MODERNISATION OF DOWNSTREAM ASSETS FOR BETTER PERFORMANCE

10.2 mtpa

Talnakh Concentrator's design capacity

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CHAIRMAN'S LETTER

Dear Shareholders,

In 2016, our business continued to face challenges posed by metal prices softness and currency volatility on the back of weaker growth expectations. Yet, at Nornickel, these demanding conditions have confirmed that the things we do control – such as development of Tier I assets, prudent capital allocation and cost controls – have not only helped us to deal with those challenges, but to strengthen our business model and position us as the industry leader for the years ahead.

Gareth Penny

Gareth Penny
Chairman of the Board of Directors
PJSC "MMC "Norilsk Nickel"

Despite macroeconomic challenges that put some pressure on our financial position, we did not lose sight of our objectives. In fact we accelerated our strategic transformation and delivered a number of notable accomplishments by investing USD 1.7 billion in our business during the year. We launched the upgraded Talnakh concentrator with expanded capacity and completed most projects related to the modernisation of Nadezhda smelter. More importantly, we closed the Nickel Plant in Norilsk. The shutdown of this outdated and pollutive facility is one of the key milestones of a large-scale downstream reconfiguration programme, which had put a strong emphasis on improving the Company's environmental footprint. We also continued the development of our highly profitable brownfield upstream projects in the Polar Division, as well as the Bystrinsky copper-gold project in Russia's Siberia.

Throughout 2016, our Board and management team acted on several fronts to ensure that Nornickel would not only address current macroeconomic challenges, but also have the foundation for continued success regardless of external conditions. We continued the implementation of the cost reduction programme announced in 2015 and managed to deliver good financial results. Despite low metal prices and appreciating local currency, we delivered EBITDA of USD 3.9 billion posting an industry-leading margin of 47%.

As many of you know, competitive dividend has been the Company's priority for the last four years and is still one of the pillars of Nornickel's equity story. Following this pattern, we paid an interim dividend for nine months of 2016 in the amount of USD 7.4 per share, and the Board recommends to pay additional USD 7.8 per share as the final dividend for the year 2016. At the same time, maintaining a sound balance sheet and sustaining investment-grade credit rating is also of critical importance for us. As a result, in April 2016 the Board of Directors decided to amend the dividend policy of the Company by pegging the dividend payout ratio to the net leverage. That decision came amidst an unprecedented plunge in metal prices and is designed to ensure both sustainable dividend yield and a well-protected balance sheet.

We are continuing to take a systematic approach to identify and eliminate unsafe practices in our workplaces. In 2016, we continued to enhance our serious injury and fatality prevention programmes, started the implementation of the new Risk Control programme, updated a number of related corporate standards and rolled them out to all subsidiaries. We also started an independent audit of our occupational safety practices and managerial competences in order to assess the changes we implemented in the last three years. We believe that developing strong safety leaders is also paramount and conducted HSE training for over 300 managers and 4,000 new employees.

Turning the page to 2017, market visibility remains limited. In the second half of the year the situation on global commodity markets has stabilised and even improved, but remains fragile. Despite this uncertainty, I want to assure you that our company is well positioned to succeed. Our low-cost structure and disciplined approach to capital allocation make Nornickel resilient to macroeconomic headwinds and, thus, one of the best positioned investors in the metals and mining sector.

We continue to build on our long legacy of industrial leadership and core values – reliability, responsibility, efficiency, professional excellence and teamwork – to create a future of sustainable value creation over the long term.

PRESIDENT'S LETTER

Dear shareholders,

The year 2016 is now over, and its results fully confirm the advantages of Nornickel's business model and the Company's capability to demonstrate solid operating and financial performance amid a challenging economic environment. By closely following the strategy, practising responsible investments and harmonising the work of all employees, we were able to make our Company stronger, more efficient and safer.

