Yakov and Partners

Commercialization Outlook for Russian Steel: Development of Domestic Consumption and Search for New Markets

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Moscow, 2024

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Source: open sources,
analysis by Yakov and Partners

1.2–2.7 million tonnes

Growth in domestic consumption of steel without structural changes in the economy in the years up to 2030

Summary

Russia's steel industry was able to offset the 11 million-tonne slump in steel export in 2021–2023 by supplying the increased domestic demand and taking advantage of falling import. Nevertheless, the industry's potential for continued stability is at risk in both monetary and physical terms.
To a large degree, further growth in the industry will hinge on the related metal-intensive sectors, such as construction, and oil and gas.

At the same time, as progress is made in the machinery industry as part of the import substitution initiatives, and its manufacturing assets become absorbed by vertically integrated metallurgical holding companies, an opportunity emerges to foster growth in domestic demand for high-margin steel products. The same developments will also help minimize the risk of unstable profitability, arising as steel gets commercialized within a group of companies, by means of more stable prices for mechanical engineering products.

Introduction

Contributing close to 5% of Russia's GDP and providing upwards of 300,000 jobs, the iron and steel industry drives growth in manufacturing, construction, and the fuel and energy sector. In monetary terms, export revenues from ferrous metal products accounted for 6% of Russia's overall exports in 2021. Export sales dropped 45% in 2023 vs 2021 in the wake of export market restrictions and reduced prices of metals. All these considerations inspire a realistic perspective on the development outlook for the industry, and provide an incentive to seek new commercialization solutions for ferrous metal products.

2.1 times

Growth in global consumption of crude steel,
to 1,763 million tonnes

Source: open sources,
analysis by Yakov and Partners

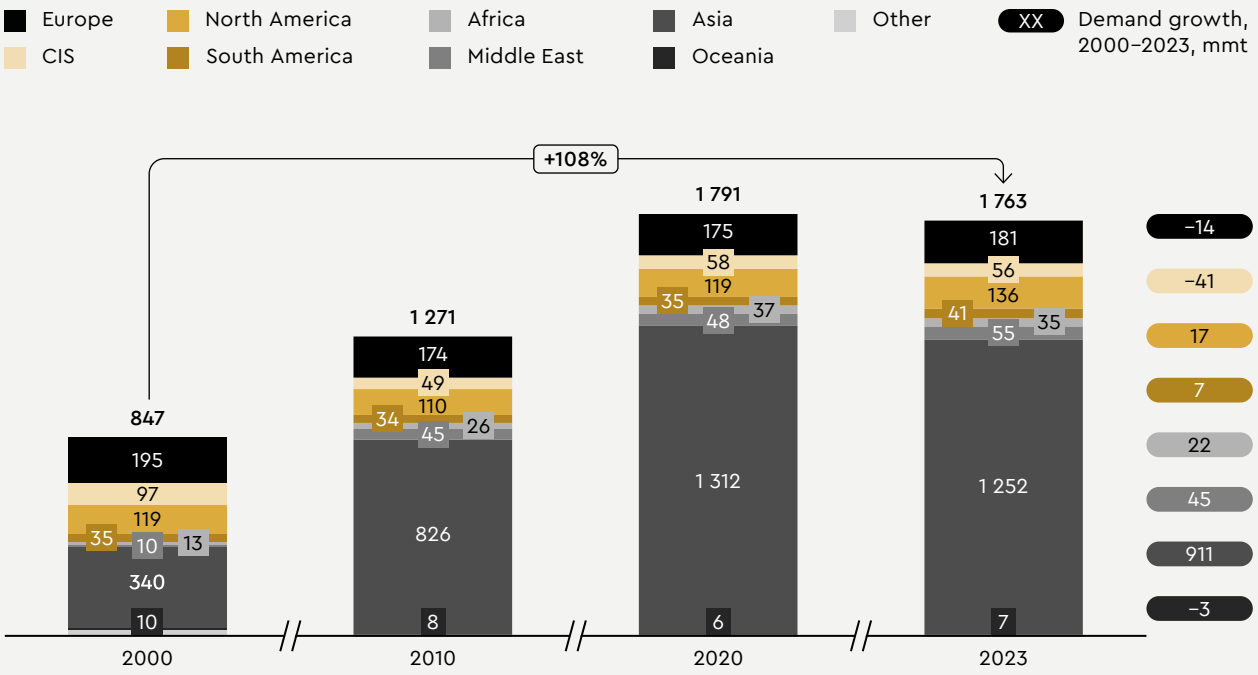
Current state of the industry

Global consumption of crude steel has more than doubled, reaching 1,763 million tonnes

The steel market has experienced significant changes since the early 2000s. Global consumption of crude steel has more than doubled,[1] reaching 1,763 million tonnes (mmt). The growth in both demand and consumption was driven by China, which saw a sixfold rise in demand, from 141 mmt in 2000 to 896 mmt in 2023, and an eightfold increase in output, from 127 mmt to 1,019 mmt, respectively. Steel consumption peaked globally between 2000 and 2005, when it grew at an average annual rate of 6%. The average annual growth rates for the decades from 2000 to 2010, and from 2010 to 2020 were 4% and 3%, respectively, having dropped to an annual rate of 0.9% in the past 5 years. That growth was followed by a decline in 2020–2023 in the wake of a series of shocks, namely the COVID-19 pandemic, energy crisis, and slowing of construction in China. Global capacity utilization fell from 77% to 75%, chiefly in consequence of freed-up capacity in China, which took a cut of 6 pp, to 87%.

Russia saw a much more modest output growth rate of 1.3 times,[2] from 59 mmt to 76 mmt. NLMK showed the highest volume growth (6 mmt), followed by MMK (3 mmt), and Severstal (2 mmt). Until 2022, rising export of steel and cast iron was the chief driver of output growth: export of those commodities increased by 55% (11 mmt) between 2000 and 2021.

Demand for crude steel, mmt

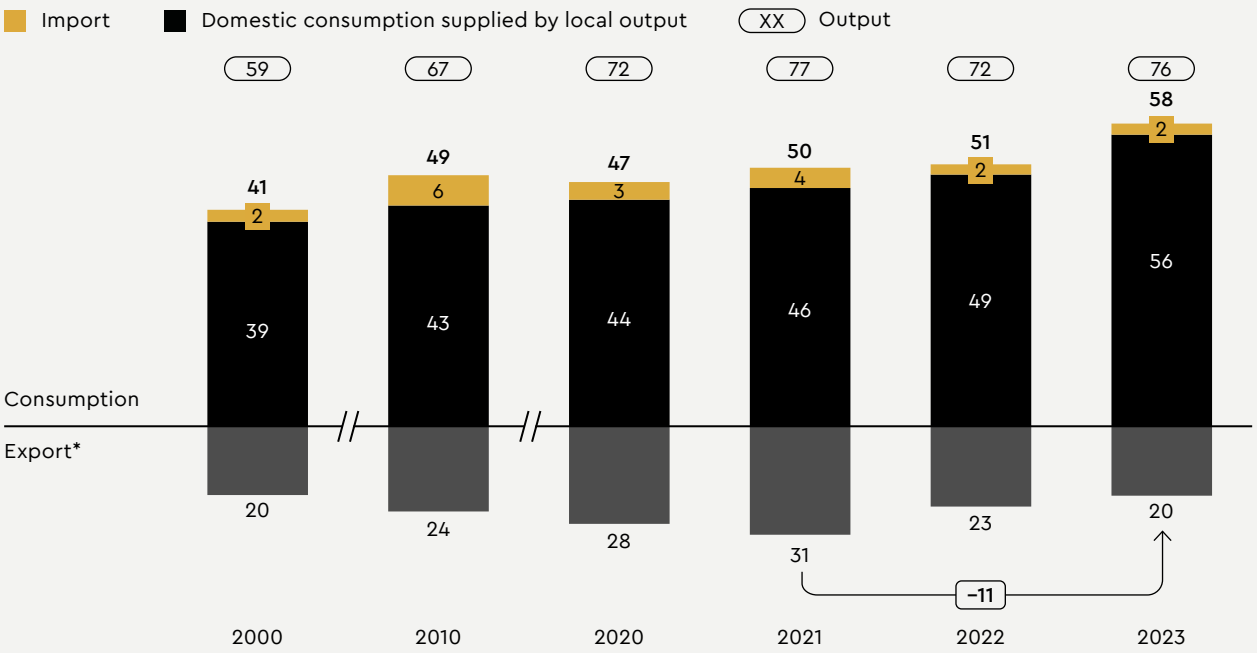


Source: Top-Down Demand Forecasting Model by Yakov and Partners; analysis by Yakov and Partners

Search for balance in the Russian steel market

With premium prices to be enjoyed in the markets of Europe and the United States, which absorbed close to 50% of Russian exports as recently as 2021, export to those destinations was very attractive. As prices increased considerably in the target markets, the existing industrial capacity was in fact found insufficient to both meet domestic demand and fully tap the export potential. The high prices in Europe compelled the government to enact export duties on ferrous and nonferrous metals, in order to contain domestic price hikes on the back of metal shortages. With those markets absorbing large volumes of metal sales, export revenues continued to flow in steadily. Ferrous metal exports rose by a factor of 6.8 in monetary value between 2000 and 2019,[3] 4.5 times ahead of the U.S. dollar inflation. Due to high prices, a record amount of steel, by both volume and value, was exported in 2021 – ferrous metal exporters earned USD 41 billion that year.

