Scenario analysis of the consolidated financial and economic model until 2040

EBITDA deviation under stress scenarios from the Sustainable Palladium baseline scenario



Based on the updated scenarios, Nornickel conducted a scenario analysis of its consolidated financial and economic model until 2040. The analysis showed that under any scenario – whether accelerated decarbonisation or a global retreat from such efforts – Nornickel's basket of metals supports the resilience of its financial position through to 2040.

The analysis has shown that the EBITDA forecast is most favourable for the Company in the Global Growth scenario and least favourable in the Rapid

Product portfolio diversification

As part of the Company's Innovation and R&D Strategy, new products are being developed to seize market opportunities and mitigate risks associated with the energy transition.

Battery Technology Centre

In 2024, Nornickel inaugurated its Battery Technology Centre in Saint Petersburg, marking a new phase in the Company's efforts to advance technological capabilities in the promising field of nickel-containing cathode active materials a key component in modern batteries.

Transition scenario. The key growth drivers behind the highest EBITDA figures in the Global Growth scenario include the highest GDP and population growth rates, which will fuel the strongest demand for palladium and copper vs the other two scenarios. The Company estimates the probability of the Global Growth scenario at 5%.

Although the Rapid Transition scenario is based on the most aggressive decarbonisation rates, which is impossible without green metals - nickel and copper, - the scenario projects the global economy to slow down, with the lowest GDP and population growth rates. On top of that, the total car fleet, including the fleet of passenger EVs, hydrogen cars, and plug-in hybrids, in the Rapid Transition scenario will be lower than that in the Sustainable Palladium scenario as a result of the general trend towards reduction in car ownership and use as well as ridesharing development. The probability of the Rapid Transition scenario is estimated at 20%.

After 2034, the stress scenarios are closer to the Sustainable Palladium baseline scenario due to their different metal price growth rates, which are higher in Rapid Transition and, in contrast, lower in Global Growth vs Sustainable Palladium.

The new centre will focus on the development and research of battery materials using state-of-theart process equipment unique in Russia, enabling the full cycle of synthesis and testing under specialised conditions.

Nornickel's R&D centre has already produced the first samples of cathode materials for NCM 811+ chemistry, with further research planned to develop new products. The outcomes of the Battery Technology Centre's efforts are expected to lay the groundwork for future production projects in the battery materials sector.



China market outlook

In 2024, employees of the Palladium Centre participated in the China Precious Metals Industry Development Forum held in Xi'an, China.

According to CPMIC experts, prospective demand for PGMs in the Chinese market is projected to reach 5.6-6.5 Moz by 2035.

Greentech focus area

In green technologies, the Centre has developed a suite of new materials for alternative energy applications.

Hydrogen energy

New palladium-based materials improve the efficiency of the entire value chain: electrolyser catalysts (boosting energy efficiency by 5%–10%), membranes for ultra-pure hydrogen production (reducing hydrogen cost by a factor of three), and fuel cell catalysts (increasing catalytic activity by 5%-10% and halving degradation rates). All of these materials underwent intensive industrial trials with Chinese consumers in 2024, and the first commercial batches are expected in 2025



Palladium Centre

Nornickel has also established its dedicated Palladium Centre (the "Centre"), which develops, tests, and brings to market new palladium-based materials that support the accelerated transition to green technologies and help reduce carbon footprints.

Due to their properties, platinum group metals are used in industry as catalysts, components of creep-resistant alloys (to prevent oxidation and ensure mechanical strength), and contact coatings (to minimise electrical signal loss).

In most cases, palladium demonstrates superior catalytic activity, hydrogen permeability, oxidation resistance, electrical conductivity, and magnetic susceptibility – all of which directly impact the efficiency of various technological processes. These characteristics underpin palladium's strong potential to enhance the performance of alternative energy and high-tech industries.

The Centre is actively building a partner network that involves joint research and development with Russian and international institutes and laboratories. as well as collaboration with commercial customers to accelerate the market launch of new products.

The Centre's portfolio currently comprises over 25 developments across three distinct application areas - greentech, high-tech materials, and traditional uses. In the long term, over 100 new palladiumcontaining materials are planned to be brought to market. Their application is expected to drive at least 40–50 tonnes of new palladium demand by 2030.

Solar power

Laboratory testing of new palladium-containing components designed for silicon and perovskite solar panels (offering a projected efficiency increase of 1–2 %) is expected to be completed in early 2025

Aviation fuel

The development of new catalysts designed to enhance the efficiency of sustainable aviation fuel synthesis from plant-based feedstocks is planned for 2025