



This publication was funded in 2025 by the Russia Strategic Initiative, U.S. European Command. The views expressed in this publication do not necessarily represent the views of the Department of War or the United States Government.



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Survival over Autonomy: Russia's Industrial Dependence on China

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March 2026

It is a widely agreed that Russia's decision to launch a full-scale invasion on Ukraine fundamentally altered the Kremlin's strategic calculus, leading to a reprioritization across multiple areas of its policy. The unprecedented economic pressure from the West – including oil embargo, trade restrictions, and bans on providing certain technologies among others – pushed Moscow to seek alternative partnerships, which help in bypassing the constraints and demonstrate the futility of Western coercion.

Against this backdrop, the deepening relations with the People's Republic of China emerged as the key enabler. While Sino-Russian ties were already strong before 2022, the post-invasion period has seen a significant intensification of mutual links – both in numbers, as in its nature.

This growing partnership is commonly described as asymmetric, with Russia increasingly dependent on China – also given its technological and economic advantage over Moscow. The inequality of that reflects the markedly different roles each side plays within the relationship.

The paper examines this asymmetry through the lens of technological dependence. Focusing on Russia's growing reliance on Chinese technologies and industrial inputs in three certain cases, it aims to assess the depth and significance of this reliance from the Russian perspective and draw broader conclusions about the future trajectory of this partnership.

China as a key enabler for Russian LNG ramp up

From an economic standpoint, one of the most frequently discussed dimensions of Sino-Russian cooperation is the Chinese readiness to absorb massive volumes of Russian hydrocarbons – particularly oil – following the EU oil embargoⁱ. Yet limiting the analysis to China's role as a buyer obscures a more structural aspect of the relationship. Beyond demand, China acts an enabler of Russian exports – and not only in logistical terms.

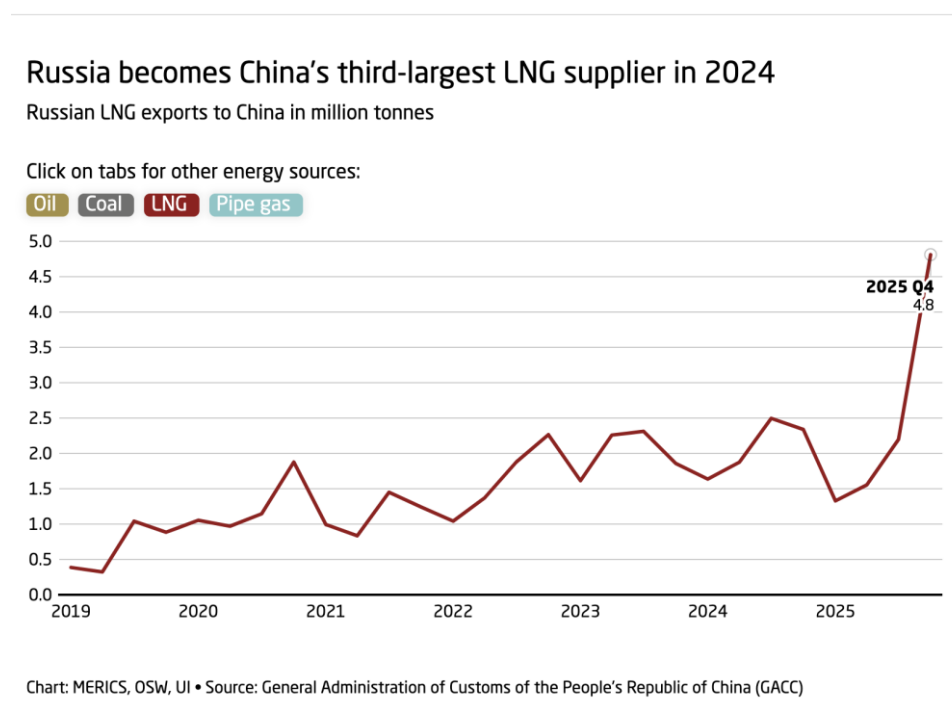
This role is particularly evident in the liquefied natural gas (LNG) sector. Its development became one of the most acute technological bottlenecks for Russian energy policy. Prior to 2022, the Kremlin envisaged a rapid expansion of liquefaction capacity that would allow Russia to secure a stronger position on global LNG markets. These ambitions were derailed by Western sanctions and the withdrawal of foreign companiesⁱⁱ, exposing Russia's limited domestic capacity to replace key technological companies.