Russian market for ferrous metals, mmt

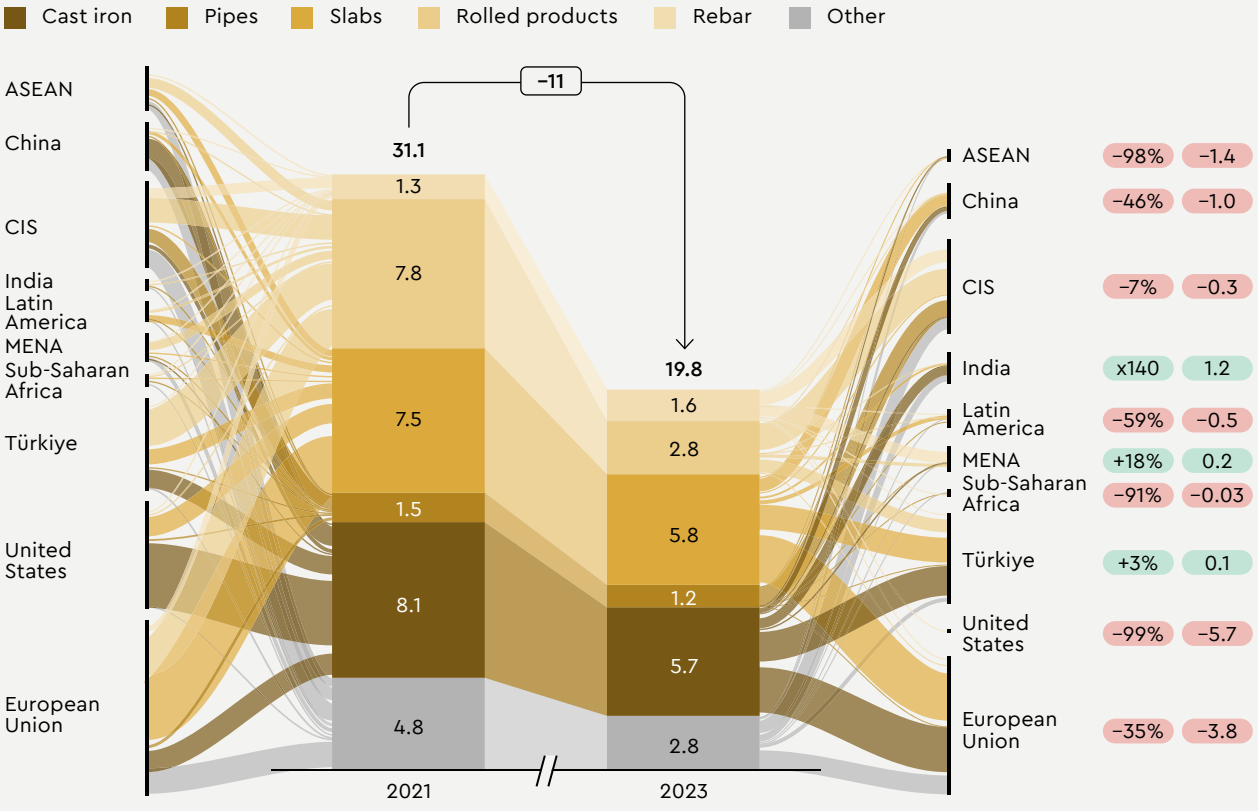


* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

Ferrous metal export by product and destination, mmt

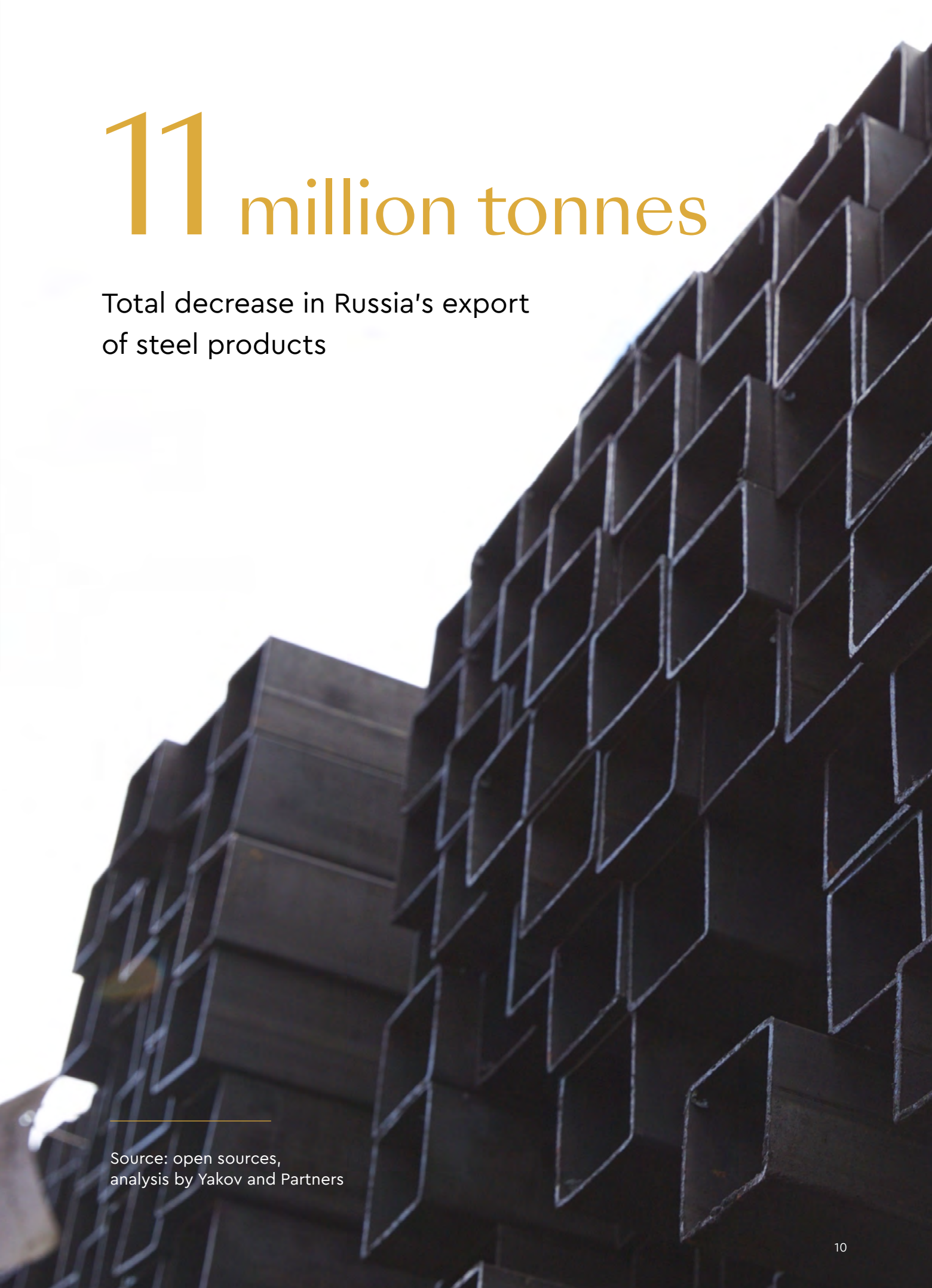
Change, 2021–2023



Source: UN Comtrade, GTT, analysis by Yakov and Partners

New export destinations for domestic metal

The sanctions imposed on Russia in 2022 entailed a change of direction for domestic export streams. Exports to all major destinations shrank across the board, with the exception of Türkiye, Middle East, and North Africa. Exports to India skyrocketed, but this was due to a low starting point. High value-added steel products were hit the hardest when export to the EU fell: rolled steel export plummeted 64% (the EU accounted for 34 pp). Rolled products continued to be exported only to CIS destinations. Export of cast iron and slabs fell 30% and 24%, respectively. The United States halted all import of cast iron and slabs from Russia, after having previously imported some 3 mmt of these products. Although Türkiye and India increased the import of cast iron and slabs, this was not enough to bridge the gap.



11 million tonnes

Total decrease in Russia's export of steel products

Source: open sources,
analysis by Yakov and Partners

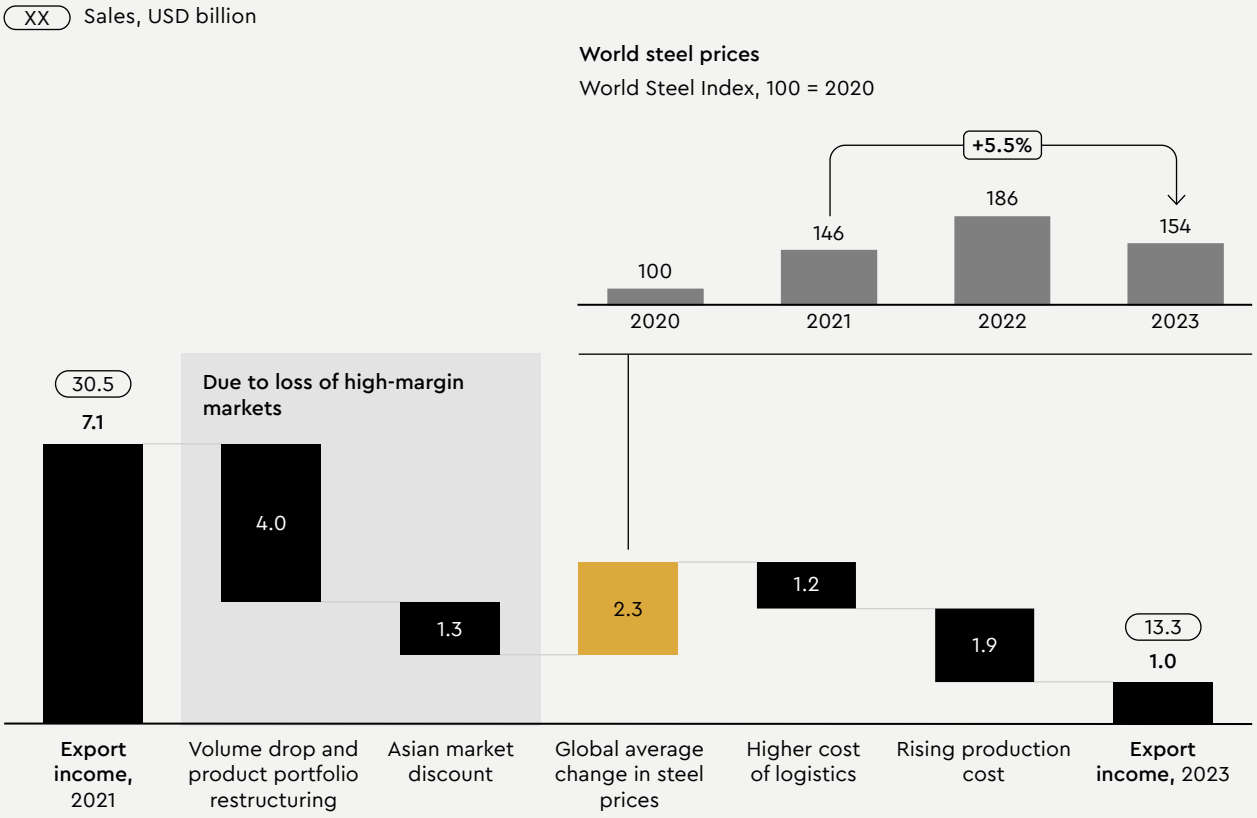
High-margin output, particularly pipes and rolled products, was affected dramatically by the export decrease. By 2023, export of rolled products had dropped 64% vs two years prior, from 7.8 mmt to 2.8 mmt. In 2021, Russia had exported the bulk of its rolled steel products to the EU, Türkiye and across the CIS. Come 2023, it was left with CIS destinations alone. Pipe export shrank by 0.3 mmt, or 20%. All in all, it would be safe to say that Russia's ferrous metal industry largely owed its missed export income to the diminished export of rolled products and pipes.

Export of primary ferrous metal products also fell appreciably in absolute terms. Export of slabs decreased by 1.7 mmt or 24%, from 7.5 mmt to 5.8 mmt, and export of cast iron decreased by 2.4 mmt or 30%, from 8.1 mmt to 5.7 mmt between 2021 and 2023. As regards cast iron, the chief reason was that the US drastically reduced cast iron import from Russia, whereas it had previously absorbed some 50% of the export volume. Slab import from Russia was also restricted by the US and the EU, resulting in diminished export. Although some emerging economies have stepped up the import of slabs and pipes from Russia, this has proved insufficient to pick up the slack. It does not help that those nations buy Russian products at lower prices compared to the US and the EU.

The only category that has seen some export growth (+27%) are rebar products, which is explained by growing shipments of these products to the Middle East.

In consequence of all economic sanctions, accompanied by a general downturn in demand for steel, export of steel products from Russia went down by 11 mmt overall, from 31 mmt in 2021 to 20 mmt in 2023. On top of that, loss of the high-margin markets, coupled with higher all-in costs, drove a sevenfold drop in export income, from USD 7.1 billion to USD 1 billion. With the export volume down 35%, the profitability of export fell below 1/3 of its former rate. The most substantial loss of export income, USD 5.3 billion vs 2021, came with the volume drop and product portfolio restructuring on the back of the loss of highly profitable export destinations for Russia's steelmaking industry. Reduced export to the premium markets left Russian steel companies no choice but to sell their steel to customers in Asia, where, as early as in 2021, the market prices were 20% to 25% lower across the product portfolio, compared to the US and Europe.

Russia's export income in the market for steel*, 2021–2023, USD billion



* Excluding iron ore, cast iron, and ferroalloys

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

In addition, it costs approximately 2.5 times more to ship steel to China or India on account of longer routes and higher pressure on the eastbound rail infrastructure. Moreover, Russian Railways rates were 31% higher by the end of 2023 than they had been in 2021,[4] following four rate revisions in 2 years.

Production costs rose 5% because of restricted access to spare part imports from unfriendly nations, payroll costs rising in the wake of an average salary increment of 24% across Russia,[5] and a rise in iron ore prices.

In 2023, the global average hike of 5.5% in steel prices versus 2021 earned Russia an extra revenue of USD 2.3 billion, but this was not enough to offset all the adverse factors that had come to bear on the export income.

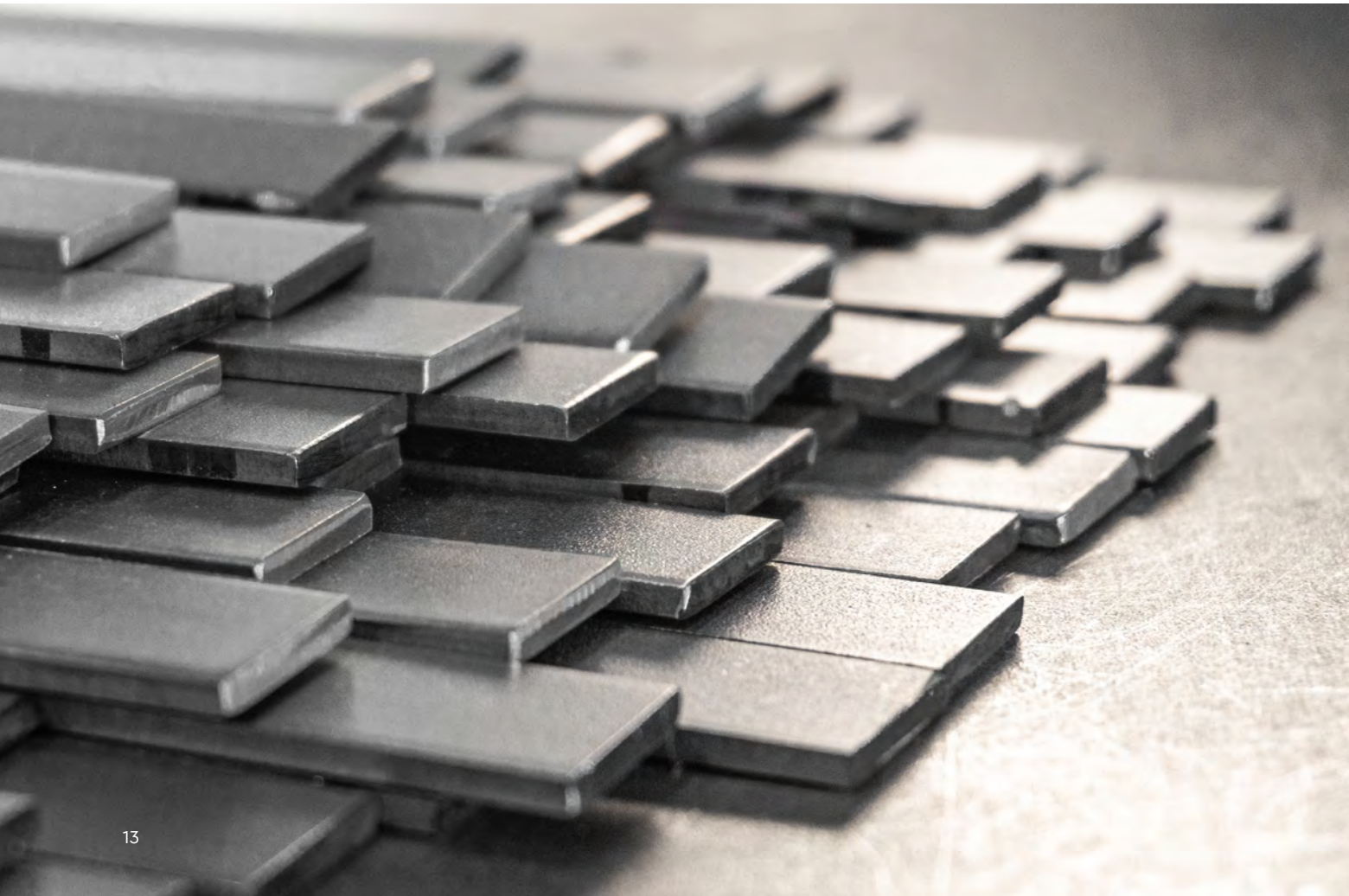
Changes in the volume and structure of imports

The key import items at this time are flat-rolled products from high-alloy, corrosion-resistant steel and non-alloy steel imported from Kazakhstan (1.5 mmt) and China (0.5 mmt)

The volume and structure of Russia's steel imports have changed. Russia imported 3–6 mmt of steel before 2022, including close to 2.4 mmt of ferrous metals steadily flowing in from Ukraine and Kazakhstan. This was a profitable deal for consumers as it allowed them to optimize their logistics costs. Another 0.5 mmt of rolled products were imported from China. The import of ferrous metals to Russia subsequently dropped to half the 2021 volume. The key import items at this time are flat-rolled products from high-alloy, corrosion-resistant steel and non-alloy steel imported from Kazakhstan (1.5 mmt) and China (0.5 mmt).

