



# The Role of the Arctic in Russia's Energy Strategy

by Pier Paolo Raimondi



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# The Role of the Arctic in Russia's Energy Strategy: Features, Objectives and Perspectives following Russia's War in Ukraine

by Pier Paolo Raimondi

## Executive summary

- Russia, which is heavily dependent on the hydrocarbon sector and revenues, is facing numerous challenges both internally and externally.
- The Arctic has gained ever-growing energy, political and strategic relevance. Russia has developed and released several documents outlining targets and visions for the development of this region.
- The development of Arctic resources is deeply intertwined with other national interests, such as development of the Northern Sea Route and the shipbuilding industry.
- The Arctic has become the powerhouse for Russia's LNG ambitions, underpinned by Novatek.
- Russia has an even stronger urgency to develop LNG since the loss of its main gas market, Europe.
- To boost LNG production and exports (100 Mt by 2030), Russia has decided to liberalise LNG exports, highlighting the shift in preferential treatment between Gazprom and Novatek.
- To fully achieve its targets, Russia faces severe challenges namely the lack of gas cargoes and the growing international sanctions, which can substantially undermine Russian ambitions.
- Russia's energy industry needs to adapt to the new international context which is characterised by the end of the energy bridge with Europe and heavy international sanctions.
- The Arctic could contribute to energy transition mainly in the form of blue hydrogen/ammonia and critical minerals; however, the current international developments have halted Russia's hydrogen plans.

# Introduction

Over the past decades, the Arctic has attracted newfound interest at the international level. The erosion of Arctic ice has contributed to rising tensions and competition between great powers, also by strengthening their military presence in the area.<sup>1</sup> Furthermore, geopolitical developments have also yielded new relevance to the region, although the peculiar context of the High North requires cooperation between the Arctic countries and beyond.<sup>2</sup> In June 2023, the Arctic Council, the leading intergovernmental forum in the region, resumed its work after a year suspension<sup>3</sup> following Russia's war in Ukraine. Furthermore, the growing confrontation between NATO and Russia has fuelled potential competition in the High North, resulting in the update of national strategies. The US for example updated its National Strategy for the Arctic Region in October 2022 and elevated the Arctic as a priority area in its 2022 National Security Strategy.<sup>4</sup> The Arctic has increasingly become relevant also to the European Union for climate and security reasons.<sup>5</sup>

Furthermore, the regional hydrocarbon endowment has contributed to generating a greater international interest toward the region. In particular, two factors have ignited such a newfound relevance: the declining Arctic ice driven by global warming and the 2008 US Geological Survey (USGS) assessment that estimated hydrocarbon reserves in the Arctic. As the Arctic ice is melting due to climate change, abundant hydrocarbon reserves in the Arctic have come under the spotlight. For centuries, the Arctic has been almost inaccessible due to its extreme climatic and environmental conditions. In 2008, the USGS reinforced the general interest in hydrocarbon resources in the Arctic, affirming that the

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1 Bradley Bowman and Scott Adamson, "Great Power Competition Heats Up in the Thawing Arctic, and the US Must Respond", in *Defense News*, 23 September 2020, <https://www.defensenews.com/opinion/commentary/2020/09/23/great-power-competition-heats-up-in-the-thawing-arctic-and-the-us-must-respond>.

2 Arctic countries are considered to be Canada, Denmark (with Greenland), Finland, Iceland, Norway, Russia, Sweden and the USA. These countries are members of the Arctic Council. Non-Arctic countries, chiefly China, have expressed their interest in being involved in the development of the region.

3 Canada et al., *Joint Statement on Arctic Council Cooperation following Russia's Invasion of Ukraine*, 3 March 2022, <https://www.state.gov/?p=320209>.

4 Jeremy Greenwood, "Great Power Competition and Overseas Basing in the Arctic", in *Brookings Policy Briefs*, February 2023, <https://www.brookings.edu/?p=1666699>.

5 Luca Cinciripini, "The Arctic within EU Strategies: A Renewed Centrality", in *IAI Commentaries*, No. 23|37 (July 2023), <https://www.iai.it/en/node/17346>.

“extensive Arctic continental shelves may constitute the geographically largest unexplored prospective area for petroleum remaining on Earth”. The 2008 USGS assessment estimated that undiscovered technically recoverable reserves in the Arctic amount to 90 billion barrels of oil, 47 trillion cubic meters of natural gas and 44 billion barrels of natural gas liquids.<sup>6</sup> The USGS assessed that around 84 per cent of these resources are expected to occur offshore.

These resources are widespread in the entire region, but the bulk of natural gas is in West Siberia and in the eastern part of the Barents Sea, while most of the oil is located in the Arctic part of Alaska and Canada as well as East Greenland. Among Arctic countries, Russia holds the lion’s share of the hydrocarbon reserves, especially gas, with a 58 per cent share of the total 412 billion barrels of oil equivalent (bnboe) of Arctic resources.<sup>7</sup> Despite the great potential, the actual development and exploitation of these reserves has moved slowly because of several obstacles faced by each Arctic country. These obstacles are mostly related to high investment needs and operational costs, technological complexity, extreme environmental conditions, political support as well as social acceptability due to environmental concerns.

Iceland and Greenland have always had great ambitions for their estimated reserves, but they have never been able to translate these expectations into reality. Canada has a long history of exploration activities, but in 2016 it signed a moratorium that bans all exploration and production (E&P) activities offshore in its Arctic regions with the goal of protecting the fragile ecosystem of the area. The United States holds significant reserves in Alaska although political changes and market developments have hindered their exploitation. While the Trump Administration was committed to exploiting these reserves in line with its “energy independence” rhetoric, the Biden Administration has undertaken measures for environmental protection, putting the brakes on the oil and gas industry in Alaska.<sup>8</sup> Furthermore, the petroleum industry in the US has been more focused on the Lower 48 with the development of shale gas and tight oil.

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<sup>6</sup> Kenneth J. Bird et al., “Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle”, in *USGS Fact Sheets*, No. 2008-3049 (2008), <https://doi.org/10.3133/fs20083049>.

<sup>7</sup> James Henderson and Julia Loe, “The Prospects and Challenges for Arctic Oil Development”, in *OIES Papers*, No. WPM 54 (October 2014), <https://doi.org/10.26889/9781784670153>.

<sup>8</sup> US Department of the Interior, *Biden-Harris Administration Takes Major Steps to Protect Arctic Lands and Wildlife in Alaska*, 6 September 2023, <https://www.doi.gov/node/53491>.

Lastly, Norway needs to develop resources located in the Barents Sea to offset declining production in the more traditional areas, such as the North Sea.

Among the Arctic countries, Russia has the most pronounced footprint in this region and has expressed the greatest commitment to further develop it. This commitment has been articulated through several official strategies and documents. Back in the USSR period, Moscow's Arctic policy was motivated by geopolitical considerations: the Arctic coast is the longest border for Russia. Given this geographical feature, Russia has always wanted to build, enhance and consolidate its presence, developing assets in the region – especially recently due to the melting ice. The Russian strategic vision for the region was driven also by economic considerations. Arctic hydrocarbon resource exploitation and development is considered essential to: i) offset declining energy production, especially in traditional producing regions such as West Siberia, ii) maintain high export volumes, vital for government revenues and iii) expand Russia's strategic role in the Arctic.

This paper seeks to analyse the Russian energy policies and strategies following the conflict in Ukraine, with a specific focus on the Arctic region. To do so, it presents the evolution of the general political and strategic framework highlighting the fact that Russia's war in Ukraine has not cooled the political commitment to develop this region. Then, the research provides an overview of the challenging condition for Russia's energy sector, given the declining production rate in the traditional fields, which pushes the need for Arctic energy development, and the growing international pressure, given the growing and tighter international sanctions especially following Russia's war in Ukraine. Section 3 analyses the role of the Arctic in Russian energy policy regarding both pipelines and LNG. Section 4 provides an overview of the different strategies and measures of the main Russian energy companies (Rosneft, Gazprom, Novatek) to reach their specific goals for their activities in the Arctic. The paper then investigates the interconnections between development of hydrocarbon reserves in the Arctic and the Northern Sea Route. Notwithstanding such ambition and target, Russia and its companies face enormous challenges, notably sanctions and logistics, as addressed in Section 6.

# 1. The evolution of Russia's Arctic regulatory and political framework

Russia has a long history in the Arctic that dates back several hundred years. The discovery and development of hydrocarbon resources in Siberia provided the Soviet Union with hard currency to support its economy and foreign policy. The exploitation of Arctic resources intensified in the post-Soviet period in particular after 2000, underpinned by high oil prices and incoming foreign capital. Since Vladimir Putin became president in the early 2000s, the Arctic has increasingly become a key area for Russia's military, foreign, energy and economic interests and policies.

Given this relevance, Russia has developed several official strategies and policies outlining its key interests in the area. In September 2008, President Dmitry Medvedev signed the main official Russian policy document on the Arctic, "Principles of State Policy of the Russian Federation in the Arctic to 2020 and Beyond". The document, issued by Russia's Security Council in March 2009,<sup>9</sup> outlined Russia's "national interests" in the Arctic, using similar language and content as Western discourses on the Arctic. Natural resources are introduced early in the text as the first of Russia's "national interests" in the Arctic, with the preservation of peace and cooperation in the area as the second and the promotion of the Northern Sea Route (NSR) as an international waterway within the Russian jurisdiction listed fourth.<sup>10</sup>

Between 2020 and early 2021, Russia released three documents, which collectively outline key goals for the Arctic region and a plan for their implementation.<sup>11</sup> On 6 March 2020, President Vladimir Putin approved the "Basic Principles of Russian Federation State Policy in the Arctic to 2035" (also called Basic Principles 2035), which updated the 2008 version. Although the international environment has deeply changed, the 2020 document does

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<sup>9</sup> Indra Øverland, "Russia's Arctic Energy Policy", in *International Journal*, Vol. 65, No. 4 (Autumn 2010), p. 865-878 at p. 867, <https://doi.org/10.1177/002070201006500416>.

<sup>10</sup> Ibid.

<sup>11</sup> Hilde-Gunn Bye, "Russia's Updated Arctic Strategy: New Strategic Planning Document Approved", in *High North News*, 28 October 2020, <https://www.highnorthnews.com/en/node/51760>.

not indicate any drastic shifts in Russia's Arctic policy.<sup>12</sup> Russia outlines its interest in cooperation on several matters, but it is committed to enhancing and strengthening its regional leadership. Based on Basic Principles 2035, in October 2020 Putin approved the strategy for developing Russia's Arctic zone and ensuring national security up to 2035 (2020 Arctic Strategy). In this strategy, Russia acknowledges the speed of rising temperatures in the region above the global average (2–2.5 times faster), stating that these circumstances pose both opportunities and risks for the economy and the environment.<sup>13</sup> Inevitably, further development of hydrocarbon reserves in the region represents one of the main opportunities, according to the document.

The new geopolitical competition between the West and Russia demanded a revision of some official documents, but it has not reduced either the ambition or the commitment to fully develop the region. President Putin affirmed that the Russian Arctic zone is of strategic importance and is directly connected to Russia's energy potential, its logistics capabilities and the country's national security and defence.<sup>14</sup> In February 2023, Russia amended its 2020 Arctic policy eliminating the reference to regional cooperation and stressing the focus on the country's national interest.<sup>15</sup> The amended document also highlighted the relevance of import independence in key sectors, such as shipbuilding, which are crucial for the development and exploitation of Arctic resources and areas. Furthermore, in March 2023, Russia released its Foreign Policy Concept, replacing the previous version of 2016, and the Arctic has gained a newfound significance as one of the top regions of priority.<sup>16</sup> For Russia, the development of the Arctic is crucial, elevating expansion of the NSR as a state priority. Moreover, in the new geopolitical context, Russia is much more motivated to work with foreign countries, including those outside the Arctic region, to

<sup>12</sup> Ekaterina Klimenko, "Russia's New Arctic Policy Document Signals Continuity Rather than Change", in *SIPRI Commentaries*, 6 April 2020, <https://www.sipri.org/node/5096>.

<sup>13</sup> Rosemary Griffin, "Russia Approves Arctic Strategy up to 2035", in *S&P Global Commodity Insights*, 27 October 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/coal/102720-russia-approves-arctic-strategy-up-to-2035>.

<sup>14</sup> "Putin Says Development of Arctic Region Key Priority for Russia", in *Xinhua*, 12 December 2023, <https://english.news.cn/20231212/e80e0846435444bda6b4c599de212f24/c.html>.

<sup>15</sup> Malte Humpert, "Russia Amends Arctic Policy Prioritizing 'National Interest' and Removing Competition within Arctic Council", in *High North News*, 15 March 2023, <https://www.highnorthnews.com/en/node/55453>.

