Taimyr Peninsula

Project location

Talnakh, Norilsk Industrial District.

The purpose of the project is to ramp up output of processed rich and cuprous ores from 7.7 mtpa to 10.2 mtpa and boost concentration efficiency (after Stage 2 is launched).

Key features

Output
of 10.2 mtpa (after Stage 2 is launched)

Increased nickel content in nickel concentrates
from 8.6% to 13.5%

Reduced shop area costs due
to a 12% decrease in sulphide mass in the concentrate received (starting 2016)

Increased sulphur disposal to tailings
by 16%

2015 CAPEX
of over RUB 15 bn (USD 257 m)

Outstanding CAPEX
of c. RUB 14 bn

IRR (Stages 1–2)
>40%

The main phase of a major Talnakh Concentrator reconstruction project was launched in April 2014, marking completion of the preparatory work and start of the core process equipment assembly. Stage 1 was commissioned in January 2015.

Talnakh Concentrator's Stage 2 will see expansion of the main building, reconstruction of the reagent preparation building, and construction of several new facilities. This will be equivalent to constructing a new concentrator capable of processing all ores from the Talnakhskoye Field.

Project status

- Stage 1: put into operation in Q1 2015
- First stage of the tailings pit: progress — 40%

Project schedule

Launch and commissioning of Stage 1 (maintaining the existing capacities)	Launch of processing capacities at Stage 2	Commissioning of Talnakh Concentrator's new tailings pit	Full-scale commissioning of Stage 2
Q1 2015	Q2 2016	Q4 2016	Q1 2017

Average metal content

Ni Cu Pt Pd

Project location

Skalistaya mine is located on the Taimyr Peninsula, in the Norilsk

2.8 % 3.3 % 1.7 g/t 7.8 g/t

Industrial District, on the outskirts of Talnakh.

The project seeks to gradually boost the annual ore output from 0.95 mt to 2.4 mt by 2023.

The targets are to be met by stripping and preparatory operations as regards rich and cuprous ore reserves of the Talnakhskoye and Oktyabrskoye fields.

Key features

Output
to 2.4 mtpa of rich ore

Reserves
of 58 mt of ore

2015 CAPEX
of c. RUB 16 bn (USD 256 m)

Outstanding CAPEX for 2016–2021
of over RUB 80 bn

IRR
>32%

Project status

- Stage 1: put into operation in 2015 (ore production facility with an annual capacity of 500 kt of rich ore)
- Sinking: 235 m of ventilation shaft-10 (1,372 out of 2,053 m completed) and 443 m of skip-cage shaft-1 (895 out of 2,053 m completed); drifting: over 2.2 km

Project schedule

Capacity commissioning (500 kt)	Capacity commissioning (150 kt)	Production ramp-up (up to 1.75 mt)	Completion of ventilation shaft-10	Completion of skip-cage shaft-1	Production ramp-up (up to 2.4 mt)
2015	2016	2017	Q1 2018	Q4 2019	2021

Average metal content

Ni 2.8 % Cu 3.3 % pgm 7.3 g/t

Project location

Taimyrsky Underground Mine produces rich copper-nickel ores from the Oktyabrskoye Field located in the south of the Taimyr Peninsula within the area of Norilsk in the industrial zone of the Talnakh District.

The project seeks to develop the mineral resource base and boost production of rich ore from 3.5 mtpa to 3.9 mtpa by 2020.

Key features

Ore reserves
of 63.0 mt

2015 CAPEX
of c. RUB 4 bn (USD 72 m)

Outstanding CAPEX for 2016-2020
of over RUB 18 bn

IRR
>60%

Project status

- Underground workings in 2015: over 7.6 km
- Capacities commissioned in 2015: 0.8 mtpa

Project schedule

Capacity commissioning 800 тыс. т	Capacity commissioning 2(200 kt of rich ore)	Capacity commissioning (100 kt of rich ore)	Capacity commissioning (800 kt of rich ore)	Production ramp-up (up to 3.9 mt)
2015	Q3 2016	Q3 2017	Q4 2018	2020

Average metal content

Ni 1.0 % Cu 3.1 % pgm 7.6 g/t

Project location

Oktyabrsky Mine produces rich, disseminated and cuprous ores from the Oktyabrskoye Field located in the south of the Taimyr Peninsula.

The project is aimed at maintaining the current annual production level at 5.2 mt of ore until 2023.

Key features

Ore reserves
of 59 mt

2015 CAPEX

of c. RUB 3 bn (USD 70 m)

Outstanding CAPEX for 2016-2020

of over RUB 9 bn

IRR

>75%

Project status

- Underground workings in 2015: over 7.1 km
- Capacities commissioned in 2015: 1.0 mtpa

Project schedule

Capacity commissioning (1,000 kt)	Capacity commissioning (250 kt of disseminated ore)	Capacity commissioning (100 kt of rich ore)	Capacity commissioning (50 kt of rich ore and 700 kt of cuprous and disseminated ore)	Capacity commissioning (300 kt of cuprous and disseminated ore)
2015	2017	Q1 2019	Q2 2020	2020–2025

Average metal content

Ni 1.5 % Cu 1.8 % pgm 5.3 g/t

Key features

Reserves

of 24.9 mt of ore

2015 CAPEX

of over RUB 2 bn (USD 45 m)

Outstanding Capex for 2016-2020

of over RUB 15 bn

IRR

>50%

Project location

Komsomolsky Mine is located in the Norilsk Industrial District on the outskirts of Talnakh.