Development of domestic consumption

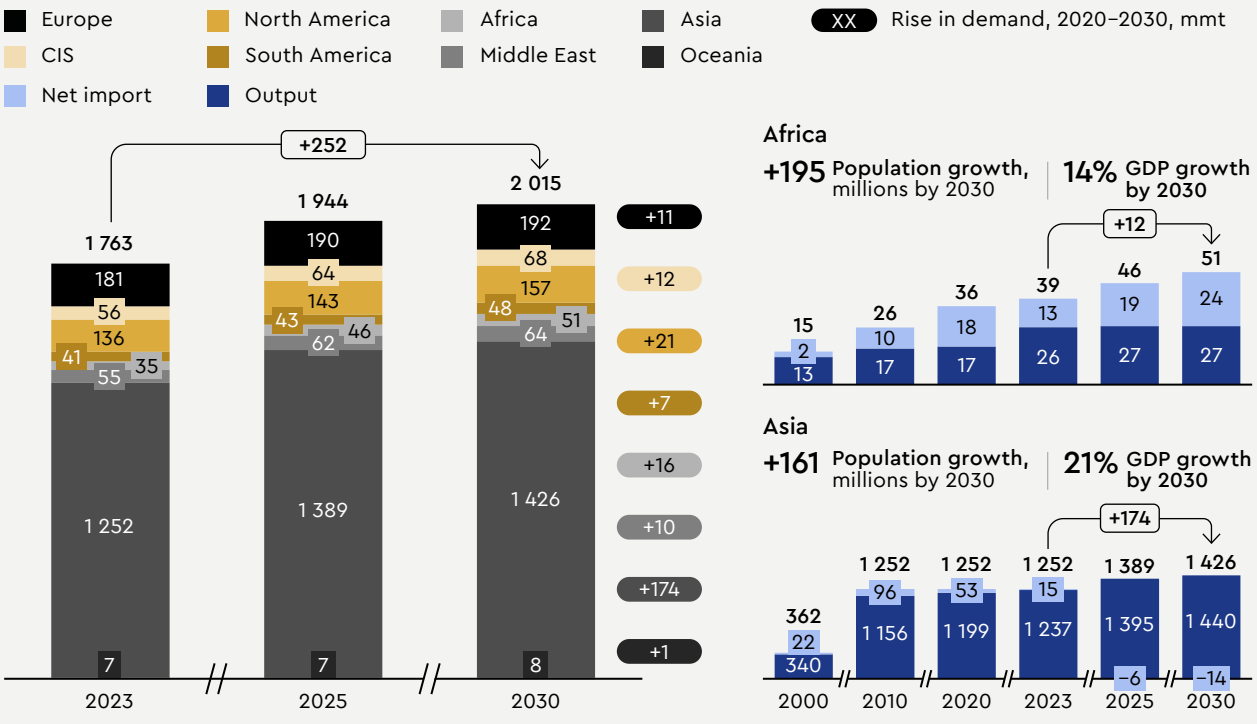
Demand for steel rose from 47 mmt to 50 mmt between 2000 and 2021, and climbed by a further 8 mmt in 2023 alone, which went toward meeting the needs of the machinery industry, including the manufacturing localization of certain hardware that Russia had previously imported. With this substantial demand growth, steel output was able to rebound to nearly the 2021 level, shortening the gap of 5 mmt in 2022 to 1 mmt in 2023.



Implications of diminished export and prospects of recovery. Analysis by country and region

In the process of forming its vision of the further progress of the global steel market, the Yakov and Partners team built a model by which to assess demand for steel across key markets and regions. Underpinning the model are the economic and industrial/technological factors that define ferrous metal demand based on the economic paradigm in place.

Demand for steel products, mmt



Source: Top-Down Demand Forecasting Model by Yakov and Partners; analysis by Yakov and Partners

Demand will be increasing at an average annual rate of 2% until 2030 and will exceed 2 billion tonnes by 2030

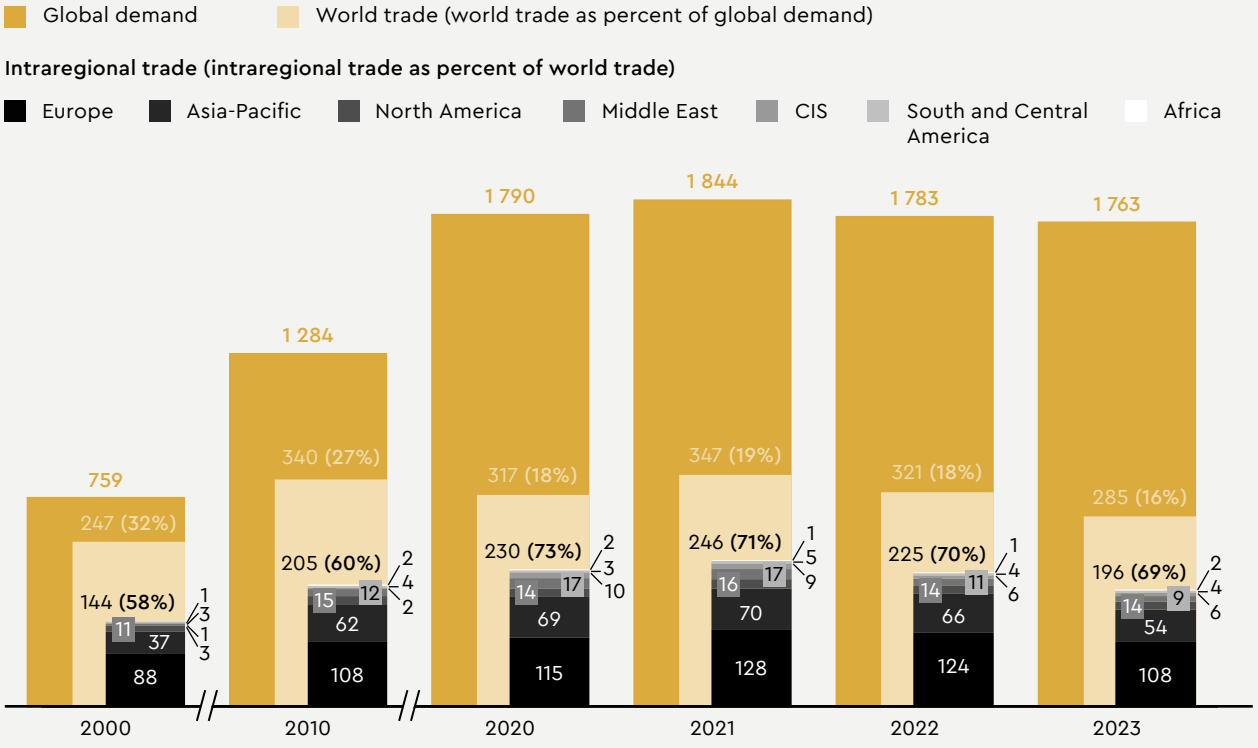
According to our forecast, demand will be increasing at an average annual rate of 2% in the years until 2030, which is 1 pp below the growth rate in 2000–2020. Demand will have increased by 252 mmt by 2030, clearing 2 billion tonnes. Some 70% of the increment will be contributed by demand and output growth in Asian economies. India alone has plans to add 126 mmt to its production capacity by 2030, raising it to 90% above the 2023 level, which sounds ambitious but feasible, seeing how India succeeded in raising its output by 25 mmt in just two years – 2022 and 2023, – and in view of the strides made by China, which raised its output by 438 mmt (70%) in the decade of 2010 to 2020.

Active development potential of the export markets worldwide is severely hobbled by the following trends:

— Production localization: while demand for steel rose by a factor of 2.4 in 2000–2020, world trade saw an increase of only 1.3 times. Only 70 mmt of the aggregate demand were supplied by imports. The bulk, or 961 mmt, was supplied by domestic production growth. In the past 2 years, given the general demand slump, world trade has shrunk below the 2010 volume.

— Growing intraregional trade: the emergence of major steel manufacturers in regional markets promotes intraregional trade, thus minimizing logistics costs.

Structure of the global market for ferrous metals*, mmt



* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

Therefore, in our assessment, the following trends will define Russia's chances of commercializing the desired volumes in the markets:

— The US and the EU: economic sanctions and continued pressure on Russia, export continues to be limited to low value-added commodities.

— Türkiye: no need to increase domestic consumption, demand for EU-bound transit restricted by sanctions.

— China: falling prices domestically and impact on global prices from the surplus capacity emerging in consequence of shrinking domestic demand and stagnating global demand, hindering the realization of the country's export potential.

— India: buildup of local manufacturing, protectionist support for domestic steel manufacturers.

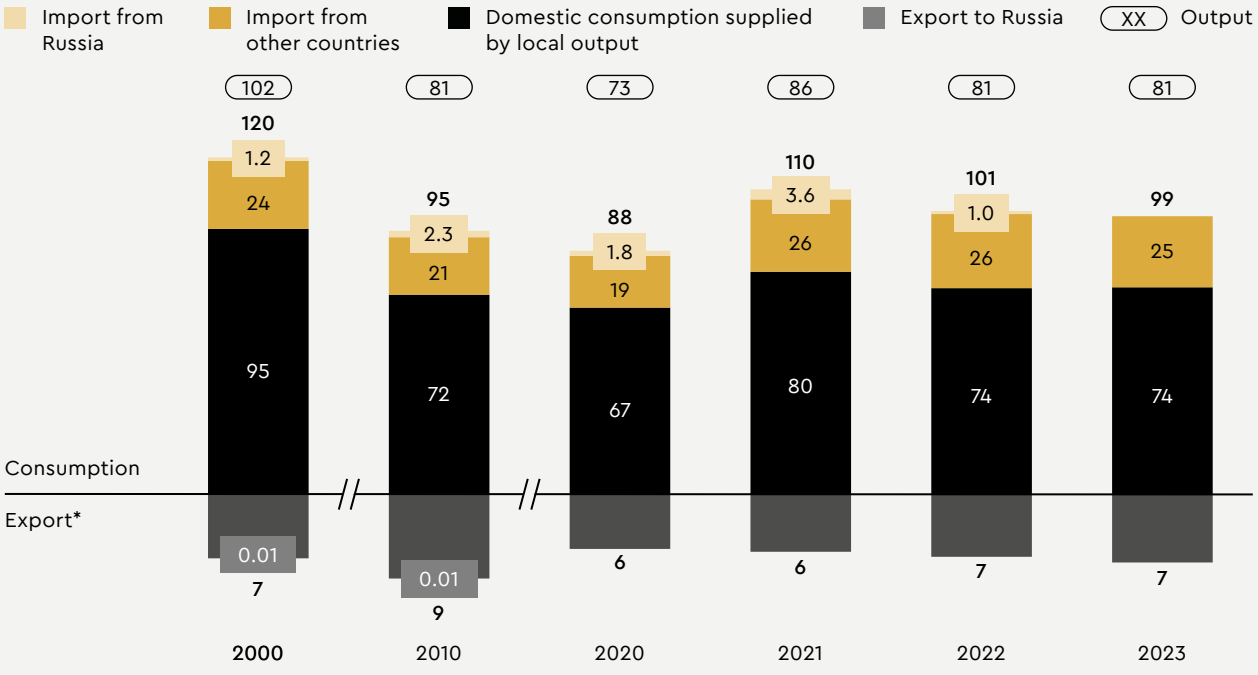
— ASEAN, Latin America, Middle East: growing production in countries with rapidly advancing industry, trade localization inside macro-regions.

United States

Import fell by a total of 5 mmt in 2021–2023, and domestic production also decreased by 5 mmt as economic growth slowed down across the manufacturing industries

The United States' net import decreased overall, not just from Russia. Import fell by a total of 5 mmt in 2021–2023, and domestic production also decreased by 5 mmt as economic growth slowed down across the manufacturing industries. Unlike most other countries, the US has no plans to phase out imports completely. It would make no economic sense for the US to manufacture primary metals domestically because of the higher labor costs – not if its higher value-added metal products were to remain competitive. The leading exporters to the US in 2023 were Brazil (8 mmt), Canada (5 mmt), Germany (1 mmt), and India (1 mmt). While most of the imports from Canada, Germany, and China are rolled products, Brazil and India supply semi-finished products, having partially replaced the import flow from Russia in 2023. Domestic demand for steel is stagnating in the US. Meanwhile, logistical proximity to major Asian manufacturers, coupled with the severe economic restrictions, make the prospect of Russian exporters returning to the market rather bleak.