<sup>16</sup> Nikita Lipunov and Pavel Devyatkin, "The Arctic in the 2023 Russian Foreign Policy Concept", in *Arctic Institute Articles*, 30 May 2023, <https://www.thearcticinstitute.org/?p=28725>.

achieve its national targets. Particularly, China has been expanding its presence and partnership with Russia in the Arctic (see Box 2).

## 2. Challenging context for Russia's energy superpower status: Declining production and international sanctions

Russia is endowed with large hydrocarbon reserves and ranks as one of top exporting countries for fossil fuels (coal, oil and gas) in the world. The Russian economy heavily depends on the energy sector and fossil fuel export revenues. In 2019 hydrocarbon revenues provided 39 per cent of the federal budget revenues and the energy sector made up more than 65 per cent of total export revenues as well as 25 per cent of the country's GDP. Such dependence on the hydrocarbon sector and revenues led to an exposure to oil price volatility. For example, from 2000 to 2005 exports soared drastically providing an incredible boost to the national economy and enhancing Russia's position on the world stage as an energy superpower.<sup>17</sup> With the emergence of several crises affecting energy demand and prices, Russia's hydrocarbon industry, and consequently its economic conditions, have been put under stress. After some challenges emerged following the 2008 financial crisis, the first major crisis occurred in 2014 with the combination of an oil price drop, international sanctions following Russia's annexation of Crimea, and a stagnating economy.<sup>18</sup> In 2020, the Covid-19 pandemic disrupted global energy consumption causing the collapse of oil prices. As economies restarted in mid-2021, energy prices began to soar. Despite some market reasons behind price spikes, Russia substantially contributed to the extreme price volatility in 2021/22 as it dramatically reduced its gas supply to Europe causing drastic and profound changes in the global gas markets.

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<sup>17</sup> Tatiana Mitrova, "Russia's Energy Strategy", in *Atlantic Council Eurasia Center Issue Briefs*, July 2019, [https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/AtlanticCouncil\\_Russias\\_Energy\\_Strategy.pdf](https://css.ethz.ch/content/dam/ethz/special-interest/gess/cis/center-for-securities-studies/resources/docs/AtlanticCouncil_Russias_Energy_Strategy.pdf).

<sup>18</sup> Tatiana Mitrova and Vitaly Yermakov, "Russia's Energy Strategy-2035. Struggling to Remain Relevant", in *Russie.Nei.Reports*, No. 28 (December 2019), <https://www.ifri.org/en/node/16701>.

In response to the war, Western countries have tightened sanctions preventing and limiting financial and technological cooperation with the Russian energy sector. Furthermore, Western countries have responded to Putin's war with several measures that aim to curb Moscow's revenues, hence its ability to fund the conflict in Ukraine. Therefore, the EU established an embargo on Russian crude imports from December 2022 and petroleum products from February 2023. Additionally, G7 countries, together with the EU and Australia, set a price cap on Russian seaborne crude oil export at 60 dollars/barrel, and at 100 dollars/barrel and 45 dollars/barrel for high-value petroleum products (diesel, gasoline, kerosene) and low-value petroleum products (naphtha, fuel oil) respectively. These measures affect Russia's oil and oil products export via sea as Western countries have decided to not grant maritime services for the trade of Russian oil/products to third countries including shipping insurance for cargoes priced over the threshold. All these developments have led to a drastic reconfiguration of energy flows, with Russia exporting its oil now to India and China. Moreover, international sanctions are likely to affect several Russian energy projects.

Alongside these external challenges, the Russian energy sector and economy are also facing some domestic challenges. Russia's oil and gas production in the traditional areas (i.e., Western Siberia) is expected to decline in the medium term, stressing the need for development of new oil and gas fields. These challenges are acknowledged already in the Russia's Energy Strategy 2035, released in June 2020 (Russia's ES-2035). This vision was partially counterintuitive since oil and gas production has increased in the past decade – despite the presence of international sanctions since 2014. Indeed, oil production in Russia grew from 501.4 million tons (Mt) in 2009 to 573.4 Mt in 2019.<sup>19</sup> However, this growth was possible because companies managed to bring online new fields that more than compensated for the drop from the existing fields. The growing trend in the past years shows that Russia has been able to reduce the effect of sanctions on production in the short term. Russia managed to avoid reduction in production and, at the same time, to ensure its record growth, mainly because of significant past investments, numerous tax breaks and devaluation in the Ruble. Nonetheless, there has been a relatively

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<sup>19</sup> Energy Institute, *Statistical Review of World Energy Data*, 2023, <https://www.energyinst.org/statistical-review/resources-and-data-downloads>.

declining relevance of production in Western Siberia from 62 per cent to 56 per cent over 2012–2016.<sup>20</sup> In this context, the Arctic could come to the rescue of the Russian oil industry.

The Strategy sets the upper limit of production at a relatively flat level of 560 Mt per annum from 2024 to 2035 in its optimistic scenario. But in its pessimistic scenario, Russia's oil output faces a steady decline to 490 Mt by 2035. In either case, companies in Russia will increasingly struggle to maintain the same level of oil production after 2025, primarily due to the decrease in reserve quality.<sup>21</sup> Russia revised its oil strategy in 2021, and it foresees that its crude output could peak at 504–590Mt in 2027–2029 before decreasing to 414–494 Mt in 2035, under four scenarios.<sup>22</sup> The risk is that Russia's oil production will never again hit the record levels of 2019.<sup>23</sup>

Natural gas output has expanded from 536.2 bcm in 2009 to 679 bcm in 2019. The growth was mainly driven by exports. Over this period, a major transformation occurred in the Russian gas sector. Gazprom has seen its role in Russian production declining as it became the swing producer (meaning it bore the highest share of production reduction) in the aftermath of the European gas demand drop in 2012–14 and especially during the 2022 energy crisis. Russia's ES-2035 declares that natural gas output (727.8 bcm in 2018) is expected to increase up to 907 bcm or 983 bcm by 2035. However, the current crisis has drastically altered the picture, demanding the revision of the energy strategy. Moscow aims to replace some lost European sales by boosting domestic gas consumption by at least 18.6 bcm by 2025 through the expansion of the gas grid to remote areas in Far East and Northwest Russia. For other volumes of gas Russia is left with essentially two options, namely additional pipeline and LNG export capacity.

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<sup>20</sup> Tatiana Mitrova, Ekaterina Grushevenko and Artyom Malov, *The Future of Oil Production in Russia: Life Under Sanctions*, Moscow, Moscow School of Management Skolkovo, May 2018, <https://energy.skolkovo.ru/downloads/documents/SEneC/research04-en.pdf>.

<sup>21</sup> Tatiana Mitrova and Vitaly Yermakov, "Russia's Energy Strategy-2035", cit.

<sup>22</sup> Ibid.

<sup>23</sup> "Russia May Have Passed Peak Oil Output: Government", in *The Moscow Times*, 12 April 2021, <https://www.themoscowtimes.com/2021/04/12/a73558>.

Given this context, the development of the Arctic resources has been part of the “business as usual” strategy pursued by Moscow.<sup>24</sup> However, these developments require massive investments and updated technologies. If the government does not ensure enough fiscal support, some of the new projects that are instrumental to maintain high output and exports may not see the light. The new context has also affected the Russian energy transition pathway (see Box 1).

### 3. The role of the Arctic for the Russian energy sector

In light of this challenging context, Russia has been looking at the Arctic resources as a potential solution to offset the decline of domestic oil and gas production even before the conflict with Ukraine. Russia sees the Arctic shelf as a promising area for E&P activities to offset declining production in its mature fields. Moreover, the Arctic gains newfound relevance as a key pillar of export strategy and diversification. The Russia’s ES-2035 envisages the expansion of the Arctic’s role in overall Russian crude and condensate production from 17.3 per cent in 2018 to 20 per cent in 2024, 23 per cent in 2030 and 26 per cent in 2035.<sup>25</sup> Regarding natural gas, the Strategy forecasts a diminishing role of Arctic production in national gas output, falling from 82.7 per cent in 2018 to 82 per cent in 2024, 81 per cent in 2030 and 79 per cent in 2035.<sup>26</sup> Besides its relevance for the share of total production, the Arctic is expected to become pivotal for future elements of Russia’s energy strategy, namely the expansion of LNG production and export diversification strategy. These two elements have become even more pressing issues for Moscow as it decouples with Europe – its main gas market. Therefore, the Arctic projects are crucial to gain access to the Asia Pacific region, which represents a fast-growing energy market. To reach it, Russia is working on several options including both pipelines and LNG, which is expected to exploit the Northern Sea Route – also a national interest.

<sup>24</sup> Tatiana Mitrova, “Energy and the Economy in Russia”, in Manfred Hafner and Giacomo Luciani (eds), *The Palgrave Handbook of Energy Economics*, Cham, Palgrave MacMillan, p. 649-666, [https://link.springer.com/chapter/10.1007/978-3-030-86884-0\\_32](https://link.springer.com/chapter/10.1007/978-3-030-86884-0_32).

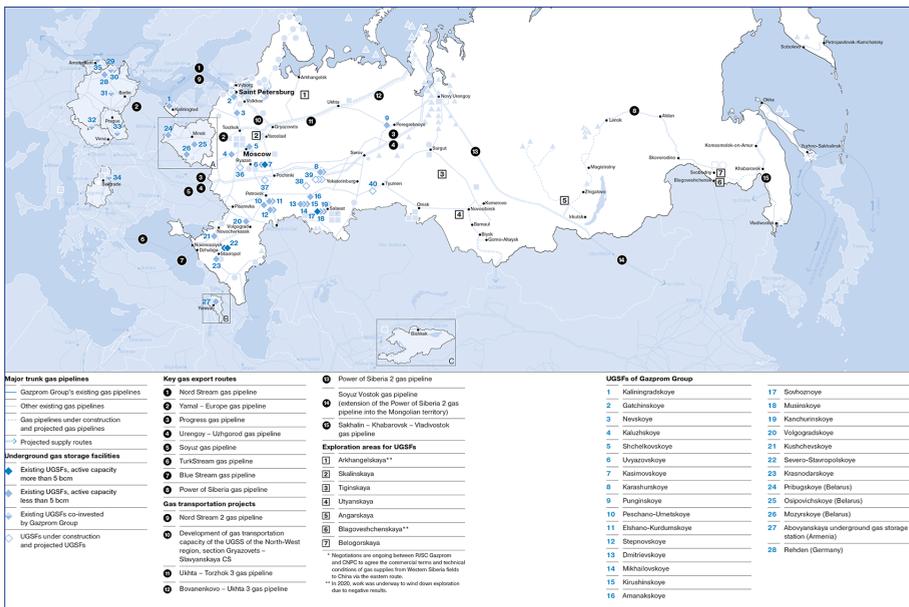
<sup>25</sup> Rosemary Griffin, “Russia Approves Arctic Strategy up to 2035”, cit.

<sup>26</sup> Ibid.

## 3.1 From pipelines to LNG

The Russian gas export strategy has historically relied on rigid long-distance pipelines. Russia is the largest pipeline exporter in the world. Until Russia's war in Ukraine, Russian gas exports were almost entirely directed to the European market, with almost all its pipelines linked to Europe (Figure 1). This condition contributed to a certain delay in the emergence of Russia as an LNG exporter.

**Figure 1 | Russian gas pipeline system**



Source: Gazprom website: *Transmission*,  
<https://www.gazprom.com/f/posts/15/301731/map-develop-2019-en.jpg>.

Well before Russia's war in Ukraine, Moscow had started to look for alternative export markets aimed at ensuring stable and future fossil fuel revenues while reducing its overdependence on Europe, which had in the meantime committed to climate-neutrality. Indeed, the achievement of the European Green Deal implies a drastic reduction in fossil fuel demand and imports, affecting the EU's

relations with key producers, including Russia.<sup>27</sup> Depending on the scenario, the volume of fossil fuel imports falls by 27 per cent between 2015 and 2030, with coal down by 71–77 per cent, natural gas by 13–19 per cent and oil by 23–25 per cent.<sup>28</sup> Beyond 2030, fossil fuel imports shrink dramatically, virtually disappearing for coal, decreasing by 58–67 per cent for natural gas and 78–79 per cent for oil compared to 2015.<sup>29</sup> It goes without saying that these forecasts pose a great challenge for Russia’s energy exports. The Russian share in the European oil market is expected to decrease from 33 per cent in 2018 to 28–30 per cent in 2040,<sup>30</sup> primarily due to declining demand for petroleum products in Europe and increased competition from other crude oil suppliers. This dynamic has accelerated with the Fit-for-55 package (116 bcm by 2030) and, especially, the ongoing energy and (geo)political decoupling between Europe and Russia following Putin’s invasion of Ukraine in February 2022. In its REPowerEU package launched in May 2022 the European Commission sets plans to end the dependency on Russian fossil fuel imports well before 2030 through diversification, energy savings and clean energy production.<sup>31</sup> Measures include diversification of gas supply – especially thanks to LNG – together with reduction in gas demand, an increased renewables energy target and increased ambitions on energy savings. The combined effect of the Fit-for-55 package, the measures in REPowerEU Communication, alongside high gas prices and diversification, has the potential to lead to a cumulative demand reduction of 310 bcm of natural gas by 2030 compared to 2020.<sup>32</sup> The energy divorce is particularly relevant for natural gas as Russia cut around 108 bcm to Europe in 2022.<sup>33</sup> Following the crisis, future Russian gas pipeline exports to Europe seem unlikely to revamp. At the end of 2024 the agreement between

<sup>27</sup> Mark Leonard et al., “The Geopolitics of the European Green Deal”, in *Bruegel Policy Contributions*, No. 04/21 (February 2021), <https://www.bruegel.org/node/6428>.