The past year was notable for extremely volatile metal prices and exchange rates. Sluggish global economic growth and political uncertainty greatly affected financial and commodity markets, significantly complicating key investment and management decisions. Back in early 2016, prices for nickel, copper and platinum group metals dropped to multi-year lows, while in the second half of the year, fiscal stimulus in China and monetary easing pursued by major central banks stoked a strong rally in commodities and a return of upbeat sentiment to the industry.

However, it would be premature to talk about stable growth, so during 2016, we stayed on the course that we took four years ago, reducing production costs and sticking to the budget in implementing the investment programme.

Furthermore, given the continuing uncertainty in global markets, we believe that we should balance long-term capital expenditure, dividend yield and leverage. This is why the Board of Directors decided to adjust our dividend targets, linking the level of annual payments to the leverage. This should ensure that, on the one hand, all shareholders receive a stable dividend income, and on the other hand, Nornickel maintains a strong financial position.

In spite of the challenging macroeconomic environment, Nornickel kept the pace of downstream reconfiguration and successfully implemented key investment projects. The modernization programme announced in 2014 reached its most active phase last year.

In May, the Company commissioned Stage 2 of Talnakh Concentrator and completed most of the upgrade at Nadezhda Metallurgical Plant. In August, we shut down Nickel Plant ahead of schedule, with all converter matte from Polar Division now sent for further processing to Kola MMC and Finland. Going forward, this development will enable the Company to avoid using third-party feedstock and thus boost production profitability.

We are well aware that the Company's financial performance is directly dependent on its employees, and therefore their health and safety are absolute priorities for us. We have yet to achieve the zero target in this area, stepping up measures to prevent accidents and workplace injuries. In 2016, we implemented a corporate health and safety change management standard, conducted a series of specialised training sessions for managers and young workers, and developed a programme that encourages staff to implement new approaches to occupational health and safety.

At the same time, we understand that today a well qualified employee places high demands not only on wages and workplace safety, but also on the standard of living in general. Therefore, we continued to invest in infrastructure such as broadband internet, the Norilsk airport, sports and recreation facilities. For a better life in the Polar Division, the key objective is to materially improve the environmental conditions. Last year, we took first yet important steps in this direction: Nickel Plant was shut down in August, with Polar Division's air emissions from nickel smelting now coming only from Nadezhda Metallurgical Plant, a facility much farther away from Norilsk residential areas. The comprehensive environmental programme will culminate in the Sulphur Project, which is already underway.

On a separate note, closing down Nickel Plant, quite a large industrial facility, we reallocated some 1,600 people to other assets within the Group, with 1,000 of them re-trained for other jobs.

Record low global prices for our products could not but affect our financial performance. Specifically, Nornickel's revenue decreased to USD 8.3 bn in 2016, with lower nickel and copper prices partially offset by sales of metal from the stocks accumulated in 2015.

EBITDA came in at USD 3.9 bn, while EBITDA margin stood at 47%. The Company's outstanding financial performance was attributed to by favourable exchange rates movement, efforts to control operating cost inflation and the sale of foreign and non-core assets.

Capital expenditure increased to USD 1.7 bn, matching our guidance from Strategy Day. The investments were focused on highly profitable mining projects, the completion of Stage 2 of the Talnakh Concentrator upgrade project, Polar Division's and Kola MMC's smelting and refining capacities, and the transition to the final phase of the Bystrinsky Mining and Processing Plant construction project.

Since net debt to EBITDA remained conservative at 1.2x at the end of 2016, in line with the revised dividend targets we provided a high dividend yield to our shareholders. Including interim dividend already paid, the Company is to distribute approximately USD 2.3 bn for the full year 2016.

Finally, in line with our strategy, we continued to mitigate risks to the execution of the Bystrinsky project. First, we signed a USD 800 m credit line agreement under project financing terms with Sberbank CIB. Second, in addition to selling a 10.67% stake in the project to China's Highland Fund, we have recently announced the sale of a 39% stake to CIS Natural Resources Fund, a consortium of Russian investors.

