

KEY STRATEGIC PROJECTS

South Cluster



Location: Norilsk Division, Norilsk industrial District, Krasnoyarsk Region

Project description: in 2017, the South Cluster was spun off as a separate legal entity Medvezhy Ruchey, a wholly-owned subsidiary of the Norilsk Division. The South Cluster includes the Norilsk-1 deposit with disseminated ore reserves of over 140 mln t, Zapolyarny Mine (open-pit and underground mining), Norilsk Concentrator, and two tailings storage facilities: No. 1 and Lebyazhnye.

Ore production schedule

Period	2022	2023	2024
Ore output, mln t	2–3	3–4	5–6

2027 mining targets

Ore output
9 mln t

PGMs
750–850 koz

Ni
over 13 kt

Cu
over 20 kt

THE PROJECT AIMS TO RAMP UP ANNUAL ORE PRODUCTION TO 9 MTPA BY 2027 BY EXPANDING THE PIT AT THE FIRST STAGE AND BY UNDERGROUND MINING AT THE SECOND STAGE. INVESTMENTS TOTALLED USD 304 MILLION (RUB 22.3 BILLION) IN 2021.

PROJECT IMPLEMENTATION STAGES

2021

- Development striping completed
- Positive opinion of the Main Department of State Expertise (CGE) secured
- Tendering for the construction of major facilities completed
- Contracts for the construction of major facilities signed

2022–2023

- Plans to complete the construction of the open pit (Stages 2 and 3) and the underground mine (Stage 2)



Bystrinsky GOK

The Company owns 50.01% in GRK Bystrinskoye (Bystrinsky GOK).



Location: Gazimuro-Zavodsky District, Zabaykalsky Region

Project overview: Bystrinsky GOK is Nornickel's greenfield project, which includes an open pit mine at the Bystrinskoye deposit, a mining and processing plant (GOK) with all associated infrastructure including a power line and the 227-km Borzya-Gazimursky Zavod railway

line (Nornickel 25%, the government 75%), as well as a rotation camp. Bystrinsky GOK came online in 2019 and ramped up to design capacity in 2020. The project's EBITDA for 2021 was USD 1,076 million (2020: USD 717 million).

Operational highlights

Item	2021	2022П
Ore processing, mln t	10.5	10.5
Copper in concentrate, kt	67.8	64-68
Gold in concentrate, koz	258	225-245



Proven and probable ore reserves:

281
mln t, with

copper content
~0.6%,

iron in magnetite ore
~14.9%,

gold
~0.63 g/t.

Concentrator capacity upgrades

TOF-3 PROJECT



Location: Talnakh Concentrator, Norilsk Division, Norilsk industrial District, Krasnoyarsk Region

Project overview: upgrade of Talnakh Concentrator (TOF) includes three stages:

- TOF-1 (completed in 2015): equipment upgrade, resulting in a 1% increase in nickel recovery
- TOF-2 (completed in 2018): new mills installed; the concentrator capacity increased to 10.2 Mtpa; the first stage of the tailings storage facility launched
- TOF-3 (under construction; scheduled for completion in 2023; ramp-up to design capacity by 2024): plans to increase capacity to 18 Mtpa (with a 4%–7%

increase in recovery), build the second stage of the tailings storage facility, increase the capacity of ore products storage to 190 million m³. Investments into TOF-3 will total RUB 74.8 billion (more than USD 1 billion). In 2021, RUB 12.3 billion (USD 167 million) were spent, including investment in the construction of the tailing dump's 2nd Stage

MAIN STAGES OF THE TOF-3 PROJECT

2021:

- A construction and installation contract with a general contractor and an equipment supply contract concluded

2022:

- Planned completion of the detailed design phase
- Conveyor equipment delivery

2023-2024:

- Planned delivery and installation of equipment
- Completion of construction and installation, startup and commissioning

NOF PROJECT

Location: Norilsk Concentrator, Norilsk Division, Norilsk Industrial District, Krasnoyarsk Region

Project overview: construction of a new concentrator to process disseminated ores with a throughput capacity of up to 18 Mtpa of ore to replace the existing Norilsk

Concentrator. The new concentrator will meet all industrial safety requirements while ensuring uninterrupted operations. The construction is planned to be carried out in two stages and completed in 2026–2027:

- Stage 1: startup of the first section with a capacity of 9 Mtpa of ore
- Stage 2: startup of the second section for the co-processing of disseminated ores from Talnakh and ores from the South Cluster and Maslovskoye deposit, with a total capacity of 9 Mtpa of ore

MAIN STAGES OF THE PROJECT



2021:

- Engineering surveys completed

2022–2023:

- Planned development of Main Technical Solutions and design documents
- Construction of a dormitory
- Procurement of equipment



Smelting capacity upgrades



Location: Nadezhda Metallurgical Plant, Norilsk Division, Norilsk Industrial District, Krasnoyarsk Region

Project overview: upgrade of smelting facilities at Nadezhda Metallurgical Plant to boost output and have spare capacity.

Nadezhda Metallurgical Plant facilities will be upgraded in three stages:

- Stage 1 (completed in 2016): flash smelting furnaces upgraded to boost output to 2.4 Mtpa
- Stage 2 (completed in 2021): output increased to 2.6 Mtpa
- Stage 3 (under construction, scheduled for completion by 2025) includes the construction of a third furnace with a capacity of 960 ktpa, to be integrated into the Sulphur Project 2.0 The Sulphur Project 2.0 includes gas capture, sulphur dioxide recovery and sulphuric acid production for subsequent neutralisation with limestone
- Investments into the furnace project will total RUB 105.5 billion (about USD 1.4 billion), including RUB 1.8 billion (USD 24 million) in 2021.

PROJECT IMPLEMENTATION STAGES

2021:

- Engineering and cost-estimate documentation completed
- Positive opinion of state environmental review secured
- Manufacturers of core equipment selected

2022–2025:

- Plans to obtain a positive opinion of the Main Department of State Expertise
- Obtaining a construction permit
- Contractor selection and construction and installation phases
- Detailed design
- Equipment and material delivery

Refining capacity upgrades



Location: Kola Division, Monchegorsk, Murmansk Region

Project overview: a project to build a new copper refining facility including a new roasting, leaching and electrowinning line with a capacity of 150 ktpa of copper. Startup is scheduled for 2025, with investments in the project totalling about RUB 107 billion (USD 1.4 billion), including RUB 1.1 billion (USD 15 million) in 2021.

PROJECT IMPLEMENTATION STAGES

2021:

- EP contracts for engineering, equipment supply and on-site services concluded
- Contracts for engineering surveys and dismantling concluded

2022:

- Plans to conclude C contracts for construction and installation
- Execution of EP contracts

Sulphur Project in the Norilsk Division

Location: Norilsk Division, Norilsk industrial District, Krasnoyarsk Region



Project overview: The Sulphur Project 2.0 in the Norilsk Division is the largest environmental project in Russia aimed at gradual reduction of sulphur dioxide emissions in the Norilsk Industrial District by 90% from a 2015 baseline. Investments in the project will total about USD 4.1–4.3 billion between 2019 and 2025. A total of RUB 39 billion (USD 526 million) were

invested in the project in 2021. The project is implemented in stages at the Company's two core downstream facilities.

RUB 39 bn were invested in the project in 2021.

NADEZHDA METALLURGICAL PLANT

The project includes the construction of furnace gas recovery facilities, a sulphuric acid neutralisation line, and associated infrastructure, including a gypsum storage facility. The project provides for the recovery of gases from smelting operations, covering the smelting expansion (the third

smelting complex project). The expected impact includes a reduction of total SO₂ emissions from the Norilsk Division facilities by 45% in 2023 from a 2015 baseline. Total investment is RUB 98.8 billion, including RUB 32.2 billion (USD 438 million) in 2021.

RUB 32.2 bn were invested in the project in 2021.