<sup>28</sup> European Commission, *Stepping Up Europe’s 2030 Climate Ambition. Investing in a Climate-Neutral Future for the Benefit of Our People* (SWD/2020/176), 17 September 2020, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52020SC0176>.

<sup>29</sup> Ibid.

<sup>30</sup> Energy Research Institute of Russian Academy of Sciences and Skolkovo, *Global and Russian Energy Outlook to 2040*, 2019.

<sup>31</sup> European Commission, *REPowerEU Plan* (COM/2022/230), 18 May 2022, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022DC0230>.

<sup>32</sup> European Commission, *Implementing the REPowerEU Action Plan: Investment Needs, Hydrogen Accelerator and Achieving the Bio-Methane Targets* (SWD/2022/230), 18 May 2022, <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex:52022SC0230>.

<sup>33</sup> In 2023, Russia supplied 47 bcm to Europe (27 bcm via pipelines and 20 bcm of LNG) compared to the pre-crisis level of 155 bcm in 2021 (140 bcm via pipeline and 15 of LNG).

Gazprom and Naftogaz will expire and given the current conditions, it seems uncertain that the two parties will renew the agreement.

When Russian gas flows to Europe were interrupted in 2022, Russia did not have any real avenue for rerouting gas exports from Yamal eastward. Over the past year, Russia has struggled to find new export markets and solutions for its gas.<sup>34</sup> It proposed the formation of a gas alliance with Kazakhstan and Uzbekistan to supply these republics and ideally to export to China. However, the discussed volumes stand at around 10–15 bcm/y, which is quite modest compared to the loss of the European gas market.<sup>35</sup>

A major focus has been the Chinese market also due to geographical proximity. For a long time Russia has worked to build and expand its interconnections with China, a rising energy market. Russia has recently built a gas pipeline (Power of Siberia) towards China – already linked with an oil pipeline, ESPO. Power of Siberia (PoS) was launched in December 2019 and is part of the 2014 gas deal, worth 400 billion US dollars, between Russia and China. Initially, PoS brings gas to China's northeastern Beijing-Tianjin-Hebei regions, and then to Shanghai. In 2023, Gazprom exported 22 bcm to China while it is expected to reach 30 bcm in 2024 and then the contracted plateau of 38 bcm in 2025. Despite growing volumes, this pipeline does not connect the main Russian gas production region (Yamal) with China, meaning that Russia cannot divert its gas supply from Europe to China. In addition, even at the contracted plateau (38 bcm/y) PoS volume is still not enough to offset the loss of gas volumes to Europe previous to the crisis (140 bcm via pipeline in 2021).

In February 2022 just before the start of the war in Ukraine, Russia and China signed a deal for a 10 bcm/y supply through the Far Eastern Route which is expected to start no later than 2027. But the ideal gamechanger is the Power of Siberia 2, which could connect the Yamal region to China via Mongolia. The project was proposed by Putin in 2019 and is expected to have an export capacity of 50 bcm/y. Although it does not represent the first choice for Russia

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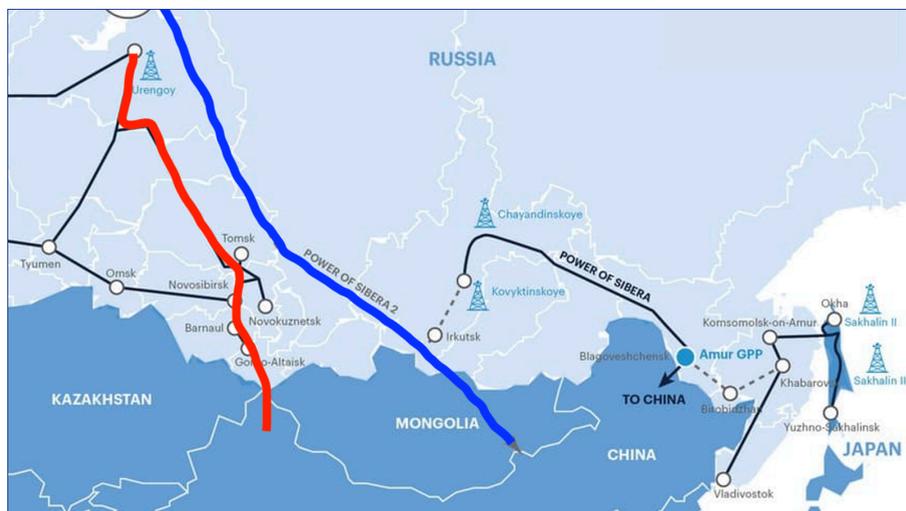
<sup>34</sup> Chi Kong Chyong et al., "Future Options for Russian Gas Exports", in *CGEP Commentaries*, January 2023, <https://www.energypolicy.columbia.edu/?p=10366>.

<sup>35</sup> Tatiana Mitrova, *Preliminary Outlines of the New Russian Gas Export Strategy*, presentation at the *IEA Workshop on Gas Supply Security*, 20 November 2023, [https://iea.blob.core.windows.net/assets/46b64b95-0cfe-4751-ad5d-46e74d79ea71/TatianaMitrova\\_PreliminaryoutlinesofthenewRussiangasexportstrategy.pdf](https://iea.blob.core.windows.net/assets/46b64b95-0cfe-4751-ad5d-46e74d79ea71/TatianaMitrova_PreliminaryoutlinesofthenewRussiangasexportstrategy.pdf).

(Figure 2),<sup>36</sup> the project presents some major benefits:

- Resource base: The main source fields (Western Siberia) for PoS-2 have already been developed to supply the European and domestic market. This provides an important diversification of supply options for Gazprom.
- Lower distances: The route would be shorter compared to the Altai pipeline project crossing the Russian-Chinese western border.
- Lower costs: Exploiting already developed fields will reduce costs as there is no additional cost for the production part of the project.
- Competitive advantages: Lower costs result in lower prices, meaning the project is competitive against China's other pipeline supplies, notably from Central Asian suppliers.
- Connected to a large consumer base: The pipeline would deliver Russian gas near Beijing, the most populous region where demand is the highest and expected to grow.
- Strengthening China's security of energy supply: The project will enhance China's energy security as Beijing aims at reducing its strategic vulnerability related to the Malacca Strait where competition with the US is intensifying.

**Figure 2** | Comparison of the potential routes of Power of Siberia 2 (blue) and Altai pipeline (red)



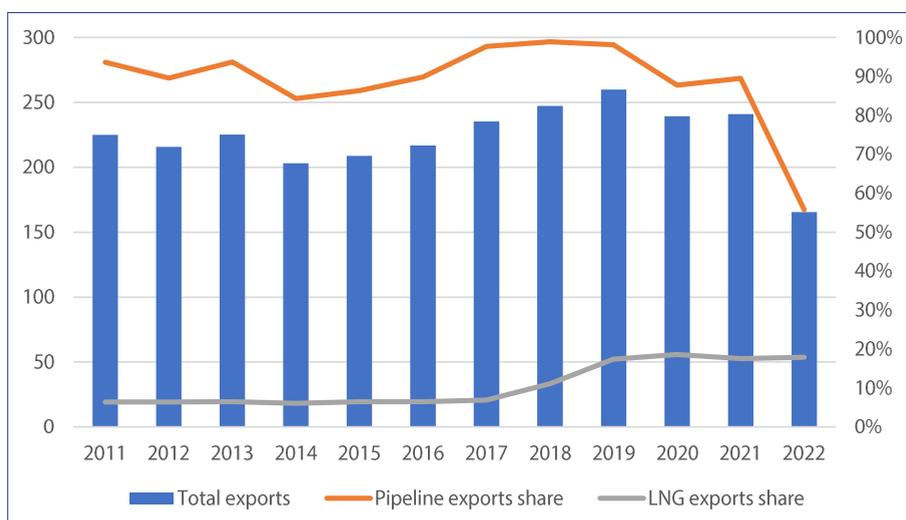
Source: Author's elaboration on Gazprom.

<sup>36</sup> The first choice for Russia was the Altai pipeline.

Despite these benefits, the deal is not yet finalised as parties continue to discuss critical aspects, such as gas prices as occurred with PoS.<sup>37</sup> Besides disagreements over the gas prices, China may evaluate carefully a rising Russian share of its supply, given its traditional approach of portfolio diversification.<sup>38</sup> While the economics could spur a deeper cooperation, political considerations may slow down or limit this cooperation.

Besides new pipeline projects, Russia seeks to compensate for the sharp drop in pipeline gas exports to Europe with growing shipments of LNG – especially after the end of the gas bridge with the EU (Figure 3).

**Figure 3** | Russia's total gas exports (bcm) and share by transportation mode, 2011–2022



Source: Author's elaboration on Energy Institute, *Statistical Review of World Energy Data*, cit.

<sup>37</sup> Tom Wilson, "Russia's Planned Gas Pipeline to China Hit by Construction Delay", in *Financial Times*, 28 January 2024, <https://www.ft.com/content/f37f4b84-0d2c-4e7b-882c-3fb26822bb9c>.

<sup>38</sup> Sergey Vakulenko, "Marriage of Inconvenience—How the War in Ukraine Is Tying Russia to the Chinese Market", in *Oxford Energy Forum*, No. 137 (August 2023), p. 52-55, <https://www.oxfordenergy.org/?p=46438>.

Developing LNG responds to both commercial and political objectives.<sup>39</sup> Commercially, LNG enables Moscow to enter a dynamic sector, which would guarantee revenues and market shares. Politically, LNG creates new avenues for developing new international relations with existing and new customers and expanding Russia's geostrategic influence. Driven by the political and market signal, Moscow expressed its ambitions to become a "Qatar of the North", ramping up its LNG capacity and setting ambitious targets.

In May 2021, Russia approved and released its long-term roadmap for its LNG export industry. This document outlines a Russian ambition to gain a 20 per cent share of the global LNG market by 2035. Achieving this goal will not be an easy task as it requires key technologies, investments and expanding off-grid power. Furthermore, Russian companies face additional obstacles in purchasing turbines and compressors for LNG facilities. There are some uncertainties about how quickly Russia will be able to ramp up its LNG supply over the coming decades, despite its great political commitment. Therefore, Russia has set different target volumes for LNG production depending on scenario (Table 1).

**Table 1** | Target volumes of LNG production in accordance with the Energy Strategy of the Russian Federation for the period up to 2035 (Mtpa)

|                      | 2019-2024 | 2025-2030 | 2031-2035 |
|----------------------|-----------|-----------|-----------|
| <b>Low scenario</b>  | 46        | 63        | 80        |
| <b>High scenario</b> | 65        | 102,5     | 140       |

Source: Author's elaboration on Russia LNG roadmap.

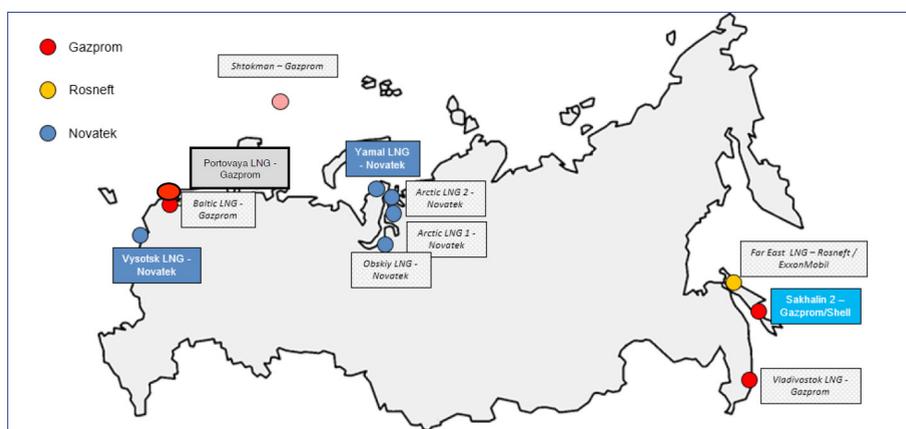
To achieve Russia's LNG targets, it seems there is a geographical "division of labour" among companies (Figure 4). Gazprom would operate in the Baltic and Far East, Rosneft in the Far East, and Novatek in the Arctic and Baltic. Each player has developed an LNG strategy that is compatible with its own asset base and previous experience.<sup>40</sup> Gazprom proposed a combination of pipeline gas and LNG (Baltic LNG and Vladivostok LNG), with LNG playing the supporting role; Rosneft wanted to develop LNG within the scope of its partnership with

<sup>39</sup> James Henderson and Vitaly Yermakov, "Russian LNG: Becoming a Global Force", in *OIES Papers*, No. NG 154 (November 2019), <https://doi.org/10.26889/9781784671501>.