Today, we lay the foundation for a long-term development programme until 2023 designed to thoroughly upgrade all production capacities and, ultimately, make Nornickel one of the most advanced and environmentally responsible companies in the industry.

Closing down Nickel Plant, we reallocated to other assets approximately

1,600
employees

Re-trained for other jobs were

1,000
employees

EBITDA margin for 2016 amounted to

47%

Vladimir Potanin
President,
Chairman of the Management Board
PJSC "MMC "Norilsk Nickel"

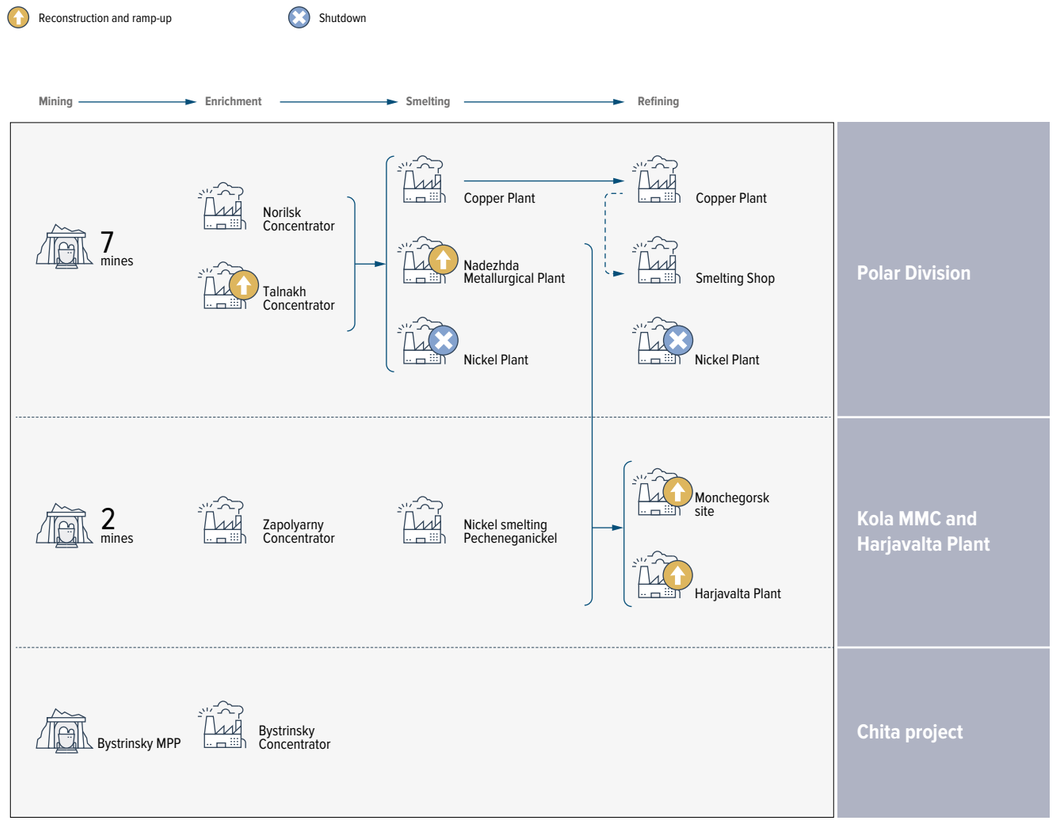
OUR STRATEGY

Strategy overview

STRATEGIC PRIORITIES

Approved in 2013, the Company's strategy with a focus on Tier I assets and a disciplined investment approach has proved its viability by delivering the industry's highest shareholder returns.

RECONFIGURATION OF PROCESSING CAPACITIES



OUR MISSION AND VALUES

Through the efficient use of natural resources and equity, we supply mankind with non-ferrous metals, which make the world a more reliable place to live in and help people realise their aspirations for development and technological progress.

Reliability
an ability to address any challenges to ensure success for the business.

