daewoo Shipbuilding & Marine Engineering (DSME) in South Korea; and 8 Arc4 LNG

30 Олег Гненной, «Северный моркой путь: что день грядущий нам готовит?» *Korabel.ru*, no. 2 (56), July 2022, <http://newsite.gecon.ru/wp-content/uploads/2022/08/Korabel.ru-2-22-pp-50-58.pdf>.

31 «Эксперты оценили выгоду от переброски экспорта нефти с Балтики на СМП,» *RIA Novosti*, May 29, 2023, <https://ria.ru/20230529/neft-1874729357.html>.

32 Alaric Nightingale, Alberto Nardelli, and Christopher Condon, "Vital Oil Chokepoint Gets Caught Up in EU's Sanctions on Russia," *Bloomberg*, September 13, 2022, <https://www.bloomberg.com/news/articles/2022-09-13/vital-oil-chokepoint-gets-caught-up-in-eu-s-sanctions-on-russia>.

33 Олег Гненной, «Северный морской путь: что день грядущий нам готовит?» *Korabel.ru*, no. 2 (56), July 2022, <http://newsite.gecon.ru/wp-content/uploads/2022/08/Korabel.ru-2-22-pp-50-58.pdf>.

tankers at DSME and Samsung Heavy Industries, also in South Korea. Yet Russia may need as many as 60 such vessels by 2030, according to one report.<sup>34</sup>

Russia's Zvezda shipyard appears to have largely if not fully completed three Arc7 LNG tankers that were about half finished when US and Western governments imposed various economic sanctions last year.<sup>35</sup> Since then, several European firms with a role in the project have abandoned it. The departure of France's GTT, which provided key technology for gas membranes, seems likely to set back the remaining ships. DSME will reportedly complete three tankers by the end of this year – several months late – after canceling a contract over nonpayment, presumably due to the sanctions.<sup>36</sup> That contract has reportedly been trans-

ferred to another Russian entity (one that is not facing sanctions), which appears to have allowed DSME to continue work.<sup>37</sup>

In addition to sanctions, Russia faces both financial and technological challenges in its Arctic shipbuilding program. Arctic-capable ships comprise 25% of Russian civilian shipbuilding orders (from domestic and foreign suppliers) when counting vessels, but they account for 70% of the costs.<sup>38</sup> Moreover, although the Zvezda shipyard is relatively new – indeed, still under construction – and Russia's largest,<sup>39</sup> even this facility has reportedly been heavily dependent on South Korea's Hyundai Heavy Industries in its work, with Russian shipyard workers performing only "minimal operations" during the construction process.<sup>40</sup>

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34 "INFOline: для поддержки частных инвестиций в реализацию СПГ-проектов необходимо усиление господдержки импортозамещения и расширения флота," INFOline, February 9, 2023, [https://www.advis.ru/php/view\\_news.php?id=FC20F377-583F-8747-80C6-43E13E9DC014&utm](https://www.advis.ru/php/view_news.php?id=FC20F377-583F-8747-80C6-43E13E9DC014&utm).

35 Malte Humpert, "Two Asian Shipyards Continue to Build LNG Tankers for New Russian Arctic Gas Project," High North News, June 8, 2023, <https://www.highnorthnews.com/en/two-asian-shipyards-continue-build-lng-tankers-new-russian-arctic-gas-project>.

36 Ibid.

37 Е. Алифирова, «Строительство танкеров-газовозов для проекта Арктик СПГ-2 продолжается,» [Neftegaz.RU](https://neftegaz.ru/news/Suda-i-sudostroenie/783066-stroitelstvo-tankerov-gazovozov-dlya-proekta-arktisk-spg-2-prodolzhaetsya/), June 13, 2023, <https://neftegaz.ru/news/Suda-i-sudostroenie/783066-stroitelstvo-tankerov-gazovozov-dlya-proekta-arktisk-spg-2-prodolzhaetsya/>.

38 INFOline, «Эксперты INFOline рассказали о развитии арктического флота России в новой реальности в рамках форума 'Арктика: настоящее и будущее,» December 12, 2022, <https://infoline.spb.ru/news/index.php?news=272148>.

39 Shipbuilding Complex Zvezda, "About SSC 'Zvezda,'" <https://sskzvezda.ru/index.php/en/about>.

40 Мария Кормашова, «Танкеры по-Корейски. Крупнотоннажное судостроение зависит от поставок из Южной Кореи,» *Mash*, December 19, 2022, <https://mashnews.ru/tankeryi-po-korejski.-krupnotonnazhnoe-sudostroenie-zavisit-ot-postavok-iz-yuzhnoj-korei.html>.

Russia's lack of LNG tankers is already preventing LNG projects from reaching planned export levels. Novatek has begun amassing floating LNG storage to mitigate the lack of tankers. One floating storage unit arrived off Murmansk in early June. Another was set to reach Kamchatka in mid-July, for use in Bechevinskaya Bay, 40 miles from Petropavlovsk-Kamchatsky.<sup>41</sup> The goal of the floating storage units, which can hold 100 million m<sup>3</sup> of natural gas, is to allow Russia's existing Arctic-capable LNG tankers to make shorter (and therefore more frequent) trips to and from export terminals in Russia's Arctic regions.