<sup>40</sup> Ibid.

ExxonMobil and utilise the potential strengths of the alliance and its established position on Sakhalin; and finally, Novatek offered the lowest upstream costs and was least affected by geopolitical problems – especially until 2023. Its projects’ future is interlinked with NSR future traffic. In any case, LNG and Arctic developments are unleashing great competition among major Russian companies. Novatek was chosen by the Kremlin to develop the LNG market, mainly because the state-owned Gazprom, which does not have competences and technologies in the LNG sector, had not been able to significantly develop LNG projects – with the exception of Sakhalin.<sup>41</sup>

**Figure 4** | Russia’s LNG projects, by company



Source: Author’s elaboration on James Henderson and Vitaly Yermakov, “Russian LNG”, cit., p. 15.

Russia is thus considering several project options to increase and strengthen its role in the global LNG market. Moscow’s goal is to increase LNG export capacity from 30.3 Mtpa to 100 Mtpa by the early 2030s with a global market share increased to 20 per cent, from the current 8 per cent.<sup>42</sup> This 67 Mtpa increase corresponds to around 90 bcm, which is just shy of the 110 bcm drop in natural gas exports to Europe versus pre-invasion levels. In this quest, the Arctic region has emerged as a key production/export hub (Table 2). The 2020 Russian

<sup>41</sup> Anna B. Mikulska and Pawel Jakubowski, “The Future of Russian Gas: A Tale of Two Cities”, in *Baker Institute Issue Briefs*, 29 June 2020, <https://www.bakerinstitute.org/node/64153>.

<sup>42</sup> “Russia’s Share on LNG Market to Rise to 20% by 2030 from Current 8%: Novak”, in *TASS*, 22 November 2023, <https://tass.com/economy/1710029>.

Arctic Strategy expressed the Russian ambition to increase LNG production in the region from 8.6 Mt in 2018, to 43 Mt in 2024, 64 Mt in 2030 and 91 Mt in 2035.<sup>43</sup> As of today, Russia has the fourth largest LNG capacity in the world (30.36 Mt in 2023) after the US, Qatar and Australia,<sup>44</sup> coming mainly from Novatek's Yamal LNG terminal in the Arctic (17.45 Mtpa of capacity), Gazprom-led Sakhalin 2 in the Far East (10.8 Mtpa) and Novatek's Kryogas-Vysotsk plant, a small-scale terminal in northwest Russia (0.66 Mtpa). Amidst the ongoing Russia-Ukraine conflict, Gazprom finally started commercial operation from its Portovaya LNG T1 (1.5 Mtpa) in November 2022 after several delays. Moreover, Gazprom managed to send an LNG cargo from the facility to China via the NSR in September 2023.<sup>45</sup> Gazprom is also working on another LNG project (Baltic LNG 13 Mtpa) within the Ust-Luga complex, whose construction started in 2021,<sup>46</sup> but it is experiencing a number of delays and setbacks. Following the launch of the first train of Novatek's Arctic LNG 2, Russia's LNG capacity is expected to amount to 37.2 Mtpa in 2024.

While Novatek has taken the lead in the sector, other companies (Gazprom and Rosneft) are attempting to increase LNG capacity. As result, Russia currently has 137 Mtpa of proposed liquefaction capacity.<sup>47</sup> This capacity comes in addition to Novatek's Arctic LNG 2 (19.8 Mtpa) which was approved in 2019, and the first train of 6.6 mtpa of capacity is already under operation with the first shipment of LNG cargo announced in 1Q2024. Among the proposed LNG terminals, Novatek seeks to maintain its leadership thanks to the proposed Arctic LNG 1 (19.8 Mtpa), Arctic LNG 3 (12.2 Mtpa) and Obskiy LNG (5 Mtpa) located in the Arctic. There are other projects located in the Russian Far East. In the pre-FID stage, there are the Far East LNG (or Sakhalin-1 LNG) with a 6.2 Mtpa capacity and the Sakhalin-2 LNG T3 (5.4 Mtpa). While the former seeks to exploit gas produced in the Sakhalin-1 gas fields, the latter may encounter more challenges in securing sufficient gas supply. Given these challenges,

<sup>43</sup> Rosemary Griffin, "Russia Approves Arctic Strategy up to 2035", cit.

<sup>44</sup> International Gas Union (IGU), *2023 World LNG Report*, 12 July 2023, <https://igu.org/?p=25955>.

<sup>45</sup> "Gazprom Delivers Its First LNG Cargo to China via Arctic", in *Reuters*, 14 September 2023, <https://www.reuters.com/business/energy/gazprom-delivers-its-first-lng-cargo-china-via-arctic-2023-09-14>.

<sup>46</sup> Stuart Elliot, "Russia's Gazprom Begins Construction of Major Ust-Luga Gas Complex", in *S&P Global Commodity Insights*, 21 May 2021, <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/natural-gas/052121-russias-gazprom-begins-construction-of-major-ust-luga-gas-complex>.

<sup>47</sup> IGU, *2023 World LNG Report*, cit.

international partners have scaled down their presence (in the case of Shell in the Sakhalin-2 LNG T3) and commitment (Exxon in the case of Sakhalin-1 LNG). In addition, Yakutsk LNG (17.7 Mtpa) is expected to export to Asian markets from 2031. While various Russian LNG projects have been shelved (expansion of Sakhalin 1 and 2, Vladivostok LNG), Russia is centring its activities on projects on the Yamal and Gydan peninsulas (Novatek's Arctic LNG 2, b LNG, Arctic LNG 1 and 3) as Table 2 shows.

**Table 2** | LNG project timeline according to Russian institutions and operators

| Project               | Location | Capacity (Mtpa)                     | Launch                          | Company                             | Note   |
|-----------------------|----------|-------------------------------------|---------------------------------|-------------------------------------|--|
| Sakhalin-II           | Far East | 11.08                               | 2009                            | Gazprom                             |  |
| <b>Yamal LNG</b>      | Yamal    | 17.45                               | 2017;<br>2018;<br>2019;<br>2021 | Novatek                             | On time and budget despite sanctions. The start-up of the fourth train has been delayed due to issues related to the Arctic Cascade technology |
| Kryogas-Vy-sotsk      | NWest    | 0.66                                | 2019                            | Novatek                             | The first medium-scale LNG project in the Baltic region  |
| Portovaya LNG         | NWest    | 1.5                                 | 2022                            | Gazprom                             | Delivered LNG cargo to China via NSR in 2023   |
| <b>Arctic LNG-2</b>   | Gydan    | 6.6 (1st train@2024);<br>total 19.8 | 2024;<br>2025;<br>2026          | Novatek                             | Heavily affected by US sanctions in late 2023. Already in operation (first cargo 1Q2024)   |
| <b>Obskiy LNG</b>     | Yamal    | 6 LNG+2 ammonia                     | 2024                            | Novatek                             | Sanctioning expected in 2020 but postponed. Novatek suspended the idea of turning it into a blue ammonia export facility                       |
| Ust-Luga (Baltic LNG) | NWest    | 13                                  | 2024-25                         | Gazprom                             | The first LNG plant built by Gazprom. Affected by the US sanctions in late 2023. New sanctions could cause significant delays until 2030       |
| Murmansk LNG          | NWest    | 20.4                                | End 2027                        | Novatek                             | Strong political support and some adjustments against the sanctions. The project still faces uncertainty                                       |
| <b>Arctic LNG-1</b>   | Gydan    | 19.8                                | 2027                            | Novatek                             | In the exploration phase   |
| Yakutsk LNG           | Far East | 17.7                                | 2027                            | Yakutsk Fuel and Energy Co. (YATEK) |  |
| Far East LNG          | Far East | 6.2                                 | 2027-28                         | Rosneft and Exxon-mobil             | Halted following international sanctions   |

| Project                | Location | Capacity (Mtpa) | Launch                 | Company                 | Note                                     |
|------------------------|----------|-----------------|------------------------|-------------------------|--|
| <b>Arctic LNG-3</b>    | Gydan    | 19.8            | Within the next decade | Novatek                 | In the exploration phase                 |
| Expansion Sakhalin-2   | Far East | 5.4             | Within the next decade | Gazprom                 |  |
| <b>Tambey LNG</b>      |          | 20              | Post-2030              | Gazprom                 |  |
| <b>Shtokman LNG</b>    |          | 30              | Post-2030              | Gazprom                 |  |
| <b>Kara LNG</b>        |          | 30              |                        | Rosneft                 |  |
| <b>Taymyr LNG</b>      |          | 30-50           |                        | Rosneft                 |  |
| Expansion Far East LNG |          | 10              | After 2025             | Rosneft and Exxon-mobil | Halted following international sanctions |

Note: Red indicates that the project is located in the Arctic.

Source: Authors' elaboration on companies' website and documents.

The growing proposed liquefaction capacity reflects rising political ambition. However, timing is essential as other LNG exporters, namely Qatar and the US, are undergoing massive expansion projects which would potentially reduce Russia's market share. Furthermore, Russia's LNG ambition could be severely hindered by several factors, notably logistics and sanctions among others (see Section 6). Given the strategic relevance and the challenging context, Russia has taken additional measures to support and boost LNG production. In this sense, in March 2023 Russia's Ministry of Energy announced a roadmap to substantially ramp up LNG production, with a clear focus on the Arctic. The two features of this new roadmap, which envisages 100 Mt of LNG exports by 2030, are the liberalisation of the Arctic LNG sector and the reliance on domestic technologies needed for large LNG export facilities. In November 2023, Putin signed the amended version of the law on gas exports including these new features. The new version affirms that LNG may be exported as long as the gas used comes from fields located in the Russian Arctic. The first amendment sets an ownership criterion, according to which only companies whose majority stakeholders are state-owned entities are authorised to export gas. More importantly, the amended version grants the possibility to export gas from facilities that are not linked with a specific gas field, meaning that the gas can be supplied from the Russian gas transmission system. Following the signature, Putin demanded the inclusion of the Murmansk LNG project (20.4 Mtpa) in the

planned liberalisation of LNG exports.<sup>48</sup> The Murmansk LNG terminal, which will benefit from its good northernmost ice-free location, will be fed by pipeline gas previously sent to Europe via the Yamal and Nord Stream I pipelines. Novatek is eager to start construction in summer 2024 thanks to the same gravity-based platforms used for the Arctic LNG 2 project in order to start production at the end of 2027. Considering the new amendments, Rosneft could also step up in the LNG sector thanks to two projects located in the Arctic region: Taymyr LNG (22.5 Mtpa) from the Vostok Oil project and Kara LNG (22.5 Mtpa).<sup>49</sup>

These developments have further highlighted the growing competition between Russian energy companies and the opposite trajectories in terms of relevance for Russia's energy strategy between Gazprom and Novatek. After decades of monopoly and strategic relevance, Gazprom has borne the highest cost from the ongoing decoupling from the European gas market by acting as swing producer, reducing its output and lowering its exports. Conversely, Novatek and Rosneft have increased their output and gained even more relevance. Novatek has developed Russia's LNG sector and could gain the role of Russia's premier gas exporter. Besides the recent LNG liberalisation, Novatek has challenged Gazprom's ownership of the Tambey gas fields,<sup>50</sup> considered among Gazprom's biggest undeveloped assets.<sup>51</sup> Novatek tried to obtain the development licenses as this would significantly boost its resources base in the Yamal region for its LNG production.<sup>52</sup> Meanwhile, Gazprom intends to develop the Tambey fields as a conventional pipeline project and connect them to the infrastructure of the nearby Bovanenkovo project, among other plans. However, the two companies may cooperate as the Kremlin aims at finding new solutions to reduce the burden of sanctions and achieve its goals. For example, the two companies may need to cooperate on the Murmansk LNG terminal – especially construction of the pipeline linking the terminal to the national gas

<sup>48</sup> Malte Humpert, "Putin Green-lights Novatek's Massive Murmansk LNG Project", in *High North News*, 10 October 2023, <https://www.highnorthnews.com/en/node/56395>.