US market for ferrous metals, mmt



* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

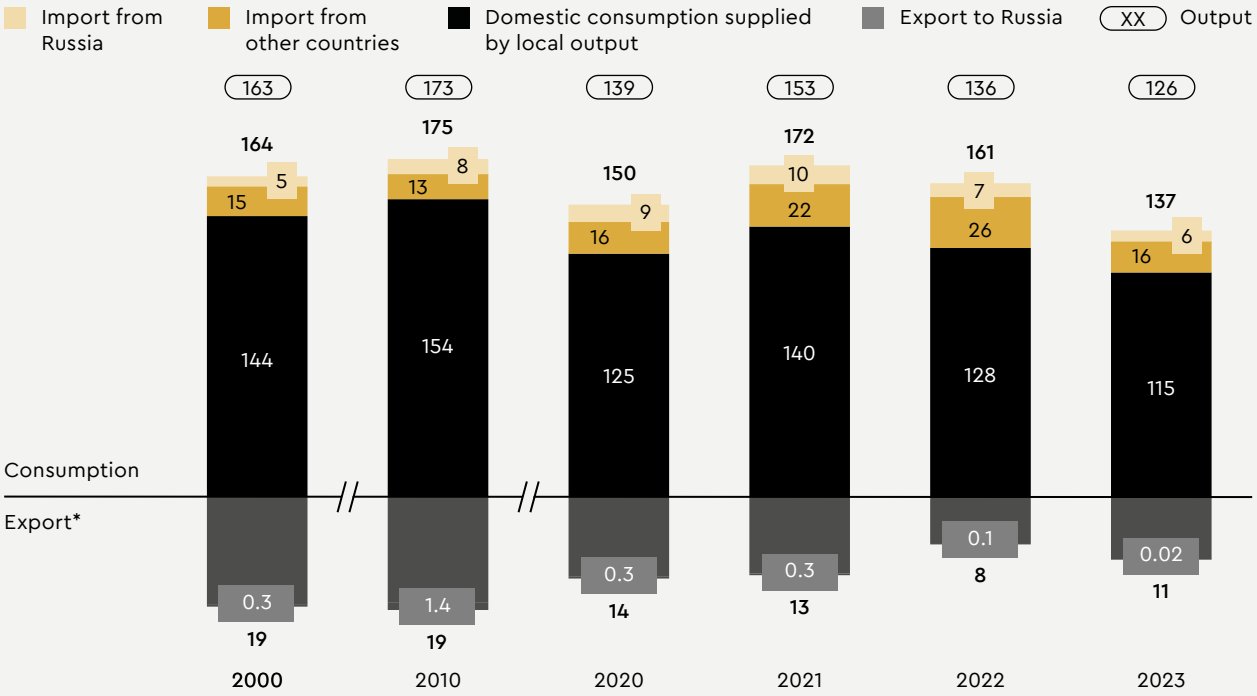
Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

European Union

Russian export volumes were simply found redundant on this market in view of reduced demand

Consumption of steel fell dramatically, by 34 mmt (20%), across the EU in 2021–2023 as part of the general economic downturn. As steel became more expensive to produce due to galloping electricity prices, inflation, and environmental restrictions, consumers were motivated to import more despite slumping demand, supplanting domestic supplies with imports. Russian export volumes were simply found redundant on this market in view of reduced demand. Deindustrialization is expected to continue in Europe, driven by rising production costs and, consequently, diminished competitiveness of the manufacturing industries and decreased construction activity. This will cause demand for steel to stagnate in the EU, or it may fall to around 130 mmt. With the economic sanctions in place, the chances of Russia increasing its high value-added exports to the EU are minimal. If the production costs of primary metals continue to rise in the EU, demand may increase for cast iron and slabs. In this segment, however, Russian steelmakers would have to compete with the prices offered by Chinese manufacturers.

EU market for ferrous metals, mmt



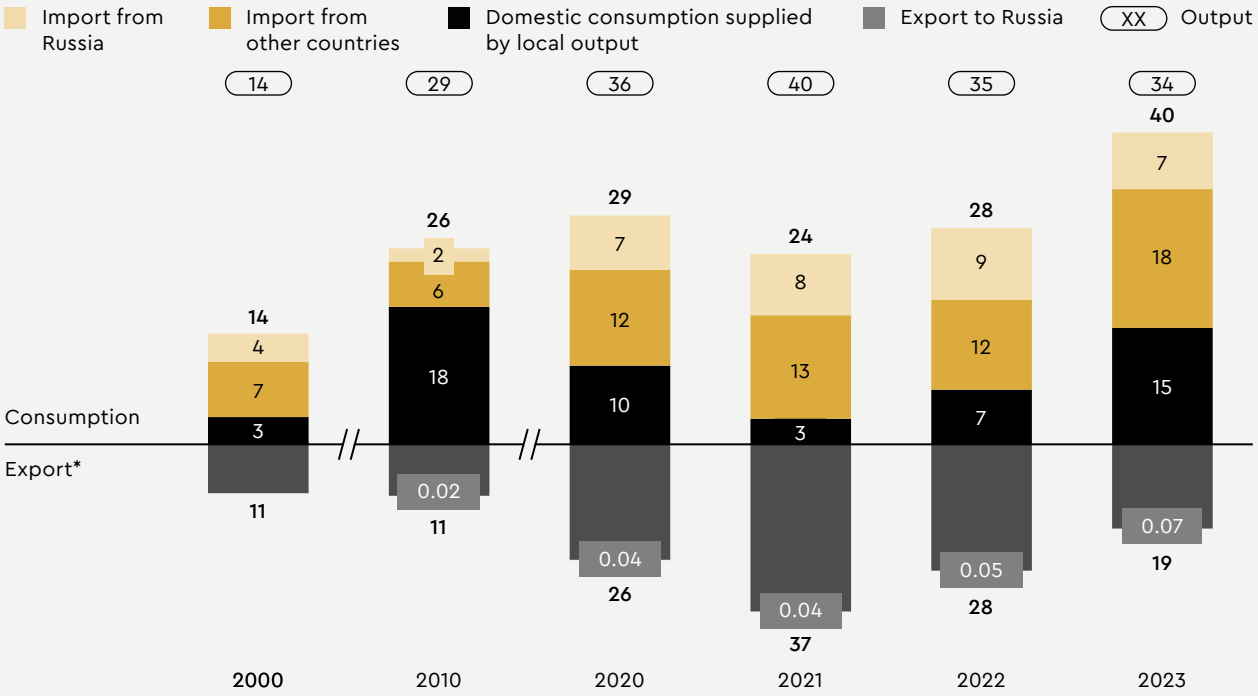
* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

Türkiye

In Türkiye, demand for steel grew apace with the manufacturing industries in 2000–2020, gaining an average of 5% annually. Form a trade perspective, Türkiye served as a logistics hub for Europe – 20% of Türkiye's exports went out to destinations in the EU. Türkiye's national strategy at this time is focused on import substitution. For example, Türkiye launched an anti-dumping probe at the end of 2023 in a bid to minimize steel imports from China, India, and Russia.

Market for ferrous metals in Türkiye, mmt



* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

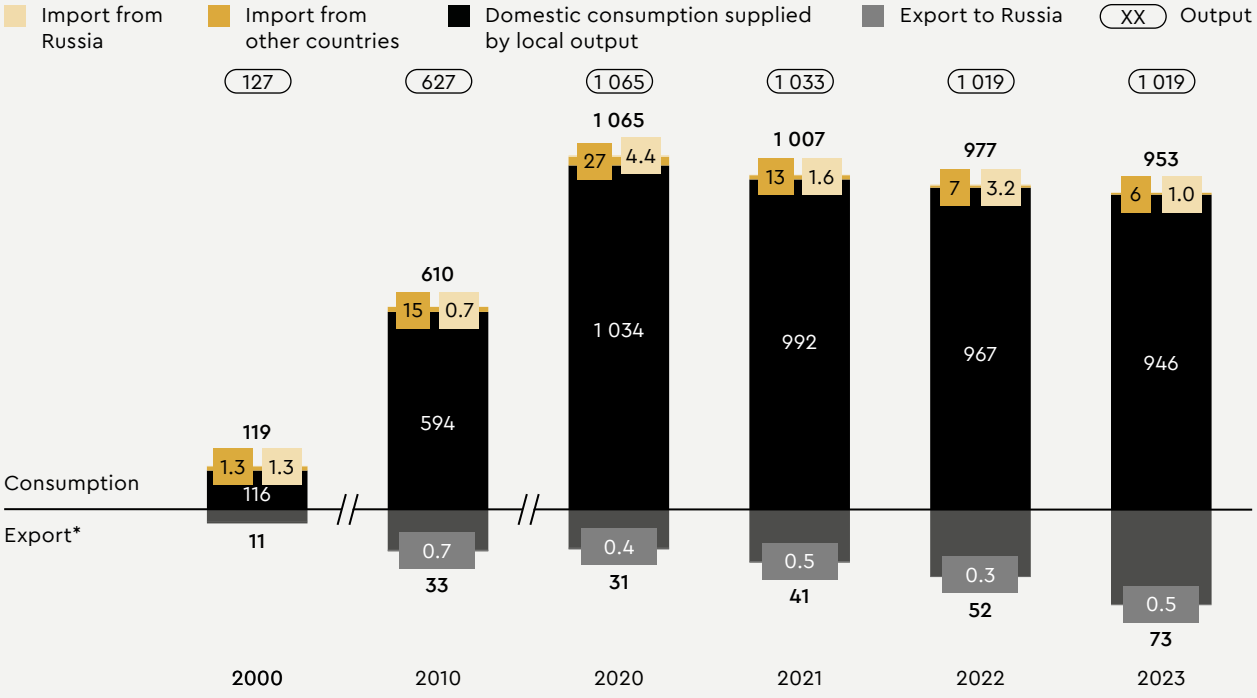
Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

China

Chinese export keeps trending upward. The country's exports in the first nine months of 2024 grew 21% year-over-year

China's robust domestic consumption growth in 2000–2020 gave way to a downward trend, with consumption falling by 102 mmt in 2020–2023. China owed its less dramatic output drop, 46 mmt, to the concurrent growth in export. Notably, China's export keeps trending upward. The country's exports in the first nine months of 2024 grew 21% year-over-year. With the pressure running high to stake out new markets, competition mounted in the Asia-Pacific region, compelling nations to step in to protect domestic manufacturers from China's competitively priced supply glut. In September 2024, the Finance Ministry of India issued an order to impose duties,[6] ranging from 12% to 30%, on selected types of steel products from China and Vietnam. With this dynamic, Russia will not be able to export steel products to China unless it achieves a lower production cost, logistics included. However, given the current traffic load on the Far East railways and production costs comparable to China's, the outlook for Russia's export to China looks illusory, although export of specific steel grades may be a possibility. It is important to note that when China's domestic consumption recovers, the country will still have sufficient manufacturing capacity to supply its steel demand up to a maximum of 1,150 mmt.

Market for ferrous metals in China, mmt



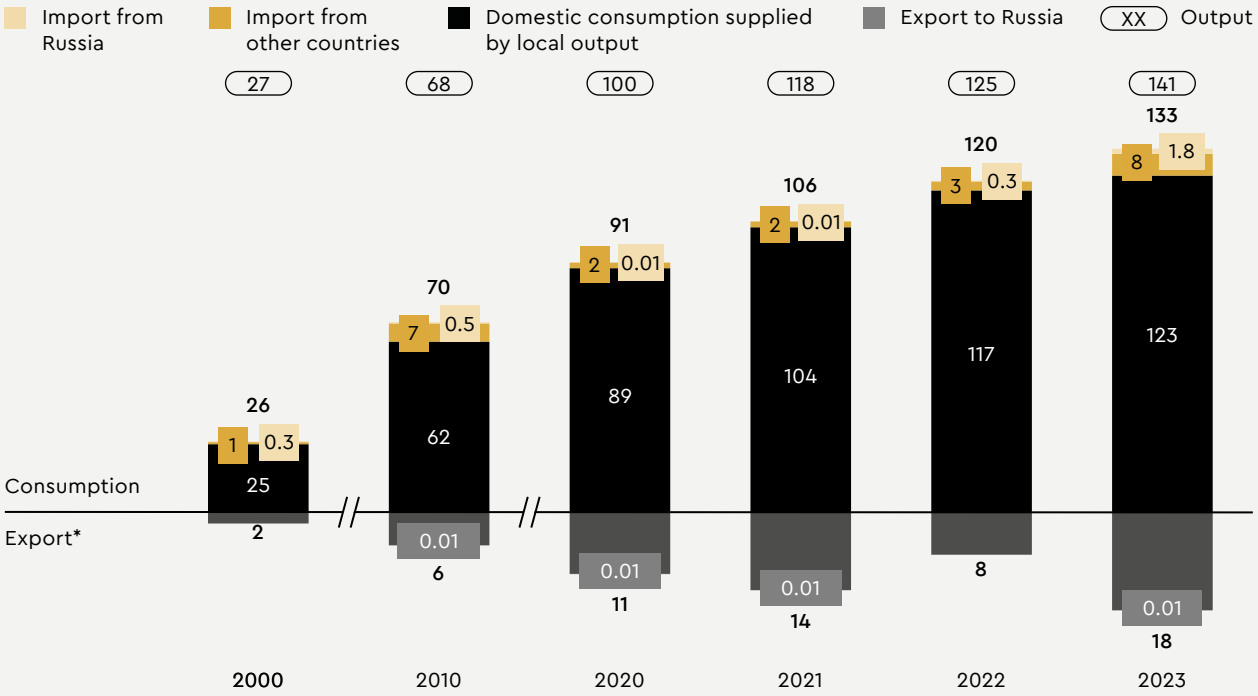
* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

India

India is the only major player that showed growth in steel manufacturing and consumption alike in 2021–2023. India's steel output increased by 16 mmt (12%), reaching 141 mmt, while consumption rose by 12 mmt (10%), to 133 mmt. India has secured its standing as a net steel exporter over the past few years. Analysts believe the country is set to further consolidate its position on account of the lower production costs. India's steel consumption is poised to grow at an average annual rate of 11% in the years leading up to 2030 as the economy continues to industrialize. Rising domestic demand will be supplied by means of enlarging domestic output capacity, which is projected to increase by 125 mmt in the run-up to the year 2030. With the current rate of demand growth, it is assumed that output capacity will be first and foremost focused on supplying domestic demand.