Shipbuilding is not the only technological constraint on Russia's Arctic LNG projects. Sweeping Western sanctions are also limiting Russian firms' access to key technical capabilities, both directly and (as the case of GTT suggests) indirectly, by causing firms to consider possible future sanctions and potential Russian responses to them. The search for alternative sources and routes for technologies and advanced products is leading to delays and potential complications. For example, Russia's Arctic-LNG 2 project has turned to China's Harbin Guanghan Gas Turbine Co. Ltd. for turbines. The Chinese turbines are likely a modified version of the GT-25000, with a capacity of approximately 25 MW. The GT-25000 turbine and the larger 110 MW AGT-110 exemplify Chinese companies' local-

ization of 1980s-era turbine designs from Ukraine's Zorya-Mashproekt turbine plant, in Mykolaiv.<sup>42</sup> Finding new turbines and adapting designs to their specifications takes time and, if the turbines are inferior, also reduces efficiency. The Soviet Union relied on Ukraine for turbine manufacturing; Russia has yet to replace this capability fully.

The Russian energy sector's increasing reliance on foreign and in particular Chinese technologies is noteworthy. While the collaboration may allow Russia to continue with projects that it might otherwise have had to shelve, it also establishes new dependencies. This situation is especially striking in view of President Putin's determination to establish "technological sovereignty" in key fields.<sup>43</sup>

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41 «Новатек» обкладывается плавучими хранилищами СПГ,» *EurAsia Daily*, July 5, 2023, <https://eadaily.com/ru/news/2023/07/05/novatek-obkladyvaetsya-plavuchimi-hranilishchami-spg>.

42 «Финт турбиной,» *Kommersant*, May 16, 2023, <https://www.kommersant.ru/doc/5986377>.

43 President of Russia, "Plenary Session of the St Petersburg International Economic Forum," June 16, 2023, <http://en.kremlin.ru/events/president/news/71445>.

## Conclusion

Despite questions about the NSR's future, spending on the development plan and other Arctic projects continues unabated and, if sustained, is on course to surpass the original Rub 1.8 trillion budget. Finance Minister Alexei Chekunov has stated that the Rub 1.8 trillion figure includes Rub 620 billion (\$7.4 billion) from Russia's federal budget and another Rub 400 billion (\$4.8 billion) in private investment. But sources for the remaining amount, about 40% of the total, remain to be found.<sup>44</sup>

Financing seems likely to be a problem for the Northern Latitudinal Railway as well. As in the case of the NSR, the Russian government plans to share costs with Gazprom, Russian Railways, and Russia's Far East and Arctic Corporation, a quasi-governmental entity that facilitates private investment in Far East and Arctic infrastructure through public-private partnerships.<sup>45</sup> Russia's Transport Ministry has reportedly informed the presidential administration that the railway project could be delayed to 2027–2031 because the Russian government has not allocated funds

for a critical bridge across the Ob River.<sup>46</sup> The delay will further increase the cost of the project, making financing even more challenging.

Russia's Arctic ambitions are palpable, but their feasibility remains uncertain. Nevertheless, the Arctic is a critical region on Russia's commodity map and a place where leaders may consider unconventional approaches to develop the Northern Sea Route and other strategic projects. Due to Russia's wartime brain drain, such approaches might be necessary for finding qualified personnel willing to work in harsh Arctic conditions. More generally, Moscow might rely even more heavily on government bodies to lead its Arctic initiatives while leaning on companies for financial contributions and on-the-ground operations. Meanwhile, finding necessary non-Western technologies – especially in the oil and gas sector – could lead to even closer ties with China and Iran.<sup>47</sup> This in turn might lead to imposition of new sanctions – especially by the United States. Finally, so long as the country is at war and under sanctions, mitigating environmental and climate impacts will not likely be a top priority for Russian authorities and companies. This situation could also provoke new scrutiny of Russia's activities in the region.

44 «В Северный морской путь вложат триллионы рублей. Кто на этом заработает?» *Finam*, June 15, 2023, <https://www.finam.ru/publications/item/v-severnyy-morskoy-put-vlozhat-trilliony-rublej-kto-na-etom-zarabotaet-20230615-1835/>.

45 See Far East and Arctic Development Corporation, "About the Corporation," <https://erdc.ru/en/about/>. Russia's minister for the development of the Far East and the Arctic is chairman of the board of directors.

46 «Северный широтный ход никак не выходит,» *Kommersant*, June 19, 2023, <https://www.kommersant.ru/doc/6053991>.

47 Iran International, "Iran to Provide Russia with 40 Turbines to Help Its Gas Sector," October 24, 2022, <https://www.iranintl.com/en/202210244570>.