Growth
effective production ramp-up and upgrade, leverage of groundbreaking technologies and development of our people.

Efficiency
delivering against our targets in due time and at minimum costs.

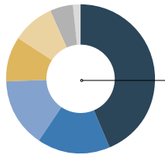
Responsibility
a desire to honour our commitments and take on responsibility for our decisions.

Professionalism
a sustainably strong performance.

Collaboration
an ability and desire to achieve goals through team work.

CAPITAL EXPENDITURES IN 2016

Our investment project KPIs proved to be resilient to the challenging macro environment, and we will carry on with their implementation despite commodity market volatility.



USD 1,695 mln

	%
Mandatory	43.7
Chita Project	15.9
Talnakh Concentrator	14.9
Development of other mines	9.9
Skalisty Mine	9.0
Kola Peninsula	5.2
Nickel Plant shutdown	1.4

Source: Company data

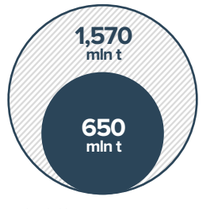
1 Growth based on Tier I assets in Russia

Strategic focus on unlocking the potential of Tier I assets, i.e. projects with an annual revenue of over USD 1 bn, EBITDA margin of 40% and mine life of reserves ratio of at least 20 years

Production growth based on the existing Tier I assets in Russia

Development of the Talnakh Ore Cluster

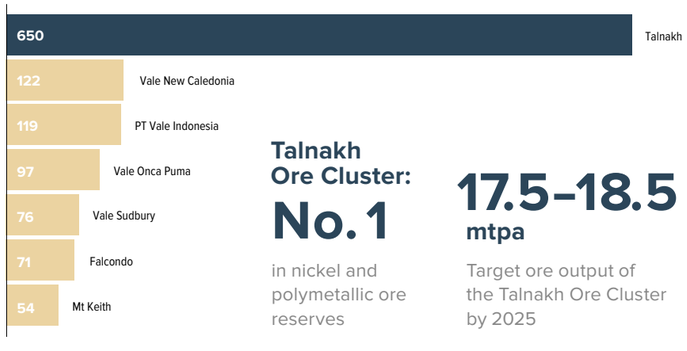
Talnakh Ore Cluster's reserves and resources



- Proven and probable reserves
- Measured and indicated resources

The calculations are made in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code")

Proven and probable ore reserves of the largest nickel mines, *mln t*



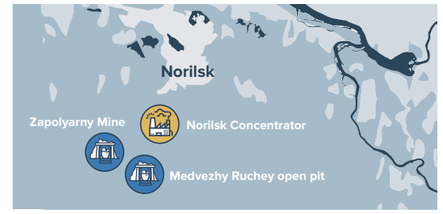
Talnakh Ore Cluster: No. 1 in nickel and polymetallic ore reserves

17.5–18.5 mtpa Target ore output of the Talnakh Ore Cluster by 2025

Optional growth areas

Development of the Southern Cluster

Its perimeter includes:
- Zapolyarny Mine and Medvezhy Ruchey open pit (Norilsk-1 Field)
- Norilsk Concentrator
- Stockpiles of secondary resources



Platinum group metal content in ore[1]

70%

Southern Cluster share in the Company's total output[2]

~4%

Output increase potential, *mln t*

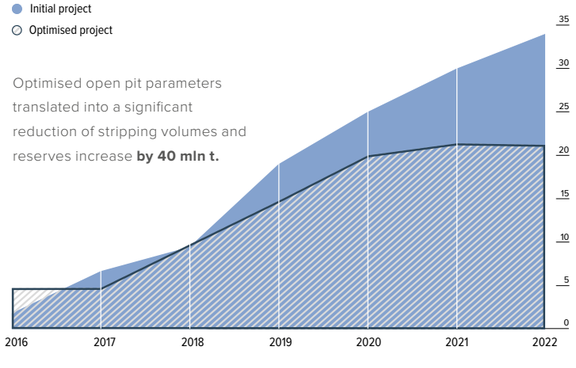
In 2016, Zapolyarny Mine output was 2 mln t, and the Company expects to increase it to 6 mtpa (4 mtpa by open pit mining and up to 2 mtpa by underground mining).