In this context, Chinese assistance turned out to be indispensable in the implementation of the flagship Arctic LNG 2 project in Russia's Far North. As the US sanctions prevented the initial supplier – US-based Baker Hughes – from delivering the contracted gas turbines, the Russians scrambled to redesign two production lines in the facility. Replacement turbines were ultimately supplied by China's Harbin Guanghai Gas Turbineⁱⁱⁱ, while crucial power generation modules were assembled by another Chinese company, Wison New Energies. Notably, the delivery of this equipment was deliberately concealed due to the sanctions threat^{iv}.

Chinese engagement as a technology supplier to the Russian energy sector is not a novelty – China-built drilling rigs, for example, were already operating in the Kara Sea before 2022^v. The post-2022 period, however, marks a clear qualitative shift. As long as cooperation with Western technology providers remained possible, Chinese involvement largely played a supplementary role. Nowadays, as the Russian companies are to a large extent cut off from their former Western partners, cooperation with Chinese suppliers has become critical rather than complementary. It is underpinned also by political signaling, as both sides declare willingness to deepen the

cooperation, what is illustrated by concrete actions such as China's decision to import sanctioned cargoes from the Arctic LNG-2 in second half of 2025.^{vi}

Moreover, the importance of Chinese counterparts in sustaining the Russian LNG exports is likely to increase further. As China remains the sole importer of the sanctioned Arctic LNG 2 cargoes^{vii}, it has a direct interest in keeping the project operational. This is illustrated by reported maintenance work carried out in the Chinese port of Zhoushan on two sanctioned LNG carriers engaged in transporting Russian LNG^{viii}. Given Russia's logistical constraints - most notably, its lack of the access to South Korean shipbuilders, which are highly advanced in the construction of ice-class LNG carriers – the prospect of Chinese shipyards becoming more dominant in the market^{ix} aligns well with the Kremlin's longer export ambitions. It is noteworthy in this regard that as early as 2020 there were plans for Chinese shipyards to build a specialized ice-class carrier for Arctic LNG 2 although back then they were not commenced^x.



Fueling Russian war effort

The pattern observed in the LNG sector is mirrored in another critical area where Western sanctions have created a vacuum: the supply of advanced, dual-use goods essential for sustaining Russia's manufacturing base, including its military-industrial complex. Here, the structural asymmetry of Sino-Russian trade becomes particularly visible. Russia exports mostly commodities, while China supplies manufactured and technologically advanced goods, what reinforces Russia's technological dependence.

As shown by the trade data, the China-Russia trade intensified since the Russia's invasion of Ukraine. Chinese exports are increasingly concentrated in goods identified by Western governments as dual-use items. A significant share of these exports falls under the Common High Priority Items list^{xi}, covering goods with both civilian and military applications. As the flows of such items grew significantly in 2021, they became especially critical after 2022, compensating for the collapse of supplies from other major trading partners. Since the start of the invasion, the cumulative value of these Chinese export amounted to nearly USD 18 billion.

A closer look at the data reveals an additional qualitative shift in 2023, when Russian imports of specific Tier 4 goods increased markedly. These include manufacturing equipment for the production and quality testing of electronic components, as well as Computer Numerical Control (CNC) machine tools for metalworking – categories that were less prominent in earlier years. According to the media reports, these machines enable Russians to accelerate the production of the Oreshnik missile^{xii}.