<sup>49</sup> "Russian Parliament Gives Nod to LNG Exports from the Arctic Projects", in *PortNews*, 18 October 2023, <https://en.portnews.ru/news/355077>.

<sup>50</sup> Vladimir Afanasiev, "Gazprom's Russian LNG Plans Hit by New Setback as Contractors Give Tenders Cold Shoulder", in *Upstream Online*, 12 July 2023, <https://www.upstreamonline.com/2-1-1485537>.

<sup>51</sup> Atle Staalesen, "Gazprom's Biggest Arctic Field Will Fuel New Petrochemical Plant", in *The Barents Observer*, 25 May 2021, <https://thebarentsobserver.com/en/node/8384>.

<sup>52</sup> Atle Staalesen, "Scramble for Yamal Resources: Novatek Puts Its Eyes on Gazprom's Tambey Fields", in *The Barents Observer*, 19 April 2021, <https://thebarentsobserver.com/en/node/8222>.

system. A first step of cooperation in the LNG sector may come from the recent Novatek acquisition of Shell's stake in Sakhalin-2 (27.5 per cent).<sup>53</sup>

Unsurprisingly, Gazprom has expressed its opposition to the liberalisation of the Arctic LNG sector and the inclusion of the Murmansk LNG project, referring to the potential negative consequences for domestic consumers. Gazprom is also feeling growing pressure from Rosneft, which demanded to be considered as a potential supplier of gas to PoS-2 thanks to its gas from the Irkutsk Oblast and Krasnoyarsk Krai. In December 2022, Putin instructed Deputy Prime Minister Novak to work out the issue with Rosneft and Gazprom.

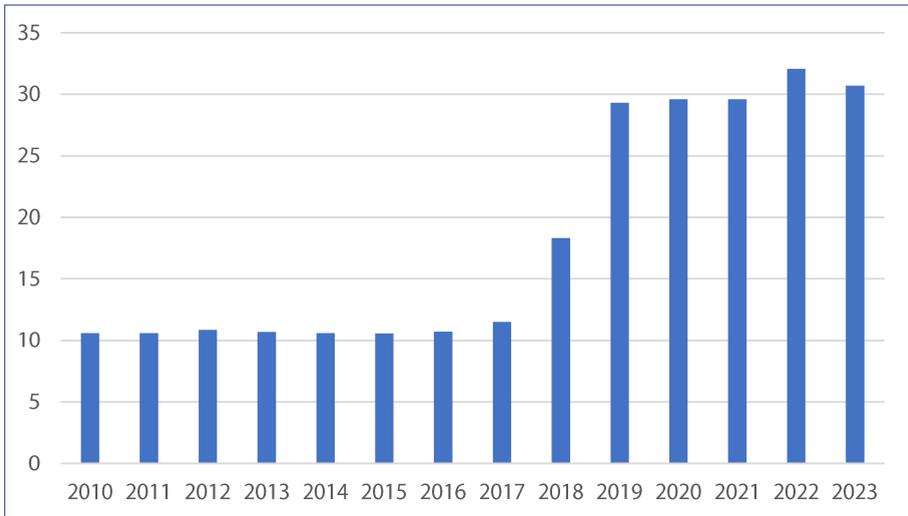
Over the past decade, Russia has increased its LNG exports (Figure 5) as new projects by Novatek were launched. In 2022, a surge in Russian LNG imports to Europe was recorded as piped gas volumes were drying up.<sup>54</sup> For instance, more than two thirds of Yamal LNG exports were discharged in Europe, while the rest were sent to Asia via either the NSR or the Suez Canal. This situation has caused some embarrassment in the EU as it attempts to phase out Russian gas. For this reason, the phase-out of Russian LNG imports has been discussed and proposed at the EU level,<sup>55</sup> although with no final decision. Russia remains the second largest LNG supplier to the EU, providing around 15 per cent of the bloc's supply.<sup>56</sup> As result, Novatek surpassed Gazprom as the largest Russian gas supplier to Europe. The fact that almost all existing Russian LNG export terminals are located near the European market has made Europe the economical marketing destination. The growing political pressure on Russian LNG imports poses further uncertainty over the future of the Murmansk LNG project, which is positioned near the European market.

<sup>53</sup> "Russia's Novatek to Acquire Shell's Stake in Sakhalin-2 for \$1.16 bln", in *Reuters*, 12 April 2023, <https://www.reuters.com/business/energy/russias-novatek-acquire-shells-stake-sakhalin-2-116-bln-2023-04-12>.

<sup>54</sup> Alice Hancock and Shotaro Tani, "EU Imports Record Volumes of Liquefied Natural Gas from Russia", in *Financial Times*, 29 August 2023, <https://www.ft.com/content/1e70ff72-52d8-46b6-a8f4-fcc86fb88a6d>.

<sup>55</sup> "EU's Simson Calls for Phase-Out of Imports of Russian LNG", in *Reuters*, 14 September 2023, <https://www.reuters.com/article/idUSKBN30K00M>.

<sup>56</sup> Malte Humpert, "Novatek to Surpass Gazprom as EU's Largest Russian Gas Supplier, Highlighting Continued Reliance on LNG", in *High North News*, 2 August 2023, <https://www.highnorthnews.com/en/node/56050>.

**Figure 5** | Russia's LNG exports, million tons, 2010–2023

Source: Author's elaboration on GIIGNL annual reports for the period 2010–2022 and Reuters for the year 2023.<sup>57</sup>

## 4. Russian energy companies in the Arctic

Besides LNG, Russian energy companies have followed the growing political interests for the development of Arctic resources. They have expanded their footprint in the region by ensuring new oil and gas fields in northern areas, such as the Yamal and Gydan peninsulas, also for commercial reasons and especially their need to counter the declining production rate in Western Siberia. However, major energy companies (Rosneft, Gazprom and Novatek) have pursued different strategies to reach their specific goals for their activities in the Arctic. Arctic development has become a major driver of increasing competition among Russian oil and gas companies because of its strategic relevance and vast resources. The fast rise and success of Novatek, underpinned

<sup>57</sup> GIIGNL, *Annual Reports*, <https://giignl.org/resources2/>; "Russian LNG Exports to Europe Fell 1.9% in 2023: LSEG Data", in *Reuters*, 2 January 2024, <https://www.reuters.com/business/energy/russian-lng-exports-europe-fell-19-2023-lseg-data-2024-01-02>.

by the growing relevance of LNG in Russia's energy strategy, has increased competition with the previously dominant exporting company: Gazprom.

## 4.1 Rosneft

Rosneft was the first company to attract foreign investors in the Arctic. In 2014, Rosneft and ExxonMobil discovered a significant deposit in the Kara Sea, the Unversity-1 well. This well was renamed "Pobeda" (meaning Victory) because it turned out to hold more than 125 million tons of oil. The Rosneft-ExxonMobil partnership was particularly relevant for Russia because of the foreign capital and, more importantly, the companies' know-how in operating large projects in remote areas. The collaboration was severely affected by Russia's annexation of Crimea in 2014 and the consequent Western sanctions against Russia and its energy sector. The project was halted and finally ExxonMobil announced its decision to pull out in February 2018.

Rosneft's ambition has not diminished as it has been working strongly to create an ambitious oil cluster in the Arctic area, called the Vostok Oil project.<sup>58</sup> The project consists of a major oil and gas cluster with several fields – in particular the Payakhskoye, Irkinskoye-Zapadnove and Bayakalovskoye fields – contributing to boosting output and exports via the NSR. To do so, Rosneft is working to build related infrastructure to export hydrocarbon volumes. Among the logistical projects, Rosneft plans to build a 770-km-long pipeline and the Bukhta Sever oil terminal in the Taymyr Peninsula. Additionally, tankers will be built to transport oil via the NSR. The company stated that the project may supply 25 Mt of oil in 2024, with a potential increase to 50 Mt in 2027 and 115 Mt by 2030.<sup>59</sup> This target would contribute to achieving traffic targets set by Russia for the NSR. In November 2020, Rosneft announced the start of the Vostok Oil

<sup>58</sup> The project unites Rosneft's Vankor oilfields with additional deposits further north, such as the Zapadno-Irkinsky block, the East Taymyr cluster and the Payakhskaya group of fields. A major focus is on the Paiyakhskoye field on the Taymyr Peninsula, owned by Neftegazholding (NGH) which belongs to a former Rosneft president, Eduard Khudainatov.

<sup>59</sup> Callum Colford, "Watch: Market Movers Europe, May 10-14: New German Climate Laws Expected; Travel Corridors Boost Oil", in *S&P Global Commodity Insights*, 10 May 2021, <https://www.spglobal.com/platts/en/market-insights/videos/market-movers-europe/051021-german-climate-travel-corridors-oil-recovery-recycled-pet-corn-prices>.

project during a meeting with President Putin.<sup>60</sup> However, the feasibility of the full development of the project under the tighter sanctions regime remains to be seen – especially after the establishment of the oil embargo set by the EU given that all oil production will be exported via ship.<sup>61</sup> The development of the import-important fields is expected to experience significant delays.

Linking the development and exports of the Vostok Oil project to the success of the NSR, which is a national interest, is instrumental for receiving the highest support at the governmental level given the strategic relevance. Indeed, Rosneft's CEO Igor Sechin affirmed that the cost of developing the project in the Arctic will exceed 120 billion US dollars.<sup>62</sup> However, such fiscal support has not substantially materialised, forcing Rosneft to look for foreign investors. Two major commodity traders, Trafigura and Vitol, decided to buy a 10 per cent and 5 per cent stake, respectively. However, both decided to divest their stakes following Russia's war in Ukraine.<sup>63</sup> The company thus presented the project to Chinese partners during the Russian-Chinese energy forum in October 2023.<sup>64</sup>

Lastly, Rosneft's efforts related to Arctic oil and gas are not confined to the Vostok Oil project. At the end of 2020, Rosneft announced the discovery of a new Arctic gas field in the Arctic Kara Sea. The new field, named after Marshal Georgy Zhukov, contains estimated gas reserves of 800 bcm.<sup>65</sup>

<sup>60</sup> AFP, "Russia's Rosneft Announces Start of Vast Arctic Oil Project", in *The Moscow Times*, 26 November 2020, <https://www.themoscowtimes.com/2020/11/26/vostok-a72149>.

<sup>61</sup> Charles Ross, "Can Stated Future Export Levels at the Vostok Oil Project Be Achieved in a Time of Political Adversity?", in *S&P Global Commodity Insights*, 5 January 2023, <https://www.spglobal.com/commodityinsights/en/ci/research-analysis/can-stated-future-export-levels-at-the-vostok-oil-project-be-achieved-in-a-time-of-political-adversity.html>.

<sup>62</sup> "Cost of Rosneft Oil Project to Exceed \$120 Billion", in *Energy Intelligence*, 15 September 2023, <https://www.energyintel.com/0000018a-98a5-db55-a98e-fabfeeb90000>.

<sup>63</sup> "Consortium Led by Vitol Divests Vostok Oil Project Stake", in *Interfax*, 30 December 2022, <https://interfax.com/newsroom/top-stories/86639/>.

<sup>64</sup> "Russia Has Given Presentation of Vostok Oil Project to China, Chinese Partners Looking at It: Novak", in *Interfax*, 19 December 2023, <https://interfax.com/newsroom/top-stories/97778/>.

<sup>65</sup> Rosemary Griffin, "Rosneft Discovers New Arctic Gas Field", in *S&P Global Commodity Insights*, 9 December 2020, <https://www.spglobal.com/platts/en/market-insights/latest-news/natural-gas/120920-rosneft-discovers-new-arctic-gas-field>.

## 4.2 Gazprom

Over the past years, Gazprom has bought new fields in northern regions to keep high export volumes for its pipelines towards Europe. Indeed, a major change in Russian natural gas production is the gradual shift away from the Nadym-Pur-Taz (NPT) region, which traditionally accounted for most of the Russian gas output. Gazprom assessed that the cumulative depletion level of fields located in the NPT region will reduce their share of the company's production portfolio from 70 per cent in 2018 to about 60 per cent by 2024/25. Therefore, future gas supply is expected to come from new areas such as the Yamalo-Nenets district where Gazprom's giant Bovanenkovskoye field has been the largest source of production growth in recent years. Commissioned in 2012, the field delivered 84 bcm in 2017 and an estimated 90 bcm in 2018. The fields at the centre of Gazprom's future gas production are located at Yamal, a move to keep its exports high towards Europe, offsetting the decline in the traditionally most productive regions. For example, these gas fields were supposed to feed northwestern pipelines, such as Nord Stream 1 and 2. However, the abrupt cutting of Russian gas supplies to Europe undermines Gazprom's status as the main gas exporting company in Russia, unless it finds new avenues to connect the Yamal region to other markets, namely China. Despite the crisis, Gazprom commenced production from the Semakovskoye gas field in the Arctic for injection into the country's supply system in December 2022.<sup>66</sup>

Additionally, Gazprom via its subsidiary GazpromNeft has also enhanced its position in the region with some major oil projects: Prirazlomnoye, Novoportovskoye and Vostochno-Messoyakhskoye. Developing projects in the Arctic, a significant proportion of which are offshore, is one of the company's strategic priorities. In 2018, its production in the Arctic accounted for about 30 per cent of the company's total production. GazpromNeft operates the first – and so far, only – oil production project on the Russian Arctic Shelf, launched in 2013: the Prirazlomnoye field. It is located offshore in the Pechora Sea and holds 70 Mtoe of recoverable hydrocarbons. Moreover, GazpromNeft operates also the northernmost onshore field in Russia: the Vostochno-Messoyakhskoye field.