[1] of the value of all metals in ore
[2] of the value of the produced metals

New growth areas

Development of Bystrinsky Mining and Processing Plant (Chita project)

Stripping, *mln cubic meters*



Optimised open pit parameters translated into a significant reduction of stripping volumes and reserves increase **by 40 mln t.**

Increase of reserves	Capacity annual
336 mln t	**10** mln t

Lower project risks through project financing and investments of strategic partners:

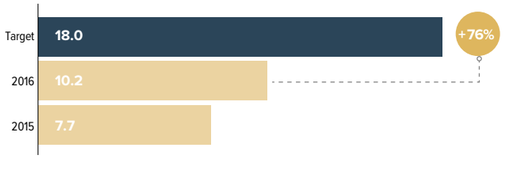
- The project received USD 0.8 bn of project financing from Sberbank for eight years;
- Investment agreement with Highland Fund (China) to sell a 13.33% stake in the Bystrinsky project for USD 100 mln;
- The sale of an up to 39.32% stake in the project to the consortium of investors approved by the Board of Directors.

2 Major upgrade of production capacities

Focus on improving the cash cost profile, recovery rates, as well as environmental performance

Using new technology to upgrade Talnakh concentrator

Ramp-up of Talnakh concentration capacity, *mtpa*



- Higher metal recovery rates driven by the new technology and of ore processing from Norilsk to Talnakh Concentrator (Ni ~2%, Cu ~2%, PGM ~4%)
- Higher Ni content in nickel-pyrrhotite concentrates
- Lower content of sulphur per tonne of concentrate

The reconstruction of Talnakh Concentrator will transform the quality of the produced concentrate.

Stage 1 of the Talnakh Concentrator reconstruction saw the installation of the floatation equipment by Outotec (OK-100 floatation units), and pumping equipment by Warman with an integrated automated control system.
Stage 2 will see the installation of a unique semi-autogenous grinding mills by Metso Minerals.
This is a breakthrough solution never before used at Norilsk and Talnakh Concentrators.

The construction of a new tailings pit using cutting-edge waterproof geomembranes is nearing completion.

Building a single nickel smelting hub at Nadezhda Metallurgical Plant

Smelting capacity, *mtpa*

In August 2016, the Company shut down Nickel Plant, which had been in operation since 1942. The shutdown involved providing strong social guarantees to the plant workers.

To maintain and ramp-up the output, we expanded and upgraded the smelting capacities of Nadezhda Metallurgical Plant, which became a single smelting hub for all nickel feedstock from Polar Division.

Creation of a large modern refining hub at Severonickel Plant

Refurbishment of Nickel Electrolysis Shop-1 (NES-1)

- Additional 45 kt of refining capacity;
- Construction ended in 2015;
- CAPEX of ca. USD 16 mln.

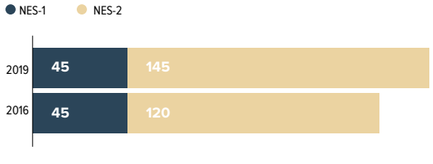
Construction of Nickel Electrolysis Shop-2 (NES-2): technology upgrade and capacity ramp-up

- Additional 25 kt of capacity;
- Switching to a chlorine leaching technology;
- Construction to end by 2018 with full ramp up by 2019;
- CAPEX of ca. USD 300 mln.

Status

- Equipment is being supplied;
- Construction and installation is under way.