Chinese dual-use exports help sustain Russia's war effort

China's monthly exports of goods with civilian-military applications, in million USD

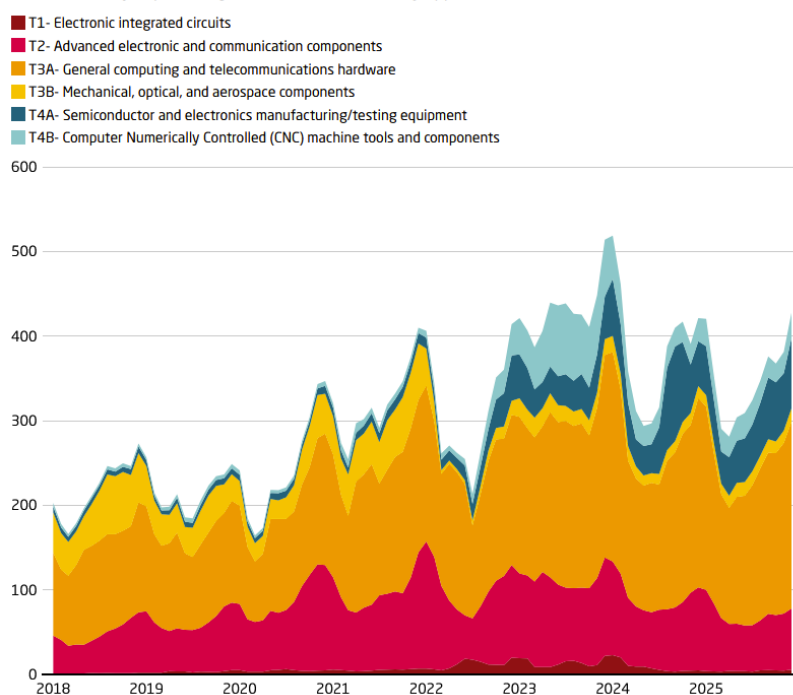


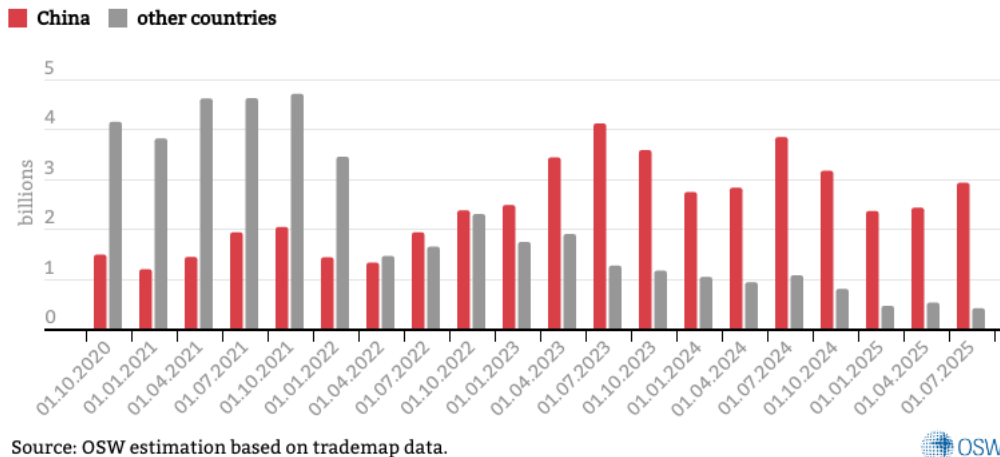
Chart: MERICS, OSW, UI • Source: General Administration of Customs of the People's Republic of China (GACC)

Overall, Chinese dual-use exports to Russia reached a record high in 2023, exceeding USD 5 billion before stabilizing slightly above 4 billion in both 2024 and 2025 (approximately USD 4.5 billion and 4.2 billion consecutively). Notably, these dynamics closely mirror broader trends in bilateral trade, what might suggest that Chinese exporters remain sensitive to the sanctions threat. This link was particularly visible at the end of 2023, when the US Treasury's announcement of potential secondary sanctions against entities supporting Russia's military industrial base coincided with a deep decline in exports during the first half of 2024.

