



PRESS RELEASE

NORNICKEL

Public Joint Stock Company «Mining and Metallurgical Company «NORILSK NICKEL»
(PJSC "MMC "Norilsk Nickel", "Nornickel" or the "Company")

NORNICKEL PRESENTS METALS MARKET REVIEW

Moscow, November 29, 2021 - Nornickel, the world's largest producer of palladium and high-grade nickel and a major producer of platinum and copper presents the eighth review of the nickel and platinum group metals (PGM) markets prepared in alliance with ICBC Standard Bank on the basis of a fundamental analysis of world economic and industry data.

Full reports are available on [Nornickel's website](#).

Platinum Group Metals

This year was marked with a disruption in chip supply for the automotive industry – the key consumer of platinum group metals such as platinum and palladium. If in our market overview published in May 2021 we estimated that the lack of electronic parts would reduce automotive production by 2-3 million vehicles this year, by August-September, it was evident that the chip shortage would cut vehicle production by more than 8 million units making 2021 only slightly better than 2020 in terms of car production volumes.

On the supply side, this year saw a surge in output in South Africa which completely offset lower output in Russia due to mine floods and an incident at the Norilsk concentrator. Metal recycling was on track to beat the record high of 2019 this year as well, but it was subdued because of lower new vehicle availability and therefore lower car disposal rate.

Palladium

The automotive market failed to recover affecting the palladium market more significantly than the platinum market since the palladium use is heavily concentrated in this industry and demand recovery in other industries could provide only a partial relief. The primary supply of palladium added more than 0.5 Moz this year mainly due to the recovering production in South Africa and the release of work in progress material accumulated by Anglo Platinum and other African producers. These additional ounces were sufficient to offset the lower output in Russia completely. All this moved the market balance towards a mild deficit of 0.2 Moz this year. However, even the lower deficit didn't prevent the palladium price from reaching a new historical high.

In 2022, we expect that the chip supply will recover in the second half of the year but still, automotive production will struggle to return to the pre-COVID levels until 2023. Taking into account the improving Russian supply, we expect the market to be in a deficit of 0.3 Moz in 2022.

Platinum

In 2021 the platinum market, excluding investment demand, is expected to be in a surplus of 0.9Moz in 2021. Despite the growing use of platinum in heavy-duty vehicles in China due to the new emission regulation, as well as the record-high demand in the glass industry and an elevated demand from other industrial applications, this rising consumption can't absorb the 1.5 Moz additional supply that is coming from South Africa this year. At the same time, the investment demand is less buoyant in 2021, with ETF holdings relatively flat and physical investment one third lower than in 2020, making it difficult to consume the whole market surplus this year.

Next year, the demand is expected to stay relatively flat as the falling share of diesel cars in Europe offsets gains in other applications. At the same time, the metal production will continue growing, keeping the market in a 1 Moz surplus, excluding investments.

Although the market actively discusses palladium substitution with platinum, it has not yet become visible on a material scale, and the substituted amount will hardly exceed 150koz this year, mostly in diesel vehicles and a limited number of new gasoline powered cars.

The future growth of platinum demand is associated with the deployment of the hydrogen economy, a must-have element of a carbon-neutral future. While the sustainable development agenda is gaining more ground, we see substantial platinum consumption after 2025 only when electrolyzers and fuel cells become a new important pillar of the platinum demand.

Nickel

A series of supply curtailments together with exceptionally robust demand recovery and massive restocking throughout the value chain triggered by the logistical constraints have dramatically tightened the nickel market in 2021. As a result, we have revised the 2021 market balance and now expect the market to swing to a 149 kt deficit (52 kt surplus in the previous estimate) on the back of strong stainless and battery sectors as well as the significantly underperforming launch of Indonesian NPI capacities due to the COVID-related difficulties.

In 2022, we expect the market to swing to a 59 kt surplus in the base case scenario, mostly in low-grade nickel, and the high-grade nickel market is forecasted to be balanced with a risk of deficit. However, it is highly likely that the projected increase in supply could underperform yet again and the 20% YoY growth will not materialise, while nickel demand could remain as strong as in 2021.

On the one hand, the future market balance will be dictated by the success of the NPI and High Pressure Acid Leaching (ore processing) production launches in Indonesia, although the reliance on one country poses a considerable risk to the market. On the other hand, long-term nickel demand will benefit from the developing electric vehicles sector driven by government incentives across the world. In our base case scenario, we estimate the nickel consumption in batteries to grow above 1 Mt by 2030 to 30% of total primary nickel demand, which may require further revisions given the continuous introduction of more ambitious carbon neutrality goals, subsidies-driven electrification and cost optimisation of the battery cell production. The battery value chain requires low carbon nickel units, which are likely to be in deficit considering the projected pace of electrification. Additionally, nickel's essential role as a critical metal for a low carbon economy is further enhanced by its ever-increasing usage in renewable energy.

ABOUT THE COMPANY

MMC Norilsk Nickel is a diversified mining and metallurgical company, the world's largest producer of palladium and high-grade nickel and a major producer of platinum and copper. The company also produces cobalt, rhodium, silver, gold, iridium, ruthenium, selenium, tellurium, sulphur and other products.

The production units of Norilsk Nickel Group are located at the Norilsk Industrial District, on the Kola Peninsula and Zabaykalsky Krai in Russia as well as in Finland.

MMC Norilsk Nickel shares are listed on the Moscow and on the Saint-Petersburg Stock Exchanges, ADRs are traded over the counter in the US and on the London, Berlin and Frankfurt Stock Exchanges.

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