Market for ferrous metals in India, mmt

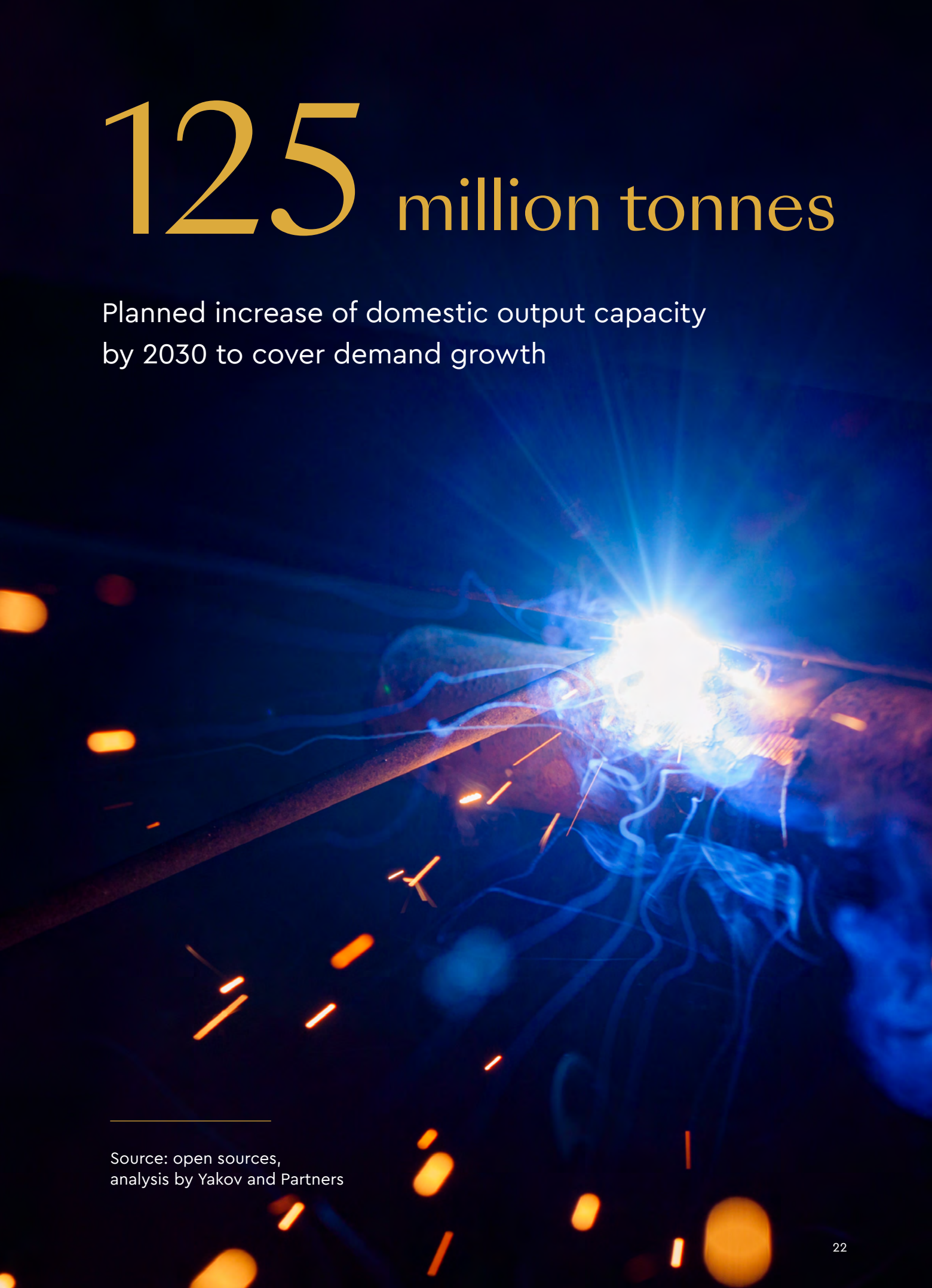


* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

125 million tonnes

Planned increase of domestic output capacity by 2030 to cover demand growth

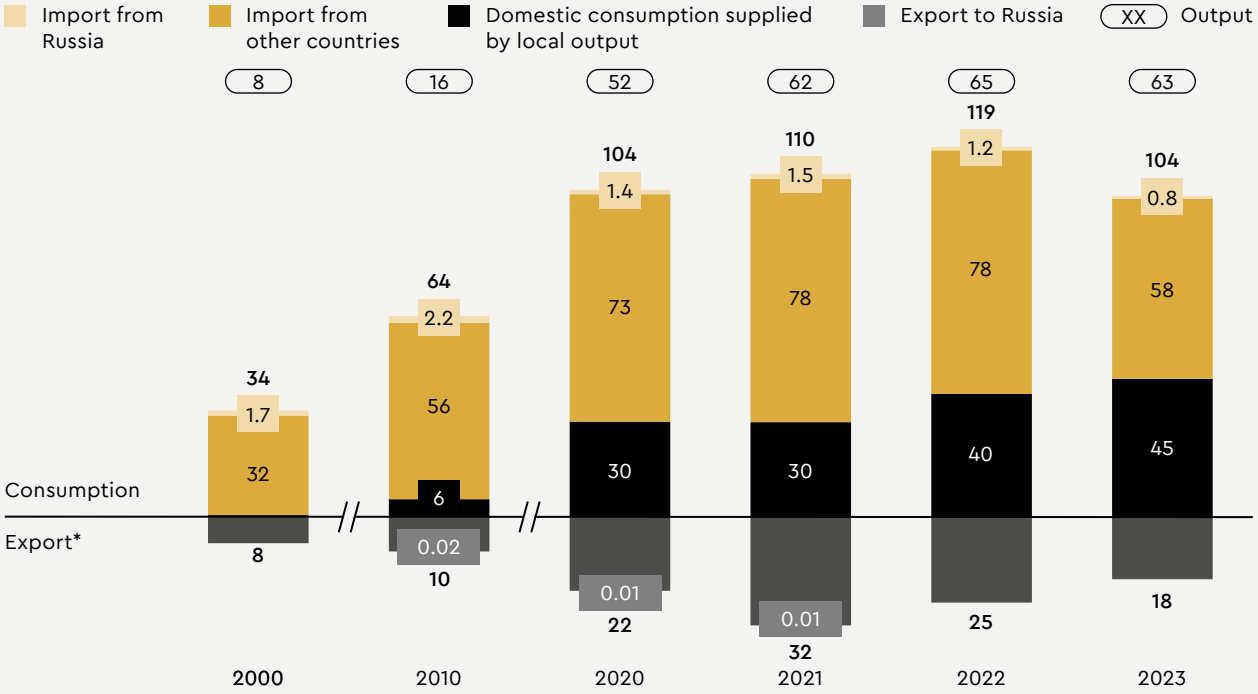


Source: open sources,
analysis by Yakov and Partners

ASEAN

Before 2023, demand for steel was satisfied by both increased domestic output and import in the ASEAN member nations. Although demand for steel dropped by 15 mmt (12%), in 2022–2023, the region has succeeded in maintaining domestic output at almost the same level. Several production localization projects are underway in the ASEAN nations, with some industrial projects financed by foreign stakeholders. One example is the 10 mmt steel mill being built in Malaysia, financed by Chinese investors. Demand for steel is expected to grow at an average annual rate of 0.4%, with growth driven by aggressive industrialization in Indonesia, Vietnam, and the Philippines. In the years up to 2030, demand will be supplied through the development of domestic capacity, and by import from net exporters India and China.

ASEAN market for ferrous metals, mmt



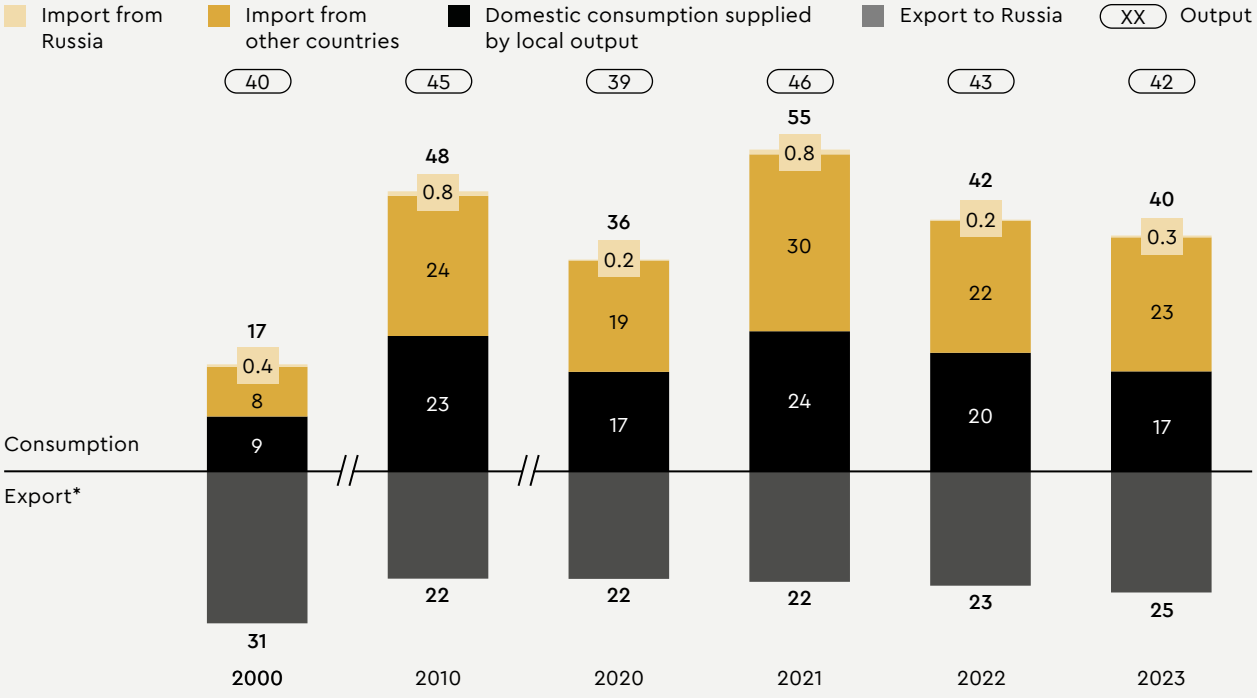
* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

Latin America

Regional consumption is characterized by a high degree of volatility. The earliest drop in consumption predated the year 2021. Although in-country capacity is available and 58% underutilized (mainly due to Brazil's capacity being 37% underutilized), these countries continue to import more than 50% of their consumption. The bulk of the region's exports are low value-added products such as slabs (7 mmt) and cast iron (4 mmt), while higher value-added products – rolled steel and pipes – are imported (mainly from China). Brazil's own rolled products are no longer competitive in the domestic market because of the lower cost of similar Chinese production. Seeking to protect the domestic manufacturers from Chinese dumping, the government has more than doubled the import duties, raising them from 9–12% to 25%.

Market for nonferrous metals in South and Central America, mmt



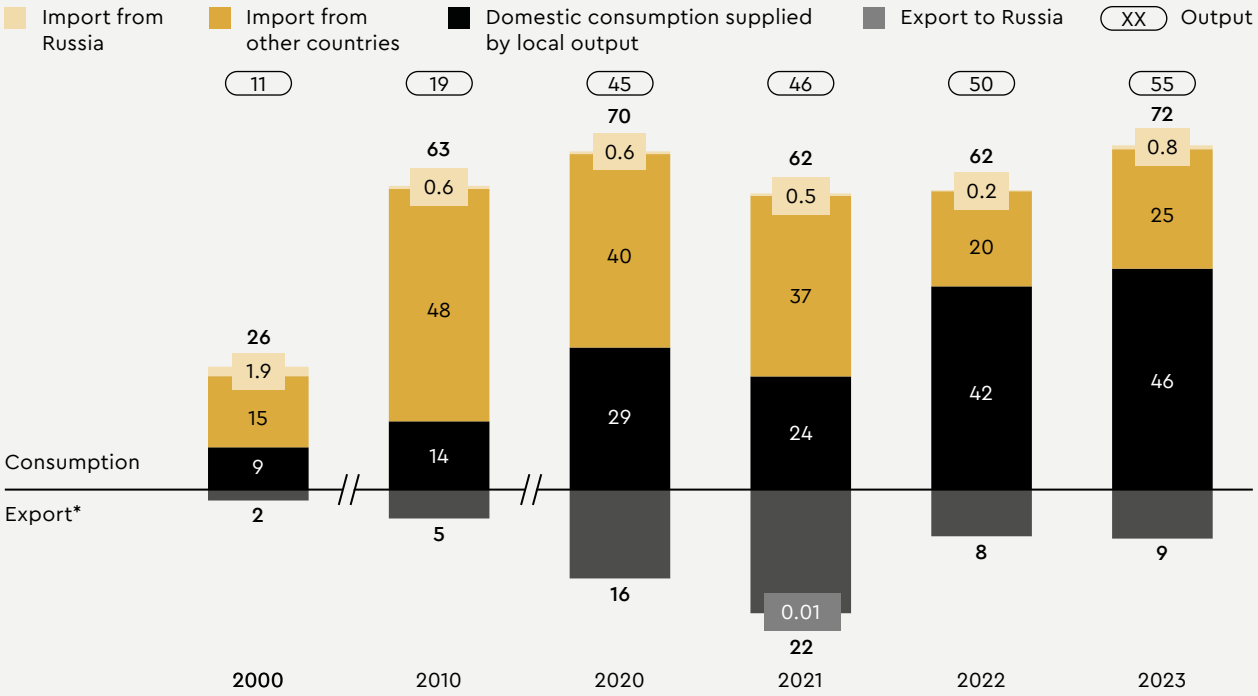
* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Источник: World Steel Association, UN Comtrade, анализ «Яков и Партнёры»

Middle East

In 2000–2010, demand for steel exploded in the Middle East, far surpassing the pace of new capacity launches in the region. During that decade, import increased from 68% to 77% of consumption. In absolute terms, import nearly tripled (gaining 31 mmt). Realizing the persistent need for new capacity, countries of the Middle East set to work, achieving an output growth from 11 mmt in 2000 to 55 mmt in 2023. Steady plans are in place to increase local production capacity in the years up to 2030. Iran is looking to raise output by 8–14 mmt, and Saudi Arabia, by 4 mmt. Meanwhile, population growth continues in the Middle East. The region's population has increased by 61% (190 million) since 2000. Vigorous industrial development in nations such as Oman, Saudi Arabia, and Qatar will keep driving demand growth at an average annual rate of 1.5% on the back of fast-paced economic growth and influx of foreign investments. The Middle Eastern nations currently import steel products mainly from China (6 mmt), India (1.1 mmt), South Korea (0.6 mmt), and Türkiye (0.6 mmt). The region chiefly imports high-margin products such as pipes and rolled steel, which accounted for 94% of the region's steel import in 2023. The Middle East may be viewed as an attractive export market. However, the proximity of India and China with their surplus capacity and competitive – even with logistics factored in – production costs means that export to the region will have limited profitability for Russia.