Nevertheless, these flows are indispensable for keeping Russia's military-industrial base afloat. According to mirror trade data, Chinese dual-use accounted for more than 85% of Russia's total imports in these categories. And yet, this figure does not capture additional items which are not formally listed by Western authorities – such as turbojet engines – nor goods potentially re-exported via Central Asia. Taken together, these patterns underline the extent to which Russia's industrial sector has become technologically dependent on Chinese advanced goods, which now function as a critical lifeline for sustaining the military output.

China's share in Russia's dual-use imports rose from 20% to 87% since the outbreak of the war

Value of dual-use goods exported to Russia, according to the CHPI & CEC methodology – mirror data



The flipside of the dependence – automotive industry as a victim

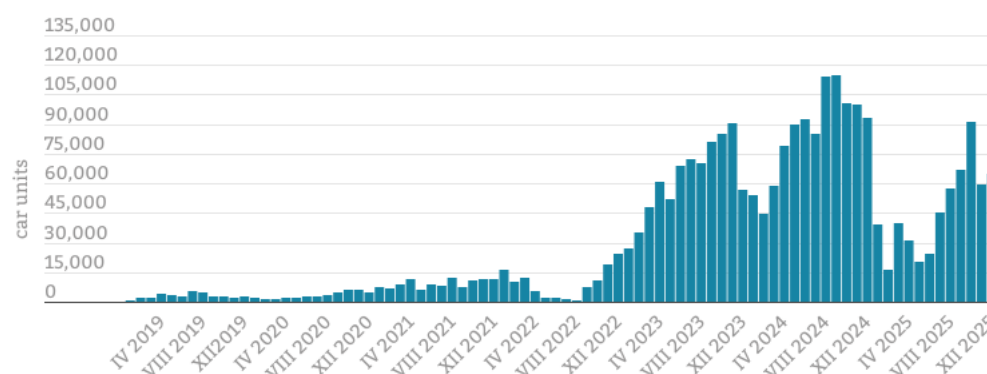
At first glance, Russia's growing technological reliance on China appears to have mostly positive effects for its economy and military capabilities. Chinese suppliers have stepped in to fill the gaps left by Western companies, allowing Russia to sustain key sectors – from LNG exports to military production – despite unprecedented sanctions pressure. This substitution has helped stabilize output and maintain a degree of economic continuity.

Yet this reorientation towards Beijing has come at a tangible cost, particularly in civilian sectors where Chinese imports increasingly hamper domestic production. Russia has experienced a massive influx of Chinese-made consumer products, which initially helped cushion the shock of Western firm withdrawal but, over time, has deepened structural dependencies. This dynamic is especially visible in the automotive sector, which since 2022 has become largely influenced by the imports from China.

Imports of passenger cars from China to the Russian Federation have surged sharply. Between 2022 and 2025, approximately 2.4 million Chinese vehicles were imported into Russia. Prior to the full-scale invasion of Ukraine, the market in Russia relied heavily on Western carmakers, many of which localized production facilities and integrated Russian suppliers into their value chains. Chinese producers, by contrast, supply mainly finished vehicles manufactured entirely in China.

With the withdrawal of Western automotive companies from Russia, the Russian market has been dominated by Chinese cars

Exports of cars from China to Russia (in units)