Nickel refining capacity at Kola MMC, *ktpa*



3 Social responsibility; health, safety and environment

Focus on lower pollutant emissions and overall improvement of the living and working conditions of employees

Compliance with global HSE standards

LTIFR performance[1]

Stronger safety culture: DuPont integral score of reduction safety

Appraisal: DuPont

Strategic goals

- Zero work-related fatalities
- Reduction of LTIFR by 15%

- Continued introduction of uniform safety standards across key areas
- Implementation of a set of employee testing and training initiatives

[1] LTIFR is calculated as the number of lost-time injuries per million hours worked

A comprehensive approach to environmental issues and creation of environmentally-friendly production processes

Stage 1: shutdown of Nickel Plant, upgrade of Talnakh Concentrator, refurbishment and ramp-up of smelting capacities at Nadezhda Metallurgical Plant.

Stage 2: shutdown at Copper Plant and launch of conversion operations and anode smelting of copper at Nadezhda Metallurgical Plant based on new technologies; SO_2 capture project at Nadezhda Metallurgical Plant; refurbishment and expansion of sulphur production at Copper Plant.

Stage 1 will translate into the reduction of SO_2 emissions in the residential area of Norilsk by

30%

The expected combined effect of Stage 2 is the lowering of SO_2 emissions across the Norilsk Industrial District

75% **from the base of 2015**

Social responsibility

Support of the largest nationwide sports and cultural projects

- Football Union of Russia
- CSKA professional basketball club
- 2014 Olympic Games in Sochi
- 2019 Winter Universiade in Krasnoyarsk
- The Golden Mask (Russian national theatre festival and award)
- Rosa Khutor Ski Resort

Sustainable development of local communities

- Norilsk infrastructure development

Hospitals **Water parks** **Churches**

Kindergartens **Shopping malls** **Sports facility**

- Reconstruction of Norilsk (Alykel) Airport
- Construction of a fibre optic communication line between Novy Urengoy and Norilsk
- Support of nature reserves

Cooperation and employee incentivisation

- Renewed three-year collective bargaining agreement
- Our Home and My Home programmes
- Pension plans
- Relocation programme for Norilsk residents
- Subsidising the basic food basket

Government cooperation

- Stable tax regime
- Early elimination of export duties on nickel and copper
- Railway to Bystrinsky Mining and Processing Plant
- Co-financing the Alykel Airport reconstruction
- Environmental dialogue
- Strategic partnership with state-owned banks

GLOBAL METALS MARKET[1]

KEY TRENDS IN THE NICKEL MARKET

2016: the market balance has tilted towards deficit on the back of high price volatility; the demand increased driven by a greater output of stainless steel in China, whereas production went down due to the declined supply of nickel ore.

Outlook: cautiously optimistic. In 2017, the market deficit may go up and reach 100 kt, but market uncertainty will most probably persist going forward. As Indonesia is resuming its ore exports, the demand from China might ebb, while exchange warehouse stocks of nickel remain pretty high.

In 2016, the nickel price continued to decline and in February reached USD 7,710 per tonne, the record low since 2003. The trend was, however, reversed and the commodities prices started to go up on the back of China's plans for economic stimulus and the US Federal Reserve's decision to maintain the current interest rate. In June, optimism became the prevailing sentiment in the market owing to the forecasts of increased nickel consumption and the intention of the Philippine President to limit nickel ore mining and export volumes, and launch a mining audit. From August to September, the suspension of some of the nickel ore mining operations in the Philippines was offset by the expectations that Indonesia might lift the ban on nickel ore exports. Before the announcement of the US presidential election results, nickel prices floated oscillated between USD 9,650 and USD 10,760 per tonne. The market positively responded to Donald Trump's victory and his campaign promises to ramp up investments in the country's infrastructure projects, with nickel prices reaching their annual peak of USD 11,735 per tonne. By the end of the year, though, they went down to USD 10,000 per tonne due to new export permits restrictions on the exports of nickel ore from New Caledonia to China, delays in the announcement of the Philippines' mining audit results, and no material drop in exchange nickel stocks. In 2016, the nickel price averaged USD 9,609 per tonne, down 19% y-o-y.