Middle East market for ferrous metals, mmt



* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

94%

of steel imported by the Middle Eastern countries in 2023 were pipes and rolled products, reflecting the region's focus on high-margin steel imports

Source: open sources,
analysis by Yakov and Partners

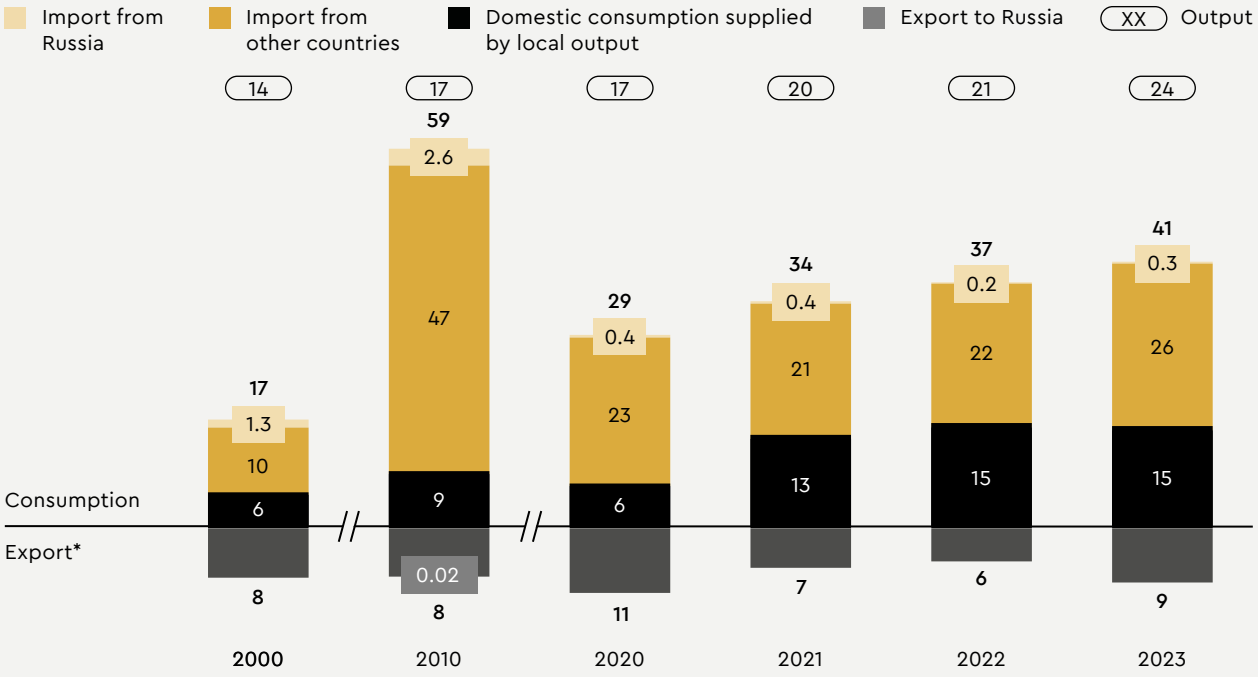
Africa

While a demand growth of 25%, to 51 mmt, is expected over the planning horizon up to 2030, the region is nowhere near the kind of industrialization that once gave a powerful impetus to steel demand in India and China

The region has the potential to become an attractive export destination, but the aggregate steel demand of all African nations is only 41 mmt, of which 26 mmt are currently supplied by import. This is comparable to the combined demand of Italy and Germany. It is expected that demand for steel, forecasted to grow at an average annual rate of 2–3% in the emerging economies, will be supplied by imports. While a demand growth of 25%, to 51 mmt, is expected over the planning horizon up to 2030, the region is nowhere near the kind of industrialization that once gave a powerful impetus to steel demand in India and China. In the meantime, Chinese, German, US, and UK investors have already launched steel mill construction projects in some African countries. Once demand growth really takes off, these foreign-owned operations will enjoy a competitive advantage, pushing imports out of the market.

All evidence indicates that the downward trends in steel demand currently observed in developed markets, ongoing production localization in countries showing vigorous economic growth, and high pressure from Chinese manufacturers all combine to minimize the likelihood of finding any new, sizable high-margin markets for Russian steel within the 2030 planning horizon.

Market for ferrous metals in Africa, mmt



* All steel products and cast iron, excluding ferroalloys (TN VED codes 72, 73)

Source: World Steel Association, UN Comtrade, analysis by Yakov and Partners

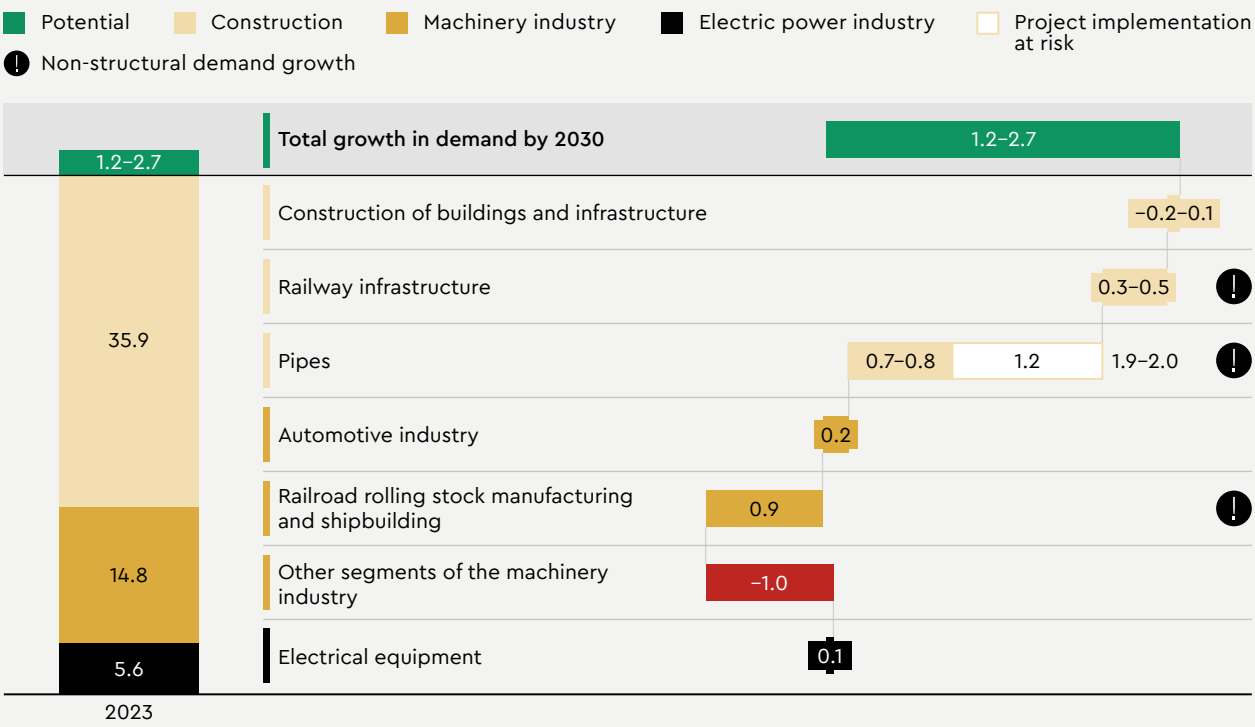
Pockets of growth in the domestic market

Russia's domestic consumption of steel is set to increase by around 1.2–2.7 mmt in the years up to 2030. However, many projects will not be systemic in nature, and so demand will already decline in the respective segments by 2032

With Russia highly unlikely to see any export growth before 2030, it makes sense to seek opportunities in domestic consumption, which has increased steadily in the past four years. Russia's domestic consumption of ferrous metals came to an estimated 56.3 mmt in 2023. Of that amount, 35.9 mmt were consumed in the construction industry (buildings, facilities, rail infrastructure, pipelines), 14.8 mmt in the machinery industry (automotive, railroad rolling stock manufacturing, shipbuilding, and other segments), and 5.6 mmt in the electric power industry.

In our estimation, in the absence of economic restructuring, Russia's domestic consumption of steel will increase by around 1.2–2.7 mmt in the years up to 2030. However, many projects will not be systemic in nature, and so demand will already decline in the respective segments by 2032.

Changes in domestic demand by consumer sector by 2030



Source: Federal State Statistics Service (Rosstat), annual reports of companies, analysis by Yakov and Partners

Construction of buildings and infrastructure

This segment has remained the prime driver of steel demand growth for a long time. It is bound to slow down now that subsidized mortgage lending has been discontinued and the key interest rate has soared to an all-time high since the first introduction of this monetary policy instrument in 2013. The private housing construction incentives, which are still in place, will not be able to offset the gap due to the segment's low metal consumption.

Demand for steel in construction has already dropped 10% in the third quarter of 2024 since subsidized mortgage lending was cancelled as of July 1, 2024.[7] Accordingly, in that quarter, demand for private housing construction loans is down 53% year-over-year.

The cancellation of subsidized mortgage lending will not significantly impact demand for steel in 2024, because lending activity in the first half of 2024 was up 14% from the same period in 2023. If the trend witnessed from July through September 2024 continues, the value of mortgage loans issued stand to drop 30%, which will inevitably hurt new housing completions and steel demand by developers during the subsequent period.

In our estimation, demand for steel in the construction industry will return to its 2023 level by 2030 as the metal-intensiveness of buildings gradually increases, construction is ramped up in the new regions, and the key interest rate goes down.

Railway infrastructure

Continued implementation of the ongoing railway infrastructure projects will serve as a growth driver for the consumption of steel. A case in point is the extension of the Baikal–Amur Mainline by 3,500 km, and an overhaul of the existing rail tracks. These projects will enable a consumption increment of 0.5 mmt. However, once the aforesaid major projects are completed, the pace of steel consumption will slow down.

Pipes

The only major project with a high probability of implementation in this segment is the Volkhov-Murmansk-Belokamenka pipeline critical to the Murmansk LNG project. The pipeline will require some 2.2 mmt of steel to build. Another attractive commercialization opportunity for steel output may be provided by the construction of the Power of Siberia 2 gas pipeline, but an agreement with China regarding the project is yet to be reached. The pipeline will require a total of 11.1 mmt of steel to build, but since this is a joint investment, it is most likely that Russian steel will be supplied only for the pipeline section running across Russian territory, namely 2,700 km out of 6,700 km, or 4.5 mmt. Housing services and utilities will remain a key long-term driver of demand for steel (pipe replacement, repairs, upgrades of the water and gas supply grids).
We are looking at an aggregate potential consumption increment of 0.3–0.5 mmt in the pipe segment.

Automotive industry

Consumption growth in this segment is fueled by domestic manufacturers of goods vehicles. An output increment of approximately 160,000 units is anticipated by 2030. Car production figures are prone to volatility. Contrary to the growth forecasts for the domestic civil automotive industry, no steady growth pace is apparent. There was no notable upswing even after the prices of imported cars went up, or after restrictions were slapped on car importation into Russia. Russian car manufacturers have limited room for output growth due to strong pressure on the part of Chinese vendors, which offer competitive prices and more advanced controls and features. For the reasons stated above, an increment of 0.2 mmt in steel consumption may be expected in the automotive industry.

A considerable increment in railroad car manufacturing is predicted in the years leading up to 2030, numbering an estimated 30,000 units above the stable output level of the past 5 years, which translates to 0.8–0.9 mmt of steel

Railroad rolling stock manufacturing and shipbuilding

Increased railroad car manufacturing is a painfully controversial subject at the moment. Some 200,000 units are slated for retirement by 2030.[8] That is 15% of the freight car fleet. Due to the consistently high capacity utilization in the past 2 years, the risk of railroad car shortages was kept at bay by extending the service life of cars. This strategy will no longer work in the years remaining before 2030, partly on account of the security risks involved.

Russian Railways believes there is a surplus in excess of 200,000 freight cars in the network.[9] Given the current output growth rates (21% in 2024), the surplus stands to further increase to 310,000 units.

With that in mind, the company's representatives have voiced the idea that the manufacturing tempo may have to be reduced. That said, it would be wrong to assume that the freight car demand assessment methodology that Russian Railways continues to use has not changed since 2021. Freight car turnaround is down 17–40%, depending on the nature of the cargo. To a considerable extent, this is the result of a reduced network speed in the eastern direction, where surplus freight cars put extra strain on the stations, which, in the summer months, was exacerbated by construction work causing train delays. In fact, it is not altogether appropriate to speak of a general surplus of freight cars as few of them are interchangeable, and some types of freight cars (for example, gondola cars to ship crushed stone in the Urals) are seasonal, which means their peak season use would cause a regional shortage if it was not for the surplus fleet.