<sup>66</sup> "Russia's Gazprom Launches Production at New Arctic Gas Site", in *Reuters*, 6 December 2022, <https://www.reuters.com/business/energy/russias-gazprom-launches-production-new-arctic-gas-site-2022-12-06>.

## 4.3 Novatek

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Novatek has expanded its footprint in the Arctic – in particular on the Yamal and Gydan peninsulas – with the aim of becoming the leading Russian company in the LNG industry. The main project has been the Yamal LNG project, which produces about 21 Mtpa of LNG (operating above the nameplate capacity) and up to 1.2 Mtpa of gas condensate. Despite international sanctions, the company managed to build and commission the project according to the foreseen timeline and budget, thanks to strong political support and Novatek's ability to attract international partners. Yamal LNG exports exhibit surprisingly little seasonality given the severe climate conditions above the Arctic Circle. The direct Yamal LNG flows to Asia via the NSR are growing because of their relative proximity to most large Asian LNG buyers and a longer shipping season. The NSR routes are typically undertaken between May and October and, in some instances (2021), up until January. Yamal natural gas volumes reach Asia via ship-to-ship transfers to a non-ice-class vessel in Murmansk and Northwest Europe and a subsequent onwards journey via the Suez Canal, with around 56 per cent of Asia-bound Yamal volumes passing through Suez. Yamal exports to Europe take place all year round, peaking in the winter months. Comparing Yamal LNG deliveries via the NSR with the other global LNG powerhouses regarding access to the Asian market, there is a clear advantage versus US LNG and also versus Qatar, when it comes to destinations in Japan and South Korea.

Yamal LNG is also strategically relevant in marking the first Chinese steps in the Arctic, as China National Petroleum Corporation (CNPC) and Silk Road Fund hold a 20 per cent and 9.9 per cent share of the project, respectively. The remaining shares are held by Novatek (50.1 per cent) and TotalEnergies (20 per cent). The active Chinese involvement in the project has become one of the major successes of the Sino-Russian relationship, reaffirming the close relationship between Moscow and Beijing (see Box 2).

To further develop LNG production in the Arctic areas, Novatek has ensured a large, high quality, low-cost hydrocarbon resource base on the two peninsulas to support its ambitious growth strategy. In September 2019, Novatek announced the FID for Arctic LNG-2 located in the Gydan peninsula. The new

LNG terminal has a total capacity of 19.8 Mtpa, consisting of three LNG trains (with a design capacity of 6.6 Mtpa each), plus an additional total of 1.6 Mtpa in condensate production capacity across the three trains. The cost for the entire project had been estimated at around 21 billion US dollars, but increased to 25 billion US dollars. Analogously to Yamal LNG, Novatek managed to attract several foreign investors for this LNG project. Novatek holds 60 per cent of the project, while the remaining 40 per cent is owned by Total (10 per cent), CNPC (10 per cent), China National Offshore Oil Corporation (10 per cent) and Mitsui-JOGMEC (10 per cent). All the stakeholders signed a 20-year sales and purchase agreement in April 2021.<sup>67</sup> Offtake volumes are in proportion to ownership stakes, and LNG supplies are free-on-board at Murmansk and Kamchatka, with pricing formulas linked to international oil and gas benchmarks. The project recently suffered a serious setback in late 2023 ahead of the launch of its first train, due to the US sanctions.

Given its significant presence on the Yamal and Gydan peninsulas, Novatek has been considering additional LNG projects – particularly a medium-sized one and another with the same capacity as Arctic LNG-2. The smaller project is the Obskiy LNG which will be composed of three trains of 1.6 Mt capacity each for a total capacity 4.8 Mtpa. The other project, called Arctic LNG-1 will have a capacity of around 20 Mtpa. These plans and projects demonstrate Novatek's high commitment to ascendancy in the Russian LNG sector, which is thus far underdeveloped except the modest Sakhalin-2 project in Russia's Far East.

Lastly, Russian law allows only state-owned companies to have offshore licenses in the Arctic area. For years, this limitation has prevented Novatek from accessing offshore Arctic resources. However, in June 2021 Novatek announced the creation of a joint venture with Gazprom Neft to explore for oil and gas in the Chukchi Sea, marking its entry into Russia's offshore Arctic.<sup>68</sup> The creation of a joint venture (GazpromNeft will transfer a 49 per cent interest in the Severo-Vrangelevsky block) will help shoulder drilling costs and coordinate differing expertise.

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<sup>67</sup> Simon Ferrie, "Arctic LNG 2 Inks Long Term Contracts", in *Petroleum Economist*, 30 April 2021.

<sup>68</sup> Joseph Murphy, "Novatek Enters Offshore Arctic", in *Natural Gas World*, 7 June 2021, <https://www.naturalgasworld.com/novatek-enters-arctic-offshore-88983>.

## 5. Energy resources and trade routes

Development of Russia's Arctic oil and gas resources is strongly interlinked with another national goal: development of the Northern Sea Route. All the official documents related to the country's Arctic strategy identify the NSR as a key national interest. Russia needs to create socioeconomic development for its Arctic regions and their inhabitants. To this end, Moscow is providing significant investments. According to the US Army's Arctic Strategy, the Arctic accounts for more than 10 per cent of all investment in the Russian Federation.<sup>69</sup>

The melting of Arctic ice provides an opportunity for Moscow to gain relevance in the global maritime traffic – a position it has never held. The NSR offers a significant reduction in time and cost for shipments from Europe to Asia compared to the traditional route via the Suez Canal. For example, shipping companies can reduce distances by 40 per cent and save 10 to 14 days – and correspondingly, fuel and money – from Yokohama port in Japan to the port of Rotterdam, navigating via the NSR. However, not every Asian port would benefit from navigating through the NSR to Europe; those most interested in the Arctic routes are ports located in the north of Asia. The further south we go, the less attractive and competitive the Arctic route becomes, compared to the Suez Canal. Following the blockage of Suez Canal in 2021, Russia reminded the world of the need to diversify shipping routes, proposing the NSR as a viable alternative offering advantageous features.<sup>70</sup> This narrative could ideally benefit from the new tensions and attacks around the Suez Canal and the Red Sea.

In 2018, the Kremlin set an ambitious target for NSR traffic at 80 Mt per year by 2024. This would grant a modest yet relevant role in the international maritime trade to Russia. As a consequence of ice melting, in the past years total cargo shipped via the NSR has increased significantly. Despite the growth, however, traffic volume is still modest to the point of irrelevance, compared to other major maritime lines. For example, in 2020, NSR shipped around 33Mt of cargo,

<sup>69</sup> US Army, *Regaining Arctic Dominance. The U.S. Army in the Arctic*, 19 January 2021, <https://apps.dtic.mil/sti/pdfs/AD1126181.pdf>.

<sup>70</sup> Nastassia Astrasheuskaya, "Russia Seizes on Suez Blockage to Promote Merits of Arctic Route", in *Financial Times*, 30 March 2021, <https://www.ft.com/content/47b4cca2-b673-4763-95b4-555bd03a948a>.

while the Suez Canal transports more than 3 Mt of cargo daily.<sup>71</sup> The different relevance is due to environmental and regulatory obstacles. For instance, the NSR has been open to international transits only since 2009; before then, it was operated as a Russian national shipping lane and was closed to foreign cargo ships. Gaining international relevance and attracting higher trade volumes will take time. In August 2022, a new plan for development of the NSR to 2035 was approved by Russian Prime Minister Mikhail Mishustin. The plan envisages a total of almost 1.8 trillion rubles for financing more than 150 measures.<sup>72</sup>

In the short and medium term, Russia is committed to using its Arctic hydrocarbon resources to foster Arctic shipping and achieve its strategic objectives. Several ports are already in place along the NSR. By contrast the other Arctic route, the Northwest Passage, which runs along Canadian shores, is much less developed.

Although the NSR inherited the Soviet infrastructural network, it still requires massive investments in infrastructure, including ports and roads. These investments would be crucial if Moscow aims at attracting further shipping traffic. The Russian government has launched a number of modernisation plans for its Arctic infrastructure, while financing important port projects such as construction of the seaport of Sabetta for Yamal LNG. The project reportedly cost around 1.1 billion US dollars. Additionally, the Russian state financed a 5-mile approach channel, and a 35-mile seaway channel in the area. These investments highlight the strategic value of these projects for the Russian government.

The 2020 Arctic Strategy envisages that shipments on the NSR will reach 90 Mt by 2030 and 130 Mt by 2035.<sup>73</sup> The targets have been constantly expanded. The new plan for development of the NSR adopted in August 2022 envisages an increase up to 80 Mt in 2024, and later to 150 Mt in 2030 and 220 Mt in 2035.<sup>74</sup>

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<sup>71</sup> Ibid.

<sup>72</sup> "Russian PM Approves Development Plan for Northern Sea Route to 2035", in *Interfax*, 4 August 2022, <https://interfax.com/newsroom/top-stories/81938/>.

<sup>73</sup> Alte Staalesen, "In Year of Crisis, Growth Continues on Northern Sea Route", in *The Barents Observer*, 10 November 2020, <https://thebarentsobserver.com/en/node/7607>.

<sup>74</sup> Russian Government, *Order No. 2115-r of 1 August 2022* (validating the Development Plan for the Northern Sea Route for the Period until 2035) [in Russian], <http://static.government.ru/media/files/StA6ySKbBceANLRA6V2sF6wbOKSyxNzw.pdf>.

In 2023, Rosatom, which is responsible for NSR development, affirmed that 193 Mt will be reached by 2030, and set a new target of 270 Mt for 2035.<sup>75</sup> In 2023, around 36 Mt was shipped via the NSR.

A study conducted by the Centre for High North Logistics (CHNL) at Norway's Nord University Business School assessed that between 2016 and 2019, the cargo volume on the NSR increased from 7.5 Mt to 31.5 Mt.<sup>76</sup> The increase is mainly driven by large hydrocarbon developments, specifically from Gazprom's Novy Port crude oil project, which produced 7.7 Mt of crude oil in 2019, and Novatek's Yamal LNG, which produced 21 Mt of LNG. These two projects account for 80 per cent (26.1 Mt) of cargo volume on the route.<sup>77</sup> However, CHNL assessed that in 2022 the total traffic volume on the NSR was 34.03 Mt, slightly less than the 2021 volumes (34.85 Mt).<sup>78</sup> The main contributor to the NSR volume in 2022 was LNG transportation, a position it is expected to retain in the near future as Novatek's Arctic LNG projects come online.

The development of hydrocarbon projects and exports through the NSR has also pushed for the expansion of the shipbuilding industry. Icebreakers are required to guarantee a year-round escort for oil and LNG to Europe and Asia. Moreover, Russia seeks to revamp and develop its shipbuilding industry to meet Russian companies' demands and, at the same time, to avoid becoming dependent on foreign shipbuilding companies that could undermine Russia's ability to achieve its multiple targets. In this sense, the development of the Zvezda shipyard became a key element of this strategy: located in the Russia's Far East, it is operated by a consortium composed of Rosneft and Gazprom bank, and is responsible for construction of the whole series of gas carriers for Novatek's Arctic LNG-2 project. Furthermore, the shipyard is also responsible for the construction of the Leader-class nuclear icebreaker, which would be

<sup>75</sup> Malte Humpert, "Russia Says Northern Sea Route to Transport 270m Tons by 2035", in *High North News*, 17 April 2023, <https://www.highnorthnews.com/en/node/55663>; "Rosatom Expects that the Volume of Cargo Transportation along the NSR in 2035 Will Exceed 270 million Tons" [in Russian], in *TASS*, 7 April 2023, <https://tass.ru/ekonomika/17474429>.

<sup>76</sup> Hilde-Gunn Bye, "European Shipping Companies Far More Active on Northern Sea Route than Asian Ones", in *High North News*, 11 January 2021, <https://www.highnorthnews.com/en/node/52045>.

<sup>77</sup> Malte Humpert, "Cargo Volume on Northern Sea Route Remains Stable at 32m Tons in 2020", in *High North News*, 30 September 2020, <https://www.highnorthnews.com/en/node/51606>.