MARKET BALANCE

Primary nickel consumption by region, %

China	56
Other Asia	19
Europe and Africa	17
Americas	8

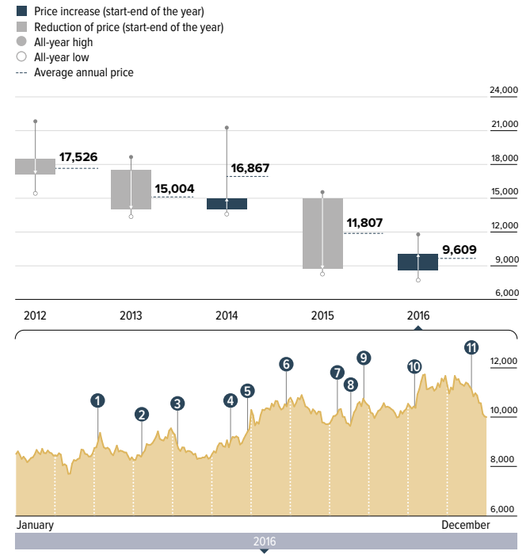
Surplus/deficit in the nickel market, *kt*

Source: Company data

Following several years of market surpluses, the nickel market went into a small deficit in 2016, with consumption outstripping production by 10 kt (c. 0.5% of the annual demand) for the first time over the past five years. The demand was mainly driven by an 8% y-o-y increase in metal consumption primarily attributable to the Asian producers of stainless steel and batteries. This coincided with stagnation in primary nickel production, as record low global prices for nickel caused a number of loss-making refined nickel manufacturers to shut down and prompted others to increase their efficiency and capacity utilisation. Following its 2014 ban on the exports of unprocessed ore, Indonesia commissioned new NPI production facilities. Another factor affecting the production rates was the shortage of lateritic nickel ore supplies due to a prolonged rainy season in 1H 2016 and the suspension of several mining operations in the Philippines as a result of the environmental audit in 2H -2016. This was exacerbated by the shortage of sulphide concentrates stemming from the closure of loss-making mines in 2015–2016 and the one-off impact of Nornickel's capacity reconfiguration programme.

During the year, total exchange warehouse stocks at the LME and the SHFE decreased by 18 kt to 472 kt, or about 12 weeks of global consumption.

Nickel prices, *USD/t*



Drivers of the nickel price in 2016

1. China's government announced its economic stimulus plans, the People's Bank of China cut the interest rates
2. Growing demand for nickel in China
3. Volatility driven by Brexit uncertainty
4. The Supreme Court of the Philippines ruled to suspend nickel mining operations at five Zambales-based mines
5. The launch of the Philippines' mining audit announced
6. The Philippines government suspends nickel ore mining operations
7. Delay in the announcement of final results for the Philippines' mining audit
8. The Philippine government announced possible suspension of operations at 10 additional mines
9. Preliminary mining audit results published in the Philippines
10. Donald Trump wins the US presidential elections
11. New Caledonia approves new nickel ore export restrictions

Source: LME, Company data

Nickel

No. 2

Nornickel is the world's second largest producer of nickel

[1] Actual results for 2016 may differ from projections provided in the 2015 Annual Report.

CONSUMPTION

Nickel consumption is predominantly driven by the stainless steel industry

>72% in 2016

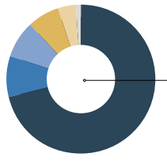
Stainless steel comes to the market in various shapes from all over the world, whereas its smelting structure ultimately determines the primary nickel consumption patterns.

Austenitic stainless steel. Austenitic stainless steel comprising the 200 series and 300 series steel is the most widespread type of that product (over three quarters of the global production). The 300 series steel has a higher nickel content (normally 8–12%, or up to 20% in a number of select brands). Nickel added in this proportion improves the steel's corrosion resistance and robustness in a wide range of temperature conditions, boosts its ductility and durability in aggressive environments, and enhances its non-magnetic properties. This series enjoy the highest demand, as it is applied in a wide range of industries, including construction, food and chemicals manufacturing, energy, transportation, etc. The 200 series steel cannot be used as a perfect substitute for the high nickel grads, as it has a lower nickel content due to the addition of manganese. The 200 series is susceptible to surface (pitting) corrosion and non-resistant to heat and aggressive environments. Due to the lower price, 200 series is often used in the production of consumer goods, such as home appliances. China and India account for over 90% of the total 200 series steel output.