Assuming that the volumes of Russia's Asian trade remain high, exports increase on the back of Eastern Polygon development, and Russian Railways goes ahead with the planned freight car retirement, a considerable increment in railroad car manufacturing is predicted in the years leading up to 2030, numbering an estimated 30,000 units above the stable output level of the past 5 years, which translates to 0.8–0.9 mmt of steel.

Other segments of the machinery industry

With the supply ban on Western equipment and the launch of government initiatives in support of the industry, Russian machine tool manufacturing has received a powerful impetus to develop: the output of machine tools doubled in 2020–2023, reaching approximately 27,300 units. On the other hand, the use of steel is not expected to increase by 2030 in this industry. Conversely, it is predicted to fall by about 1 mmt as the need for steel declines in some segments of the machinery industry, reverting to the levels of 2015–2021.

Electrical equipment

Russia's electric power industry has faced increasing demand for generating capacity since 2021: consumption of electric power had climbed 4% by the end of 2023.[10] Electric power consumption will grow at an annual rate of 2% in the years remaining until 2023. In this sector, domestic manufacturing of gas turbines stands to emerge as the key driver of steel consumption, with an estimated increment of 0.1 mmt.

In our estimation, Russia's domestic market generally offers very limited growth potential for steel consumption in the years before 2030. Unless the structure of ferrous metal consumption undergoes systemic change, the said growth potential will add up to a total of 1.5–2.7 mmt, or even less if certain infrastructure projects are abandoned or the key interest rate remains high. The machinery industry may emerge as the main growth driver, mostly thanks to the rolling stock modernization initiative.

The path forward

The ongoing global slowing of economic growth will continue to depress demand for steel in the leading industrialized economies

In 2024–2027, the downward trend in steel demand, both globally and in Russia, will keep pushing the prices down to the 2017–2019 level, when they were about 25% below 2024

The overarching objective for Russian steelmakers at this time is to keep up a steady income stream. Three key trends will determine the steps that need to be taken to achieve this.

The ongoing global slowing of economic growth will continue to depress demand for steel in the leading industrialized economies. Manufacturers will eventually be forced to seek new markets for products they cannot sell domestically. China's steel industry has been hit the hardest by this trend. Chinese steelmakers continue to ramp up supply on the international market. They are expected to supply 50–60 mmt more steel for export in 2024 than they did in 2020. If the current volume of export trade remains the same, China will have exceeded 110 mmt in steel exports by the end of 2024.

Profit margins on steel have been shrinking under the pressure of rising production and shipping costs – at a rate no slower than inflation or the decrease in finished product prices. The rising prices of metal charge have had a significant impact on production costs. The price of scrap steel has already reached 50% of the price of hot-rolled sheet steel (up 10–15 pp from 2021), and accounts for nearly 80% of the cost of production. Lower demand notwithstanding, the prices of iron ore have gone up 10% vs 2023. By 2028, iron ore prices are expected to see an adjustment to the level of 2018–2020,[11] namely to USD 90–110 per tonne. The costs of logistics for steel will continue to grow. Given the high traffic pressure on the railway infrastructure and the urgency in implementing its investment plans, Russian Railways will be motivated to raise its tariffs at a pace no slower than inflation. Another factor in climbing production costs are the rising payroll costs, which increased 24% in 2021–2023,[12] and look set to rise a further 18% in 2024.[13] On top of all that, there is a large and growing staff shortage. This being a steady trend, salaries will continue to increase. In view of the above, in 2024–2027, the downward trend in steel demand, both globally and in Russia, will keep pushing the prices down to the 2017–2019 level, when they were about 25% below 2024.

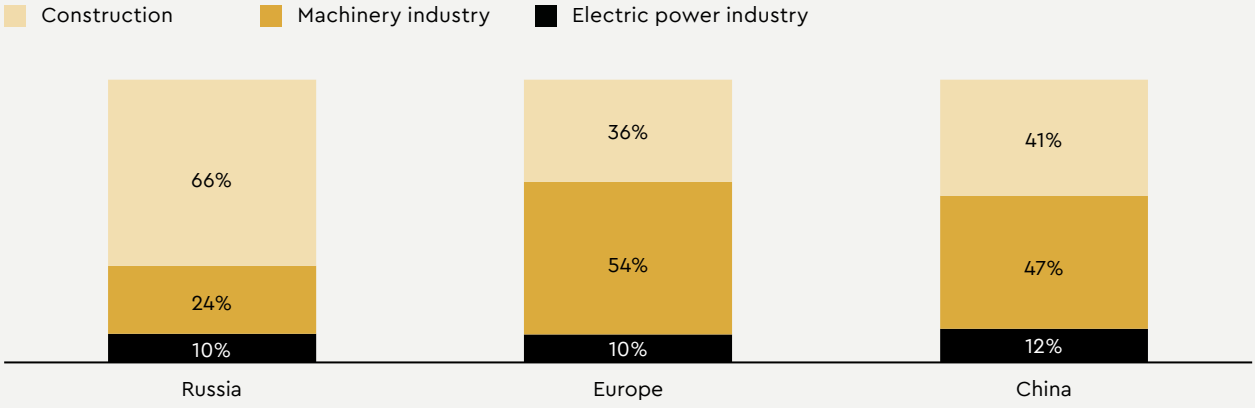
The third trend has to do with government regulation and incentives which, along with the macroeconomic environment, will play a crucial role in shaping the industry's development trajectory.

No serious export incentives are in sight for ferrous metal products. In view of the set upward trend in ferrous scrap prices, it is likely that the tariff-based quotas for scrap export outside the EAEU will be extended in order to curb the production cost rise. Up until now, China's surplus steel output has stayed away from the Russian market. However, if China's domestic consumption continues to shrink, the risk of Chinese steel exporters setting sights on Russia will increase. If the threat materializes, the industry will have to seek the government's support, namely measures to protect the market from further output contraction and price decline. It would hardly make sense, at this juncture, to expect the government to cut the industry a slack in terms of export duties or domestic taxes, seeing that the government has budget gaps to plug, and the industry's leaders are showing a profit.

All these trends already have an impact on corporate strategies, driving the shift from raising output volume by any means possible (even if this implies a higher cost of production), which was a successful strategy in 2021 and early 2022, toward securing a steady cash flow and maintaining profitability and current output amid an increasingly competitive environment both domestically and internationally.

In the current environment, characterized by decreasing profitability of steel sales and stagnant demand, it is imperative that the steelmakers revise their strategies with a focus on discovering new pockets of growth. International practice suggests that successful companies in this industry are never driven solely by external demand for steel products, but also take advantage of diversification opportunities as a way to secure the stability of income streams. Investments in market development, made possible by having both low value-added product manufacturers and end consumers within the same group of companies, offer a path toward more stable cash flows and more profitable commercialization.

Steel consumption in 2023



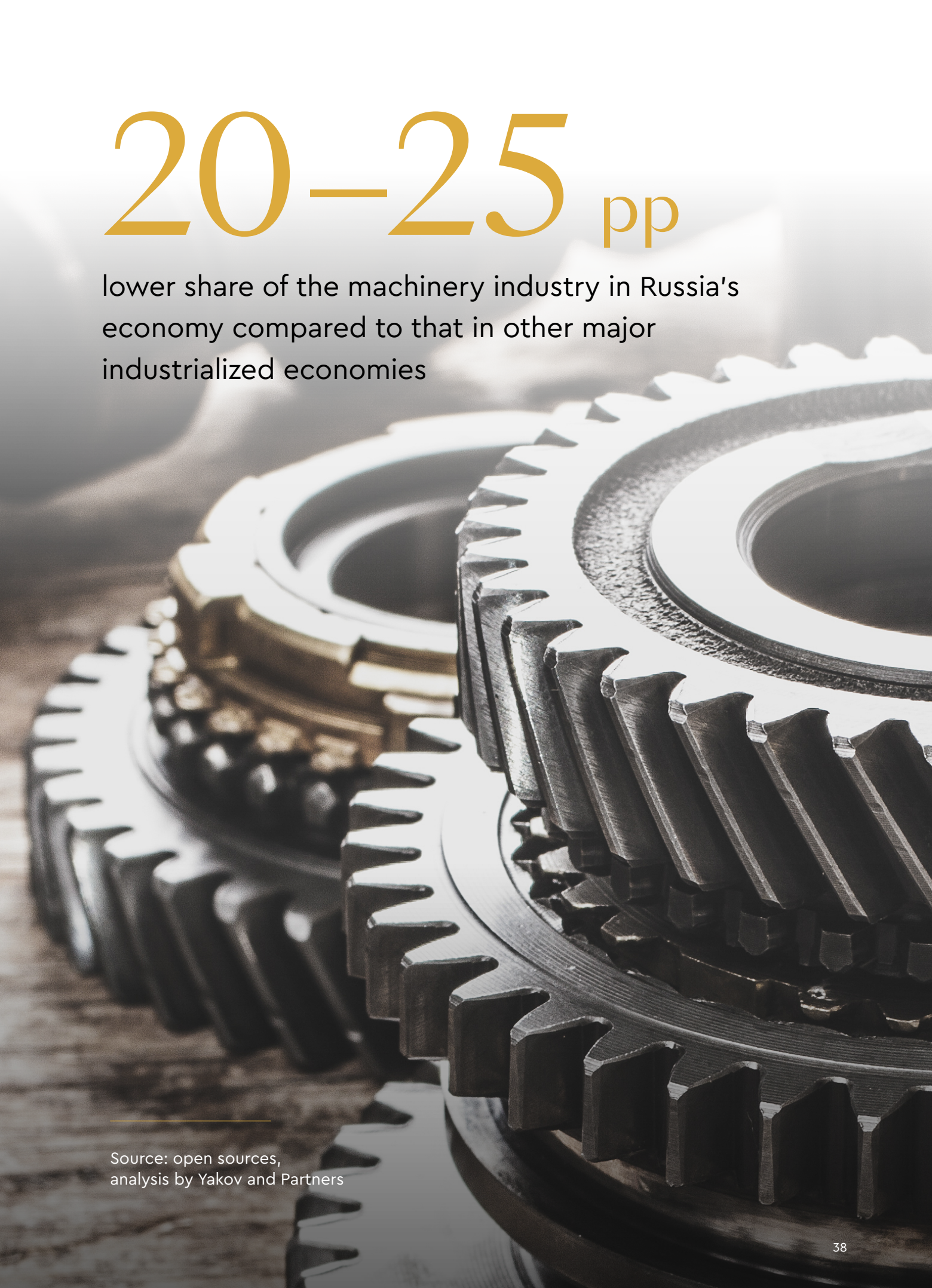
Source: Rosstat, official website of Severstal PJSC, Germany's industrial strategy, analysis by Yakov and Partners

As is evident from international practice, industrialized economies have often relied on the development of the machinery industry to boost the domestic consumption of steel in times of stagnating demand. Being the mainstay of any industrial growth and of the nation's living standards, the machinery industry usually remains stable amid general economic stagnation. It is relevant to speak of the machinery industry in the context of Russia, where its share in the national economy is 20–25 pp lower than in other major industrialized countries.

Germany, for instance, went through its own phase of diminished demand growth for steel products in the 1990s and early 2000s. Back then, in order to promote more intensive use of steel, authorities and major businesses prioritized growth in the machinery industry. But the automotive sector was not the key driver. Demand for steel rose 20% between 2002 and 2008, but only 4% in the automotive industry. Mining and smelting were the traditional areas of focus for ThyssenKrupp, Germany's largest steel manufacturer. At the end of the 1990s, however, the company went ahead with an aggressive business diversification bid,[14] launching assets in general mechanical engineering, elevator engineering, and manufacturing of special-purpose equipment. Steel manufacturing currently contributes only 32% of the company's revenues, a further 27% comes from mechanical engineering, and the rest of the revenue streams are generated by diverse service businesses.

20–25 pp

lower share of the machinery industry in Russia's economy compared to that in other major industrialized economies