The project is aimed at maintaining the current annual production level at 3.8–4.1 mt of ore until 2020.

Project status

- Underground workings in 2015: over 4.7 km
- Capacities commissioned in 2015: 0.7 mtpa

Project schedule

Capacity commissioning (700 kt of disseminated ore)	Capacity commissioning (100 kt of rich ore)	Completion of the western backfilling shaft at Komsomolskaya mine Maintenance of the retired capacities (200 kt)	Capacity commissioning (300 kt of rich ore)	Capacity commissioning (100 kt of rich ore)
2015	2016	2017	2018	2020

Project location

Talnakh, Norilsk Industrial Dinstrict.

Key features

Nickel Plant

Schedule for the shutdown of Nickel Plant includes:

- decommissioning of the sintering and smelting shops (starting April 2016);
- shutdown of the sintering, smelting and roasting shops (Q2 2016);

Nadezhda Metallurgical Plant (NMP)

- Processing of all of Polar Division's nickel concentrate by means of ramping up annual pyrometallurgical capacities to 2.4 mt of ore. 2015 Capex of c. RUB 3 bn. Outstanding Capex for 2016 of c. RUB 0.6 bn.
- Upgrade of capacities to process Copper Plant's nickel slag in the amount of up to 150 ktpa. 2015 Capex of RUB 0.1 bn.

Copper Plant

- Transfer of sodium bisulphate production capacities from Nickel Plant's Sintering Shop. 2015 Capex of RUB 0.2 bn.

The Talnakh Concentrator upgrade and the Nickel Plant shutdown are expected to decrease emissions by

- shutdown of the chlorine-cobalt and nickel electrolysis shops (until 30 September 2016);
- shutdown of non-production units (Q4 2016).

Since June 2015, the Company has been signing new employment contracts with Nickel Plant's employees as part of their transfer to the subsidiaries.

- Processing of Copper Plant's solutions. 2015 Capex of c. RUB 10 m. Outstanding Capex for 2016–2017 of over RUB 2 bn.
- Transfer of all nickel feedstock from Norilsk Concentrator. 2015 Capex of RUB 0.5 bn.

15 %

Project status

- NMP upgrade to process nickel slag from Copper Plant: construction and installation works completed
- Transfer of the nickel feedstock from Norilsk Concentrator to NMP: completed
- Flash smelter refurbishment at NMP: completed
- Transfer of the sodium bisulphate production to Copper Plant: completed
- Relocation of Nickel Plant's trunk engineering networks: in progress

Shutdown of All Shop Areas of Nickel Plant from 1 September 2016 and Expansion of Nadezhda Metallurgical Plant's Pyrometallurgical Capacities to Process All Nickel Feedstock of the Polar Division (a comprehensive project).

Under its strategy, the Company has launched comprehensive reconfiguration of the metallurgical capacities, which envisages processing of all nickel feedstock of Polar Division at Nadezhda Metallurgical Plant and transfer of refining operations to Kola MMC and Harjavalta. As part of this reconfiguration, the Company also plans to shut down Nickel Plant, its oldest asset that was commissioned back in 1942.

The shutdown of the plant located within the urban limits is scheduled for 2016 and will significantly improve Norilsk's environment, as it emits 400 kt of sulphur dioxide. Talnakh Concentrator upgrade and Nickel Plant shutdown are expected to decrease emissions by 15%.

Sulphur project

Design and introduction of technical and project solutions to extract elemental sulphur from waste gases of Nadezhda Metallurgical Plant's flash smelters, and reduction of sulphur dioxide emissions down to the threshold prescribed by regulations.

Key features

Output
of up to 600 ktpa of sulphur

Sulphur dioxide utilisation rate
of at least 95%

2015 CAPEX
of RUB 1.3 bn

Completion projected
for 2019

Project status

- In 2015, design documents for sulphur production were drawn up
- Russia's State Expert Review Board approved the design documents and the results of engineering surveys and inspections
- The tender for contractor selection is in progress
- Engineering surveys for the Engineering Documents stage were completed
- Design documents for power supply infrastructure projects are prepared
- Preparations on the construction site are underway

Sulphur project

Design and introduction of technical and project solutions to extract elemental sulphur from waste gases of Copper Plant's Vanyukov furnaces, and reduction of sulphur dioxide emissions down to the threshold prescribed by regulations.

Основные характеристики проекта

Output
of up to 280 ktpa of sulphur

Sulphur dioxide utilisation rate
of at least 95%

2015 CAPEX
of c. RUB 0.5 bn

Project status

- In 2015, Licence Agreements, Operation Assurance Agreements and Agreements on the Preparation of Final Process Design Packages were signed with technology licensors (LGI and MECS)
- Preparation of design documents underway

Completion projected

for 2020