<sup>78</sup> Northern Sea Route Information Office, *Shipping Traffic at the NSR in 2022*, 9 June 2023, <https://arctic-lio.com/?p=2164>.

twice as powerful as the country's current nuclear icebreakers.<sup>79</sup>

However, the development of the domestic shipbuilding industry has been hindered by international sanctions. The Zvezda shipyard has been touted as the leader of import substitution, but it was forced to team up with two non-Russian companies (General Electric and Samsung Heavy Industry) to fulfil its long list of orders, including LNG vessels, drilling rigs and offshore platforms.<sup>80</sup>

To transport its growing LNG volume from Yamal and Gydan peninsulas, Novatek will rely on more than 60 ice-capable Arc7 LNG carriers. In this way, Novatek aims at controlling the full LNG value chain. Novatek owns 15 unique Arc7 ice class LNG carriers for the Yamal LNG project, capable of navigating the NSR without icebreaker support. At the end of 2019, Novatek ordered five vessels from the Zvezda shipyard in partnership with Samsung Heavy Industry (SHI), as Zvezda has little experience constructing ice-capable carriers.<sup>81</sup> In 2020, Novatek signed long-term charter agreements for 21 Arc7 ice-class LNG tankers: 15 tankers to be built at the Zvezda shipyard in Russia and six to be built at Daewoo Shipbuilding & Marine Engineering in South Korea. The state-of-the-art Arc7 ice-class gas tanker fleet, together with Russia's new nuclear icebreakers, will allow for year-round eastbound transport of LNG along the NSR to the Asian Pacific region.

Moreover, Novatek announced its plans to build two transshipment complexes at the entry point of the NSR intended to facilitate LNG exports from its Arctic terminals. These two complexes are located in Murmansk and Kamchatka (Figure 6). The two facilities will be equipped with 360,000 m<sup>3</sup> floating LNG storage units. Specialised ice-breaking LNG carriers will offload their cargoes at the terminals, which will then be collected by conventional tankers, saving time and money. Moreover, this is seen as a longer-term solution to optimise the costly ice-class fleet. However, both projects come with high costs: Murmansk Terminal is expected to cost 1.1 billion US dollars for an annual capacity of

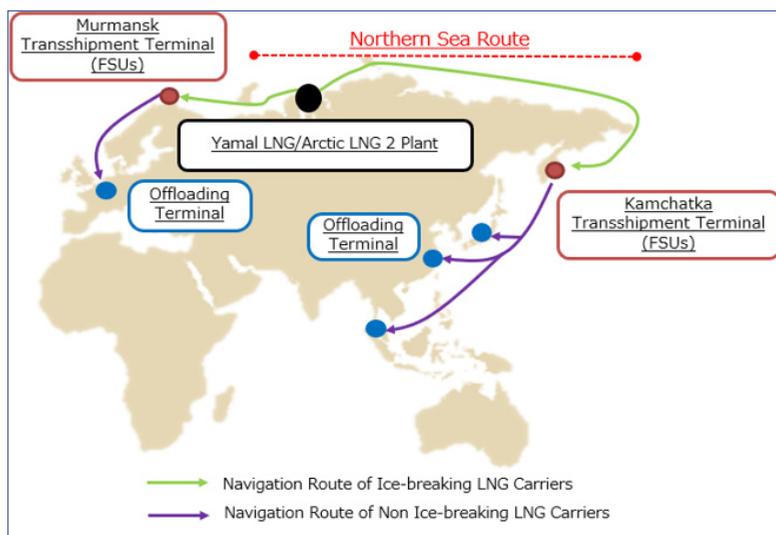
<sup>79</sup> Rosneft, *Zvezda Shipyard Launches Construction of the World's Most Powerful Nuclear Icebreaker*, 6 July 2020, <https://www.rosneft.com/press/news/item/201883>.

<sup>80</sup> Maria Shagina, "Russia's Energy Sector: Accumulating Effects of Western Sanctions", in *The Interpreter*, 16 June 2021, <https://www.lowyinstitute.org/node/18653>.

<sup>81</sup> Malte Humpert, "Novatek to Order up to 42 New Arc7 LNG Carriers Totaling \$12bn", in *High North News*, 27 January 2020, <https://www.highnorthnews.com/en/node/50616>.

20.9Mt, while Kamchatka Terminal would cost 1.6 billion US dollars for an annual capacity of 21.7Mt.<sup>82</sup> The Novatek CEO stated that the transshipment points would start operating from 2023.<sup>83</sup> In April 2021, Novatek announced the signature of heads of agreement with Total for 10 per cent interest in the two LNG transshipment complexes that Novatek is developing in Kamchatka and Murmansk.<sup>84</sup>

**Figure 6** | Kamchatka and Murmansk transshipment terminals



Source: Mitsui O.S.K. Lines, MOL, JIBC, and NOVATEK Sign Cooperation Agreement for LNG Transshipment Projects in Kamchatka and Murmansk, 17 September 2019, <https://www.mol.co.jp/en/pr/2019/19063.html>.

<sup>82</sup> "Russian Government Approves Construction of Novatek's LNG Terminal in Murmansk", in TASS, 18 July 2019, <https://tass.com/economy/1069304>.

<sup>83</sup> Agamoni Ghosh, "Watch: Market Movers Asia, Jun 28-Jul 2: Refiners Look for OPEC+ Supply Boost", in *S&P Global Commodity Insights*, 28 June 2021, <https://www.spglobal.com/platts/en/market-insights/videos/market-movers-asia/062821-opec-meeting-oil-production-cuts>.

<sup>84</sup> Joseph Murphy, "Novatek Wraps Up Arctic LNG-2 Offtake Deals (Update)", in *Natural Gas World*, 28 April 2021, <https://www.naturalgasworld.com/total-eyes-10-stake-in-novatek-transshipment-terminals-87764>.

## 6. Challenges

The previous sections have outlined the role the Arctic is expected to play as Russia seeks to retain production volumes, fostering export diversification (with the growing importance of LNG exports) and promoting other intertwined national interests – namely the development of the NSR and the shipbuilding industry. Nonetheless, Russia’s political and energy objectives face serious challenges, which have been further exacerbated following its war in Ukraine.

### The growing role of the State in launching highly capital-intensive projects

Given the great strategic relevance of multiple goals (i.e., the development of both LNG and NSR), the Russian government has declared its full commitment to support and incentivise the efforts of Russian companies in the Arctic. Over the last years, the Kremlin has guaranteed significant financial support through direct public investment as well as tax breaks and exemptions for numerous projects. For example, it granted significant fiscal assistance to Yamal LNG in order to make the project commercially feasible. Moreover, exports of LNG are exempted from export duty. The same approach has been followed also for Arctic LNG-2. Lastly, the government also provided the funds for building key infrastructure for Yamal LNG, such as 1 billion US dollars for construction of the Sabetta port. The fiscal measures have surely been a first step to incentivise companies to develop new oil and gas fields to maintain high levels of oil and gas exports. However, this may not be enough given the amount of investments required to build all the related infrastructure. Given the challenging international context, Russia could face some hurdles in securing sufficient fiscal support.

### Export logistics

In order to fully develop and exploit the Arctic hydrocarbon potential, Moscow needs to overcome logistic issues in the Arctic. To do so, Russia needs to fund the modernisation and construction of infrastructure. Without adequate

infrastructure, Russian energy companies may not be able to meet their government's strategic goals: developing new oil and gas fields to counter declining production, expanding LNG capacity, exporting higher hydrocarbon volumes, and increasing maritime traffic along the NSR as well as fostering local socioeconomic development.

The issue of infrastructure is strongly interlinked with Russia's energy ambitions. For example, Russia needs to address shipping logistics in the Arctic Sea in order to fully reach its LNG goals. Arctic ice limits navigation in the easterly direction to Asia except from a narrow summer season. Year-round LNG transportation even in the less profitable westerly direction (via Europe) requires special, more expensive, ice-class carriers. Without adequate gas tankers, Russia's LNG would remain in cold.<sup>85</sup>

## International sanctions: End or slow down Russia's ambition?

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The growing international sanctions following the Russian war in Ukraine have become a critical barrier for the development of new hydrocarbon fields in the Arctic to offset declining production, and for the ramping up of Russia's LNG industry. International sanctions seek to prevent the transfer of technologies needed for development of the LNG sector in order to reduce hydrocarbon revenues for the Russian government. Russia had commenced a policy of import replacement already back in 2014 when Western countries started imposing sanctions due to the annexation of Crimea. In the short term, Russia has managed to find new ways to ensure technological capabilities and investments, vital for developing oil and gas production and launching new projects. At the same time, Russian companies have attempted to develop home-grown technologies. Such is the case for Novatek's Arctic Cascade Modified (ACM) technology (Russian patent), which has been used in the fourth train of Yamal LNG. Its development has not been easy, and caused the delayed launch of the fourth train. Although ACM does not have the same efficiency rate as Western technologies, it ultimately achieved the required result. Novatek

<sup>85</sup> Oksana Kobzeva, "Shortage of Arctic Tankers Puts Russia's LNG Development Dreams on Ice", in *Reuters*, 22 December 2023, <https://www.reuters.com/markets/commodities/lack-arctic-tankers-puts-russias-lng-development-dreams-ice-2023-12-22>.

has also taken measures to further adapt to new sanctions. In the case of the Murmansk LNG project, the company has signed a deal for electricity supply which will power the facilities, reduce technological complexity and require fewer gas turbines.<sup>86</sup>

Following Russia's war in Ukraine, Western countries have enhanced their pressure on the Russian energy sector through sanctions, including a prohibition on new investments in the Russian energy sector at a general level, which could ultimately halt or at least slow down Russia's LNG ambitions. For example, in April 2022 Exxon Mobil informed local authorities in the Khabarovsk region that it had suspended work on the Far East LNG project.<sup>87</sup> However, a new level was reached in late 2023 when the US set certain sanctions on Russia's LNG, potentially causing disruptions in the global gas markets.<sup>88</sup> Gazprom's Ust-Luga (Baltic LNG) project has been delayed because of the withdrawal of Linde and in December 2023, the US targeted three companies involved in the development.

More importantly, the US decided to put increasing pressure on Novatek's Arctic LNG-2, which was about to be launched. Initially, in September 2023 it blacklisted Novatek's transshipment terminals for Arctic LNG-2 in Murmansk and Kamchatka. In doing so, the US created shipping bottlenecks for market participants. Then in November 2023, it imposed sanctions on the project which forced Novatek to delay the start of supply from its newest LNG project. Indeed, the company declared a force majeure on shipments.<sup>89</sup> The new wave of sanctions has put a strain on Russia's LNG ambitions. The sanctions have also made equity offtake on long-term contracts impossible. This means that Novatek will need to move on the spot market. Nonetheless, Chinese companies involved in the project have asked the US for exemptions from sanctions. This new phase could undermine the involvement of foreign partners in the Russian LNG sector

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<sup>86</sup> Malte Humpert, "Putin Green-lights Novatek's Massive Murmansk LNG Project", cit.

<sup>87</sup> Vladimir Afanasiev, "Russia's Far East LNG Project Suspended as Authorities Debate Industry Support Measures", in *Upstream Online*, 7 April 2022, <https://www.upstreamonline.com/2-1-1196140>.

<sup>88</sup> Shotaro Tani, Ian Johnston and James Politi, "US Seeks to Thwart Russia's Ambition to Become a Major LNG Exporter", in *Financial Times*, 12 November 2023, <https://www.ft.com/content/68190f21-d8b0-4b52-992d-37f620b4fb3a>.

<sup>89</sup> Stephen Stapczynski and Anna Shiryayevskaya, "Supply from Russia's Arctic LNG 2 Project Halted by US Sanctions", in *Bloomberg*, 21 December 2023, <https://www.bloomberg.com/news/articles/2023-12-21/novatek-declares-force-majeure-on-arctic-lng-2-amid-us-sanctions>.

due to the fear of possible consequences with the US. Foreign investors are usually willing to engage in Russia's energy projects on the basis of commercial interests, if their involvement does not endanger their relationship with the US.

## Higher temperatures bring opportunities but also challenges (i.e., permafrost and environmental risks)

Russia's Arctic projects must deal with rising temperatures. Since 2000, Arctic temperatures have risen about twice as fast as global levels. Hotter temperatures were considered an opportunity to tap Arctic hydrocarbon resources even though they came with major environmental damages, such as wildfires. Russian and international players that seek to operate in the Arctic need to deal with a disruptive collateral damage of hotter temperature: permafrost thaw. Permafrost covers nearly two-thirds of Russian territory, and it is the base of urban infrastructure in Arctic cities (home to over 2 million people), the oil and gas transportation network, and thousands of miles of roads and rail lines.