Source: open sources,
analysis by Yakov and Partners

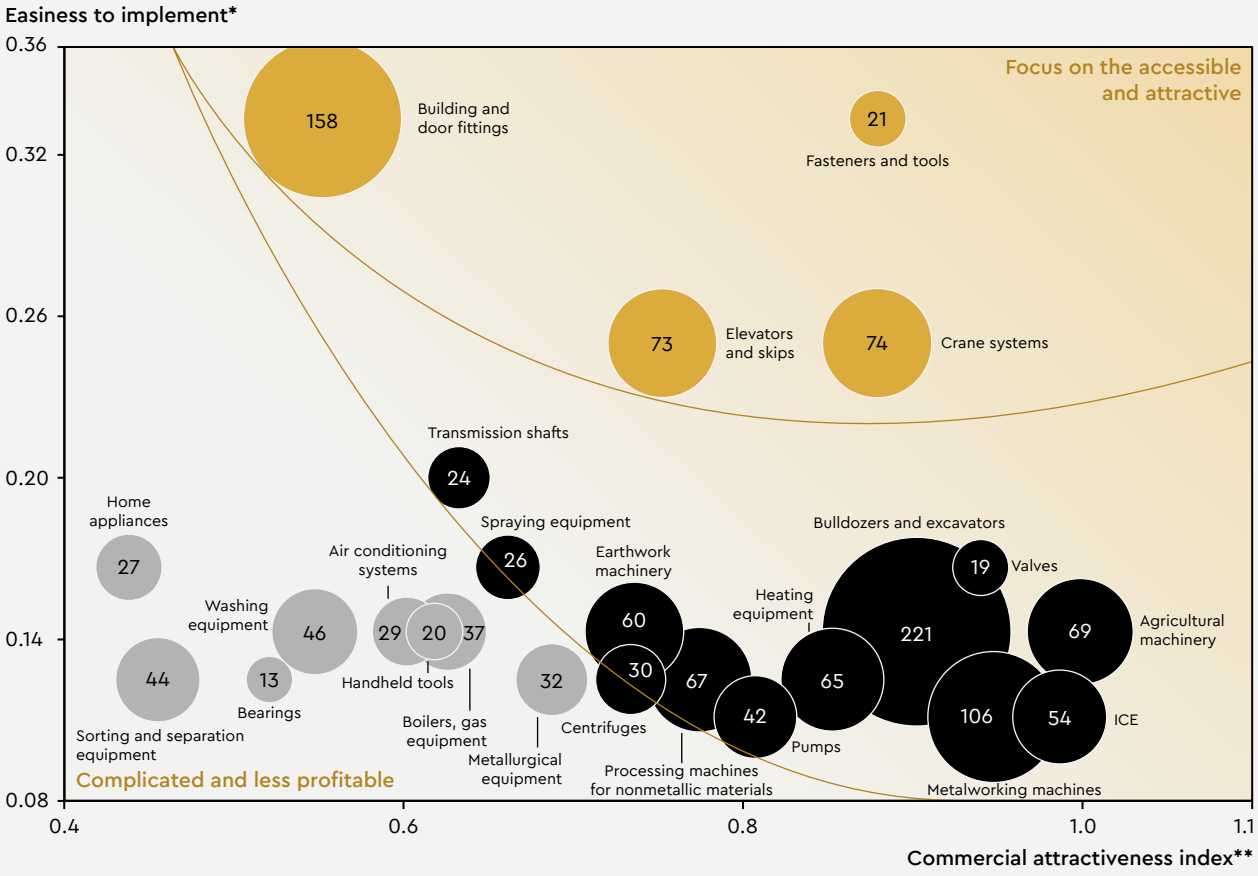
China produces 51% of the world's steel output, or 0.9 billion tonnes.[15] More than 95% of China's output is absorbed by the domestic market. Inspired by the example of more advanced economies, China has pursued a thoughtful and comprehensive development strategy for its machinery industry. Machinery manufacturers are vertically integrated from their very beginning. Whereas the customary implicit integration chain in Russia goes from mining to rolled steel manufacturing, China's integration concept also covers machinery manufacturing, and the high value-added segments generate substantial revenue streams. A case in point is China Baowu Steel Group, one of the world's top steel manufacturers with an annual output of 131 mmt.[16] The group grosses USD 150 billion in annual sales, but 20% of its revenue comes from service and machinery manufacturing businesses.

Some good examples of vertical integration can also be found in India. The organization of Heavy Engineering Corporation Ltd.,[17] for one, covers the entire manufacturing spectrum: casting, forging, smelting, mechanical processing of steel products, and assembly and testing of machinery. The company has supplied hardware to all integrated steel mills across India. Tata Steel offers the full range of supplies for home construction,[18] complete with a choice of designs, architects for hire, construction budgeting, and so forth. Now that's a great example of full vertical integration.

As the matters stand today, Russia imports a fairly large percent of metal-intensive products and machinery, to a total of 4 mmt or USD 31 billion. Some of that equipment is obviously high tech. Its localization would be a science-heavy process requiring world-class professionals and substantial investment in technological development. But some import categories are matched by competitive domestic technology, and yet domestic demand cannot be met due to a lack of machine manufacturing capacity in the country.

Localization concept matrix for machinery groups

XX Import, 2023, '000 tonnes



* Assessment from the perspective of competencies and manufacturing capacity available in Russia

** An integrated index reflective of export volume, cost per tonne of exported finished products, and profit margin

Source: UN Comtrade, analysis by Yakov and Partners

In our opinion, the development strategy for the machinery industry in Russia must be based on the composition of the import flows of goods sought-after in the country. We have examined Russia's market for imported goods and split it into three categories, depending on how easy it is to implement the product, and its commercial attractiveness index. To assess how easy the product is to implement, the information to take into account is whether Russia has the requisite competencies and capacity available, and the size of the necessary upfront investment in hardware and technological basis for manufacturing the product in question. The commercial attractiveness index assesses the product's potential profitability in relation to the cost of steel.

It is clear that the import substitution strategy should be built to address the largest product categories that are the easiest to implement. Using the purpose-designed matrix, subject to medium-term localization possibility, the following machinery categories may be singled out:

— Products that can be localized in the near term. These are commercially attractive goods, and sufficient competencies are available in Russia to launch the manufacture of the goods in question (crane systems, elevators, skips, fittings for buildings, fasteners, tools, and so on) in the near future.

— Products that must be localized to bridge the technological gap. These products are more sophisticated technologically, and have a solid commercial appeal (bulldozers, excavators, special-purpose machine tools, agricultural machinery, heating equipment, centrifuges, etc.).

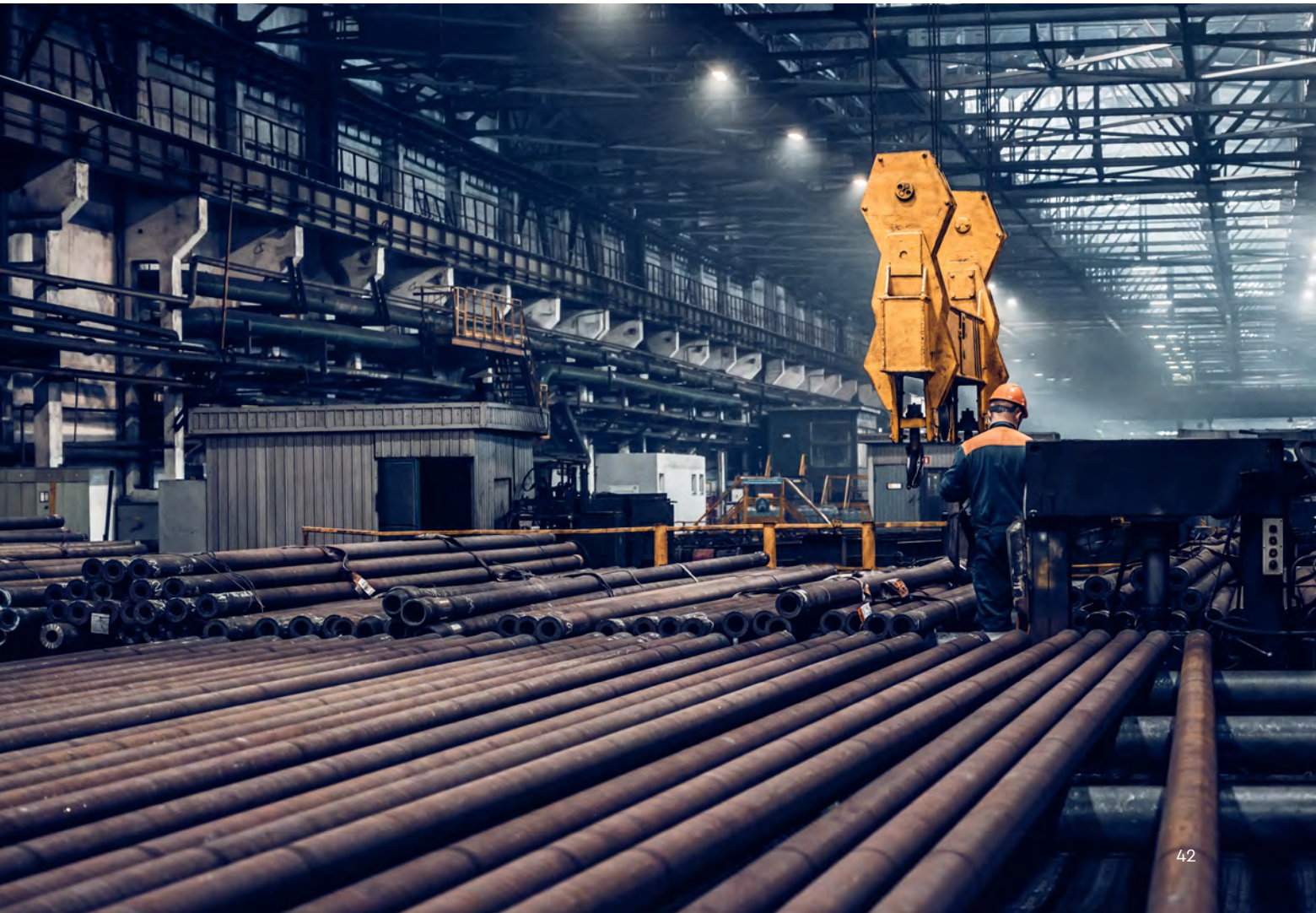
— Supplementary products of mechanical engineering. These products have a relatively low commercial appeal, combined with a high level of implementation complexity (sorting and separation equipment, air conditioning systems, boilers and gas equipment, home appliances, bearings, etc.).

Although the product markets listed above are rather modest consumers of steel, the strategy itself will propagate supplementary demand, first and foremost, for high value-added steel grades with high alloy content. The example of South Korea illustrates the point. The nation produced 67 mmt of steel in 2023. Some 97% (vs 64% in Russia), or 65 mmt, of the output were products with a greater processing depth than slabs or bars. More than 95% of the ferrous metal export revenues are concentrated in the high-margin segments: rolled steel and rebar. A country with an advanced and growing shipbuilding industry, South Korea has the highest per capita rate of steel consumption in the world: 1,056 kg in 2023[19] – 3.4 times above Russia and 1.7 times above China.

An average of 20% to 40% of the profit margin is lost per tonne of steel in 2024 when it is exported to Asia, as opposed to being used for machinery manufacturing

Following in the footsteps of the industrialized economies, the option is open for the steel companies to integrate machinery manufacturing assets into the larger fold of a group of companies, with a view to maximize profitability and make it less volatile. While the ferrous metals market shrunk nearly 30% between 2021 and the first half of 2024, the machinery industry showed robust growth: the output of motor vehicles and large-size electrical engineering equipment nearly doubled by unit count, and the output of freight cars climbed 40%. The other benefit is that, with companies created within the perimeter of the group, profit stays in the company and it is possible to keep all assets profitable. An average of 20% to 40% of the profit margin is lost per tonne of steel in 2024 when it is exported to Asia, as opposed to being used for machinery manufacturing.

Furthermore, it is important to keep working on projects meant to improve operational performance, investing in the economically viable automation and digitalization solutions despite the high cost of money. This effort will help to contain the rise of production costs and thus maintain profitability, while minimizing the adverse effects of staff shortages by raising productivity.



Conclusion

Amid the ongoing contraction of demand for steel on the back of the global economic downturn and falling metals prices, potential for export will, in most likelihood, continue to decrease, and a return to the financial performance of 2021–2022 will grow increasingly unlikely. In light of these long-term trends, it is imperative that businesses come up with competitive strategies to stabilize their operational and financial performance.

In 2024, the surplus of steelmaking capacity in China has already pushed Chinese exports up by about 20% from the 2023 level, causing a mounting global price pressure that compelled many nations to enact import restrictions on Chinese steel. So far, the state of affairs in the Asian ferrous metal markets has only had an indirect impact on the Russian steel industry. However, as competitive pressure heats up on the part of Chinese steel companies, the absence of adequate counter-dumping safeguards may tempt them to shift focus to the Russian market.

The prices of steel have continued to decline steadily in 2024, falling 11% below the average price for 2023 and 27% below the 2022 level in October. Most forecasts seem to vindicate the consensus that the 2023–2024 prices will remain in place until 2030. Meanwhile, the projected drop of mere 15% in the prices of iron ore by 2030, offset by other expenses rising at least apace with inflation, gives no hope of improvement in profitability. In conjunction with the trend for emerging economies to localize steel manufacturing, the above factors will work to significantly curtail the export potential.

As long as Russia sees no extensive economic growth by 2030, its domestic demand for steel is predicted to increase by 1.2–2.7 mmt. This growth, however, will be temporary, being predicated on the progress of selected infrastructure projects in the energy sector and a few other short-lived factors driving increased demand for steel products. At the same time, steel output is expected to decline in 2025–2027, mainly in consequence of falling demand in the construction industry, which has already manifested itself in the bottom lines for the first three quarters of 2024: steel output is down 5% to 6%, and the leading industry players have seen an EBITDA plunge of 5–27%.

Growth in the machinery industry could provide a steady, albeit insignificant in terms of physical volume, rise in demand. Moreover, the machinery industry would stimulate the output of high-margin, special-purpose steel grades potentially exportable to industrializing nations.

Unless steps are taken to improve operational efficiency and stabilize financial performance, the trend will persist in which business profitability will continue to decline and tax revenues will shrink.

Footnotes

1. World Steel Association, 2023.
2. Federal State Statistics Service.
3. UN Comtrade, analysis by Yakov and Partners.
4. Union of Railway Operators Market, analysis by Yakov and Partners.
5. Federal State Statistics Service.
6. Statement of the Finance Ministry of India, published in the media.
7. Consensus market assessment (public statement by Severstal).
8. Institute for Natural Monopolies Research, analysis by Yakov and Partners.
9. Public statement by Russian Railways, published in the media.
10. International Energy Agency, analysis by Yakov and Partners.
11. S&P Global Market Intelligence.
12. Federal State Statistics Service.
13. Ministry of Economy of the Russian Federation, "Wages to increase more than 30% in four years in Russia, says Economy Ministry," Vedomosti. – https://www.vedomosti.ru/economics/articles/2024/09/18/1062845-minek-ozhidaet-uvelicheniya-zarplat-rossiyan
14. History. – https://www.thyssenkrupp.com/en/company/history
15. World Steel Association, 2023; analysis by Yakov and Partners.
16. "China Baowu Group produces 130.8 million mt of crude steel in 2023," – https://www.steelorbis.com/steel-news/latest-news/china-baowu-group-produces-1308-million-mt-of-crude-steel-in-2023–1323468.htm; World Steel Association, 2023; analysis by Yakov and Partners.
17. Corporate website.
18. Corporate website.
19. World Steel Assotiation, analysis by Yakov and Partners.

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Commercialization Outlook for Russian Steel: Development of Domestic Consumption and Search for New Markets

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