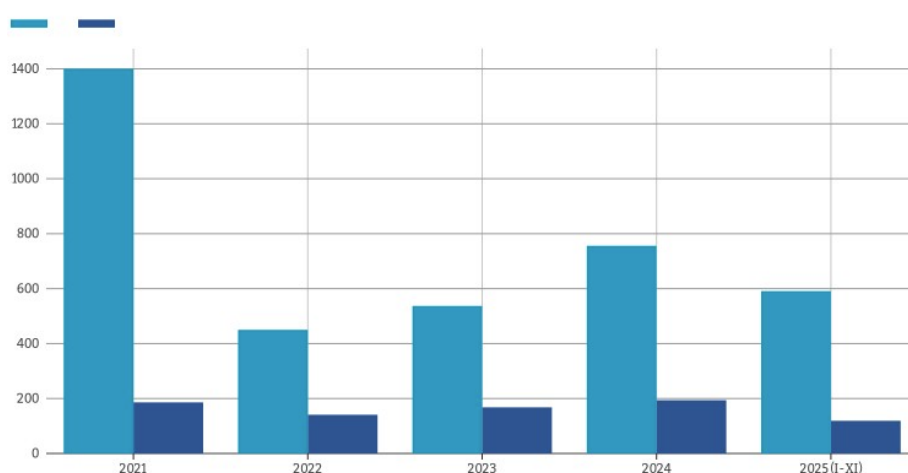
Source: OSW estimation based on data from China's General Administration of Customs.



As a result, the shift towards Chinese imports represents not merely a change in suppliers but a structural setback for Russia's automotive industry. Finished cars are imported wholesale, bypassing domestic production chains and eroding accumulated technological know-how. This is reflected in production data: output of passenger cars and trucks in Russia is currently estimated to be around 50% and 40% lower than pre-2022 levels, respectively.

Since the start of the war, Russia's car production has fallen sharply, with no clear signs of a full recovery

Production of passenger cars and trucks in Russia per annum (thousand units)



Source: Rosstat



The Russian authorities' response to the influx of Chinese vehicles has been ambivalent and, lately, openly protectionist. On the one hand, the government has sought to limit the negative impact on domestic producers by raising barriers to imports. In October 2024, the mandatory recycling fee on imported vehicles was increased by up to 85%, announcing further hikes every next year^{xiii}. This measure has been widely interpreted as being primarily directed at Chinese cars. In addition, Russian regulatory agencies revoked selected certification permits for Chinese trucks, further restricting their access to the market^{xiv}.

Simultaneously, Moscow encourages Chinese manufacturers to localise production in Russia, signaling an attempt to restore domestic manufacturing capacity and reintegrate suppliers into

value chains. These calls underscore the Kremlin's desire to replicate, at least partially, the pre-2022 model of localised production based on the Western know-how.

Conclusions

Entering the fifth year of Russia's full-scale invasion on Ukraine, it is evident that the deepening Sino-Russian ties are structural, rather than tactical in nature. Currently, China acts as a key enabler of Russia's economy – without its involvement, maintaining today's level of the Russian economic output would likely have been impossible. The extent of Chinese penetration in certain areas reflects the degree of former reliance on Western suppliers. The post-2022 vacuum in several industries created favorable circumstances for Chinese companies.

However, this Chinese "support" comes with a certain price that is becoming more and more apparent. As the imports of certain goods enable Russia to sustain hydrocarbon exports and maintain arms productions, they simultaneously devour the civilian sector. In 2025, the Russian authorities undertook actions aimed at curtailing certain Chinese imports through regulatory instruments – the recycling fee is one example, while the Kremlin has also decided to reduce the imports of electronics via its "technological levy" scheduled to enter into force in September 2026^{xv}. All that shows that the Kremlin recognizes the downside of the technological dependence on China and is attempting – albeit with caution – to limit its most damaging effects.

It is important to note that this partnership is shaped largely by Chinese side, which do not necessarily align with Russian needs. To date, China focuses more on trade than investment, avoiding deeper engagement that could entail technology transfers or localization of meaningful production. In the case of Arctic LNG 2, despite the critical role of Chinese assistance, Beijing's involvement stems out of its own interests, as the facility is oriented towards supplying Chinese market. More broadly, despite repeated calls from Moscow, Chinese companies remained somewhat reluctant when it comes to undertaking substantial investments in Russia, reflecting concerns about Russia's market.