As temperatures rise, Arctic projects and infrastructure are at risk of becoming unstable and causing massive environmental damage. In May 2020, Russia's mining company, Norilsk Nickel, blamed the collapse of an aging Soviet-era fuel tank on melting permafrost. The collapse caused 21,000 tonnes of diesel to pour from one of the company's storage tanks into rivers and lakes in Russia's Arctic north, prompting President Putin to declare a state of emergency.<sup>90</sup> The episode intensified environmental concerns over mining and drilling activities in the region. Despite the risks, Russia still considers its plans for exploiting Arctic resources a priority.

In June 2021, the country's Minister of Natural Resources Aleksandr Kozlov confirmed that more than 40 per cent of all buildings in the North are now experiencing structural deformation.<sup>91</sup> That dynamic will inevitably affect existing and new infrastructures as well as public and private spending, leading

<sup>90</sup> "Norilsk Nickel: Mining Firm Pays Record 42bn Fine over Arctic Oil Spill", in *BBC News*, 10 March 2021, <https://www.bbc.com/news/world-europe-56350953>.

<sup>91</sup> Atle Staalesen, "The Looming Arctic Collapse: More Than 40% of North Russian Buildings Are Starting to Crumble", in *The Barents Observer*, 28 June 2021, <https://thebarentsobserver.com/en/node/8548>.

Russian researchers to estimate that by year 2050 the shifting ground will inflict damages worth about five trillion rubles (58 billion euros), equal to a quarter of the total Russian federal budget.<sup>92</sup>

The growing role of public opinion on environmental issues, the safety of fragile ecosystems and the urgency to decarbonise the economy, poses a challenge to Russia's ambition. More energy and financing companies might decide to decrease their role in E&P activities in promising yet fragile ecosystems such as the Arctic, phasing out oil and gas projects or deciding to stop financing them. This scenario is more likely to occur for Western companies, which play a key role in the financial and technological sectors.

## The global energy transition

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The global energy transition is a key international trend that may further hinder Russia's Arctic development plans. Oil and gas demand are expected to decline in the future to reach net-zero targets. Although the pace and speed of the energy transition will vary among world regions, decarbonisation has accelerated in recent years also driven by security and industrial concerns. In this context, investment in high-cost projects, such as those in the Arctic, may be less attractive. Low-cost hydrocarbon producers, with a lower carbon footprint, such as the MENA countries, are expected to be the last barrel standing in a low-carbon future.<sup>93</sup>

## Conclusions

Moscow relies heavily on hydrocarbon revenues; thus, its energy policy has been driven by a business-as-usual strategy. To deal with the multiple challenges facing the energy industry, Moscow has considered the Arctic as a strategic area for its energy, political and logistical objectives. However, Moscow is increasingly facing growing challenges in these fields, such as environmental

<sup>92</sup> Ibid.

<sup>93</sup> Manfred Hafner, Pier Paolo Raimondi and Benedetta Bonometti, *The Energy Sector and Energy Geopolitics in the MENA Region at a Crossroad. Towards a Great Transformation?*, Cham, Springer, 2023, <https://doi.org/10.1007/978-3-031-30705-8>.

concerns, logistics, and sanctions on technologies and investments. From the energy perspective, the Arctic has attracted several companies, pushed by the high political commitment, but also by commercial prospects. As Russia has lost its main market, Europe, LNG has become even more crucial. Under the leadership of Novatek, the Arctic has become the cornerstone of Russia's LNG ambition. The development of the Arctic hydrocarbon resources is also instrumental for the NSR. However, the growing international sanctions following Russia's war in Ukraine could drastically slow such developments and prevent the fulfilment of Russia's LNG ambitions (100 Mt of exports by 2030). Russia has managed to develop home-grown technologies, which are less efficient but have managed to achieve the expected results. Nonetheless, the new wave of sanctions was a hard blow to Russia's LNG sector, which will need to find new ways to adapt to the new context without the cooperation of Western partners.

## Box 1: The energy transition in Russia

The Russian Federation has set a climate-neutrality target by 2060. Despite also having important renewable energy potential, Russia has traditionally remained focused on hydrocarbons and a business-as-usual strategy. This view is likely to remain in place despite the growing challenges confronting the Russian hydrocarbon industry. Renewables will face stronger competition in the domestic power sector from natural gas and nuclear power as the market is oversupplied as result of lower export volumes. This will contribute to a longer lull in gas prices, undermining economic drivers for renewables deployment. Furthermore, the Russian Federation sees forests playing a pivotal role as carbon sinks, as an avenue to fight global warming.

The crisis has also cooled Russia's expressions of interest in hydrogen especially between 2019 and 2021. In April 2021, deputy energy minister Pavel Sorokin enhanced such targets, setting 1 Mt in 2024 and 7 Mt in 2035 under an optimistic scenario. The aim is to achieve a 20–25 per cent share of global hydrogen trade by 2035.<sup>94</sup> The country seeks to leverage its geographical proximity to potential major hydrogen markets (i.e., Europe and Asia-Pacific countries). Moreover, the deputy minister stated that Russia could be exporting between 7.9 and 33.4 Mtpa by 2050 if rapid development of the global hydrogen market occurs.<sup>95</sup> The conflict in Ukraine has changed the priorities, however. Although Moscow approved a hydrogen strategy in December 2022, it has not yet published it. Also Russian energy companies have changed their perspective. For obvious reasons, Gazprom abandoned the idea of hydrogen exports to Europe, while Novatek postponed indefinitely the idea of converting the Ob LNG into a blue ammonia facility. Separately from hydrocarbons, the Arctic could offer important opportunities for Russia in critical raw materials – especially regarding rare earth elements, which are essential for technological development (e.g., electronics, transportation, de-

<sup>94</sup> Anastasia Krasinskaya, "Russia Eyes 20-25pc in Global Hydrogen Trading by 2035", in Argus Blog, 12 April 2021, <https://www.argusmedia.com/en/news/2204386-russia-eyes-2025pc-in-global-hydrogen-trading-by-2035>.

<sup>95</sup> Ibid.

fence equipment) and the energy transition. With 72 Mt, Russia holds most of the rare earth resources in the Arctic, which are estimated at 130 Mt, followed by Greenland (42 Mt) and Canada (14 Mt). However, extraction and commercial viability of these resources is still challenging. Large Chinese state-owned companies may be interested in the Russian mineral sector, but uncertainty linked mainly to the geopolitical environment hinders investments.

## Box 2: Sino-Russian energy cooperation

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Russia and China have increasingly strengthened their bilateral relations since the 2000s. Despite a history of mistrust and hostility, the two countries have managed to overcome some of their disagreements and to build strong economic and political relations. The partners have pledged to raise the volume of trade to 200 billion US dollars by 2024. Furthermore, they have increasingly shared similar views on global affairs, striving for a more multipolar system. Throughout the last two decades, economic relations have flourished but they show deep unbalance. In 2010, China surpassed Germany as Russia's largest single trading partner, although the EU remains Russia's largest partner (260 billion US dollars, corresponding to twice China's trade with Russia). In 2018, China accounted for 15.5 per cent of Russia's total trade, assuming greater significance. The same does not hold true for Russia's relevance for China's trade, accounting for only 0.8 per cent in that same year.

The energy sector has played a pivotal role in cementing the bilateral relation. Energy represents the bulk of bilateral trade accounting for over 70 per cent of Russia's exports. Moscow and Beijing have a perfect complementarity: Moscow as energy supplier, and Beijing as energy consumer. China has witnessed a remarkable economic growth over the last 20 years, that has inevitably come with an increase in energy consumption, replacing the US as the largest oil importer in 2013. It is also the world's biggest importer of natural gas, driven by the expansion of gas use at the expense of the more polluting coal. Xi Jinping personally endorsed this coal-to-gas switch as a response to domestic air pollution and growing environmental concerns.

For China, closer energy ties with Russia are crucial to improve its security of energy supply through diversification of routes, with a strong preference for land routes. This is because China's reliance on maritime imports is exposed to potential blockade (i.e., China fears the US Navy may interdict its energy supplies) and security issues (e.g., piracy). In 2022, about 62 per cent of China's oil imports and 17 per cent of its gas imports transited the South China Sea and Strait of Malacca.<sup>96</sup> For these reasons, it has invested in several land energy infrastructure projects from Central Asia, Myanmar and, more recently, Russia with PoS and the proposed Power of Siberia 2.

For Russia, closer energy ties with China are motivated by both commercial and geopolitical needs. Commercially, Russia would gain access to a fast-growing energy market, securing future export volumes and revenues, especially after the loss of the European energy market. Geopolitically, Russia inaugurated its "pivot to Asia" after the 2014 annexation of Crimea. Western international sanctions have prevented Russian companies from accessing capital and technology. In this context, China has come to the rescue. China has increasingly engaged with the Arctic region since gaining observer status in the Arctic Council in 2013. In January 2018, it published its first Arctic strategy, promoting a "Polar Silk Road", while declaring itself to be a "near-Arctic State". China's Arctic Strategy enumerated several interests, but China's economic interests in the NSR and the exploration of natural resources remain its primary interests in the region. Most of these activities are conducted with Russia. Indeed, China has increasingly enhanced its presence in energy projects, namely Novatek's Yamal LNG and Arctic LNG-2. These projects combined with the NSR would reduce China's reliance on Middle Eastern imports via sea. Hence, China has invested strongly in these projects. Thanks to its financing support, Novatek managed to successfully launch Yamal LNG despite unfavourable international sanctions. Major gas projects represent an important success for Russia both commercially and geopolitically. The 2014 gas deal between Russia and China was seen as a major geopolitical feat for Russia. China's active role in Yamal LNG allowed Moscow to enter the LNG sector, and then further expand its share with the Arctic LNG-2.

<sup>96</sup> US Department of Defense, Military and Security Developments Involving the People's Republic of China 2023, 19 October 2023, <https://media.defense.gov/2023/Oct/19/2003323409/-1/-1/1/2023->

Yet, the unbalanced nature of the relationship (Russian suppliers, Chinese buyers) entails some major challenges. The development of energy relations and energy projects came with difficult and tortuous negotiations, partially because of distrust on both sides. Natural gas projects faced more prolonged negotiations and discussions compared to oil projects. The 2014 gas deal, which envisaged PoS, came after around ten years of talks and long discussion over gas price and other commercial issues. The deal was Russia's explicit response to Western isolation. The need to conclude a commercial, and geopolitical, agreement may have spurred Moscow to close the deal. China negotiates in an advantageous position, being a massive, growing energy market. It also leverages its diversified supplies routes (e.g., Central Asia) to obtain better conditions from each supplier. Power of Siberia was not Gazprom's first choice but China's. Given its diversified energy supplies, China was able to obtain a favourable pricing methodology from the Russian side, which was in need of a meaningful deal at the time.<sup>97</sup> Thus, China decides to get involved with Russian energy projects when commercial terms are acceptable and align with other considerations. This condition has further been exacerbated by Russia's war in Ukraine and the European response. Furthermore, China cannot entirely offset the loss of the European gas market. Notwithstanding the growing relations and share interests, the two countries still face several issues, which ultimately prevent their building a strategic alliance – meaning that they do not share common *strategic* objectives. Energy is part of the improvement of bilateral relations, yet it also demonstrates some of the challenges. Although today China's and Russia's energy interests converge, they may diverge in the longer term. China has committed to reaching climate neutrality by 2060 and it is quickly expanding its renewables capacity, which could reduce gas demand. Therefore, the global and Chinese decarbonisation may exacerbate these differences and drive the two countries apart.

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MILITARY-AND-SECURITY-DEVELOPMENTS-INVOLVING-THE-PEOPLES-REPUBLIC-OF-CHINA.PDF.

<sup>97</sup> Sergey Vakulenko, "What Russia's First Gas Pipeline to China Reveals About a Planned Second One", in Carnegie Politika, 18 April 2023, <https://carnegieendowment.org/politika/89552>.

# The Role of the Arctic in Russia's Energy Strategy: Features, Objectives and Perspectives following Russia's War in Ukraine

Given the melting of Arctic ice, the Arctic has gained a growing relevance because of its vast energy resources and its potential role in international maritime trade. Russia seeks to exploit these resources and develop an international maritime trade route through the Northern Sea Route. The Arctic resources are considered to be crucial to address the declining production in the traditional oil and gas fields as well as to help Moscow to enhance its export diversification strategy both in terms of markets (Asia) and modes (liquefied natural gas). Indeed, the Arctic has become the powerhouse for Russia's LNG ambitions (100 Mt by 2030). The development of Arctic resources and LNG exports is deeply intertwined with other national interests, such as development of the Northern Sea Route and the shipbuilding industry. Nonetheless, Russia faces serious challenges namely the lack of gas cargoes and the growing international sanctions, which can substantially undermine Russian ambitions.



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