PROJECT IMPLEMENTATION STAGES

2021:

- Construction and installation contracts concluded
- Four general contractors engaged, almost 2 thousand employees and over 232 items of machinery mobilised
- Core equipment contracted and is in the process of delivery
- Foundations laid, steel structures erected, building walls constructed, and gypsum storage dam built
- Transport corridor provided for the transportation of structures and equipment
- Installation of core equipment (ball mills, sulphuric acid tanks, wet electrostatic precipitators, cooling towers, mixing towers, and pipelines) commenced

2022:

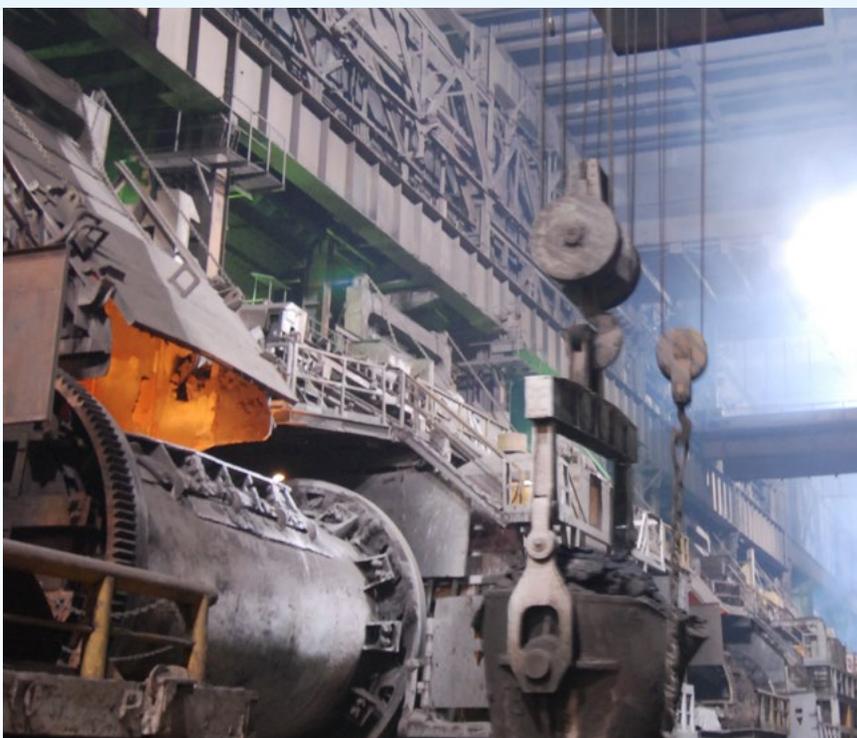
- Plans for the startup and commissioning of the first stage

COPPER PLANT

The Sulphur Project 2.0 at Copper Plant includes several key projects.

Construction of a continuous converting complex and an acid neutralisation line. The expected impact includes a reduction of total SO₂ emissions from the Norilsk Division facilities by 90% in 2025 from a 2015 baseline. Investment in the project will total RUB 53.7 billion, including RUB 0.96 billion (USD 13 million) in 2021.

Upgrades of existing and construction of new facilities at Copper Plant to recover SO₂ from metallurgical furnace off-gases and produce sulphuric acid, with recovery in excess of 99.5%. In 2021, Main Technical Solutions were developed, engineering surveys completed, a construction contractor selected, an EP contract to supply core equipment and develop design documents signed, and the selection process for a construction contractor is underway. Investment in the project will total RUB 73 billion, including RUB 3.4 billion (USD 47 million) in 2021.



A KEY INITIATIVE WITHIN THE SULPHUR PROJECT 2.0 IS TO LAUNCH THE NEUTRALISATION OF SULPHURIC ACID PRODUCED AT COPPER PLANT AND STORING 4 MTPA OF THE RESULTING GYPSUM IN A GYPSUM STORAGE FACILITY.

To accomplish this, survey and engineering activities began in 2021, the Main Technical Solutions were developed, and public consultations were held. Investment in the project will total RUB 51 billion, including RUB 193 million (USD 3 million) in 2021.

RUB 3.4bn were invested in the project in 2021.

Sulphur Project in the Kola Division

Location: Kola Division, Murmansk Region



Project overview: The Sulphur Project 2.0 in the Kola Division was completed in 2021. The copper refining facility in Monchegorsk was shut down in March 2021 and smelting shop in Nickel town was shut down in December 2020, reducing sulphur dioxide emissions from Kola MMC by 78% in 2021 compared to 2020 and 90% in 2021 compared to a 2015 baseline.

Reducing SO₂ emissions from Kola MMC

by **78%** y-o-y

by **90%** 2021 vs 2015