Looking ahead, the current trajectory of the relationship is likely to persist, as the Kremlin lacks viable alternative, especially in the technological realm. In order to preserve a partnership that is indispensable for sustaining its war effort against Ukraine, Russia appears willing to accept significant long-term costs, including the deterioration of its own civilian industry base. In its policy, the Kremlin's leadership demonstrates a form of strategic "tunnel vision", prioritizing military capabilities while downplaying the cumulative economic toll. Regulatory measures aimed at mitigating these risks offer only partial relief and are insufficient to reverse the underlying trend, which boils down to the unequal nature of the Sino-Russian relationship. This partnership – where Russia is increasingly downgraded to the role of a commodities supplier and technology recipient – effectively renders Moscow a junior partner with limited capacity to rebalance its position.

Any meaningful reduction of this dependance would be viable only in a scenario involving some form of diplomatic thaw with the West, leading to an easing of sanctions. That is why Moscow doubles down on its attempts to reach an agreement on that matter with the US. Even if such a rapprochement were to materialise, allowing Russia to partially rebalance its relationship with China, it would be naive to assume that this would fundamentally alter the Kremlin's political calculus regarding Ukraine or its broader ambition to challenge the US-led

international order. Ultimately, China has proven to be a reliable - though highly pragmatic - partner, aimed at prolonging the cooperation amid the sanctions threat. Regardless of the costs, the Kremlin appears to be willing to build its future strategy on asymmetric relations with Beijing.

ⁱ F. Rudnik, M. Kalwasiński, [‘Closing ranks: Russia-China energy cooperation amid escalating confrontation with the West’](#), OSW Commentary, no. 699, 12 December 2025, [osw.waw.pl](#).

ⁱⁱ [Планы РФ выйти на выпуск 100 млн т СПГ в год сдвинуты на несколько лет](#), Interfax, 25.12.2025, [Interfax.ru](#).

ⁱⁱⁱ M. Hulpert, [Undeterred by Sanctions Novatek Begins Production at Arctic LNG 2](#), High North News, 10.01.2024, [highnorthnews.com](#).

^{iv} V. Yermakov, [Arctic LNG 2: The litmus test for sanctions against Russian LNG](#), The Oxford Institute for Energy Studies, October 2024, [oxfordenergy.com](#).

^v A. Staalesen, [Two Chinese rigs prepare for drilling in Russian Arctic waters](#), The Barents Observer, 29.06.2020, [thebarentsobserver.com](#).

^{vi} [LNG market mulls potential fallout from Russian cargo discharge in China](#), S&P Global, 01.09.2025, [spglobal.com](#).

^{vii} S. Stapczynski, J. Wu, C. Udemans, [Inside China's Shadow LNG Fleet Offering a Lifeline to Putin](#), Bloomberg, 29.12.2025, [bloomberg.com](#).

^{viii} M. Humpert, [Russian ‘Shadow Fleet’ LNG Carriers Find Sanctions Reprieve in Chinese Maintenance Yard](#), gCaptain, 08.05.2025, [gcaptain.com](#).

^{ix} [Chinese yards set to scale up LNG newbuild construction at record pace](#), S&P Global, 12.09.2025, [spglobal.com](#).

^x M. Humpert, [China Looks to Further Its Arctic Role by Constructing Arc7 LNG Carriers](#), High North News, 22.01.2020, [highnorthnews.com](#).

^{xi} The data refers to dual-use goods included in the Common High Priority List, developed jointly by the United States, the European Union, Japan, and the United Kingdom. The list categorizes 50 items, each identified by a six-digit Harmonized System (HS) code, into four tiers. The full list is available on the website of the US Bureau of Industry and Security.

^{xii} S. Yan, [How China is powering Putin’s deadliest new weapon](#), The Telegraph, 28.01.2025, [telegraph.co.uk](#).

^{xiii} [Из-за повышения утильсбора через границу с КНР спешно гонят спецтехнику](#), RBK, 19.09.2024, [rbc.ru](#).

^{xiv} Linke N., [В России запретили продажу популярных китайских грузовиков](#), DeutscheWelle, 30.07.2025, [dw.com](#).

^{xv} [Что такое технологический сбор и зачем он нужен России](#), RBK, 21.11.2025, [rbc.ru](#).