Austenitic-ferritic steel. Austenitic-ferritic (duplex) stainless steels also use nickel and are characterised by a higher content of chromium (18–25 %) and molybdenum (1–4 %), but they account only for 1–2% of the global smelting output. For statistical purposes, these steels are usually grouped with the 300 series.

Ferritic and martensite stainless steels (400 series). These steels usually do not contain nickel, while their properties are similar to those of low-carbon and highly corrosion-resistant steels. However, their mechanical properties are inferior to those of austenitic stainless steels. These steels are mainly used to manufacture automotive exhaust systems, cargo container frames, water heaters, washing machines, utensils and cutlery, kitchenware, home decor items and razor blades.

Primary nickel consumption in 2016 by industry

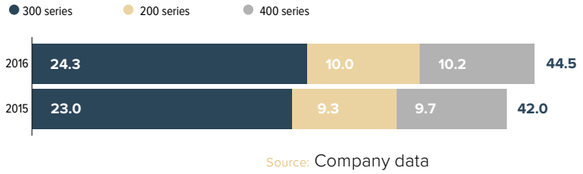


2,002 kt

Source: Company data

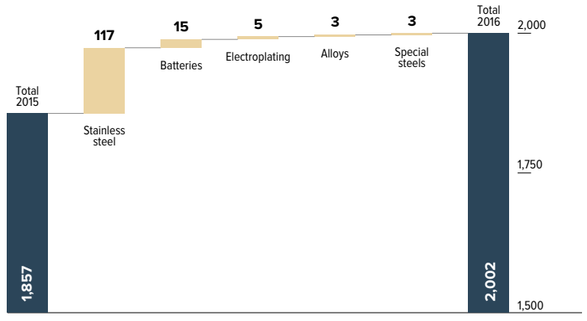
	share in consumption, %	kt
Stainless steel	72.2	1,445
Alloys	8.8	177
Special steels	7.5	151
Electroplating	7.1	142
Batteries	3.6	73
Other industries	0.7	14

Stainless steel production by series in 2015-2016, *mln t*



Source: Company data

Primary nickel consumption in 2016, *kt*



Source: Company data

In 2016, the total stainless steel output reached

44 mln t +6%

In 2016, the total stainless steel output increased by 6% and reached the record high of 44 mln t, with China being the biggest contributor. China now accounts for over 50% of the global stainless steel production vowing to the capacity expansion programmes at Beihai Chengde, Fujian Fuxin, Shandong Shengyang Jinhui and some other facilities, as well as the launch of new plants (most notably Delong and Shangtai Industry) integrated with NPI production sites.

Other regions also reported positive stainless steel production results. As a result of Europe's capacity optimisation programmes, lower output volumes from Germany and Italy were offset by the growing production in Finland, Belgium and Spain. India and other Asian countries also posted growth, while the US saw the first signs of recovery in production.

Consumption of primary nickel by the global stainless steel producers rose by 9% to 1.4 mln t as a result of an increase in the 300 series and 200 series output by 5% and 8%, respectively, and a relatively small upturn in the use of scrap.

Laterite nickel can be used as an alternative to high grade nickel in stainless steel production. Nearly all types of nickel feedstock are used in stainless steel production (except for a number of specific products, including nickel powder and compounds). Since the quality of nickel barely affects the quality of conventional stainless steel grades, the manufacturers opt for the cheapest nickel feedstock, turning to high grade nickel as their last resort.

This is the reason why high grade nickel consumption has been shifting from stainless steel production to some other metals-related industries in recent years. In 2016, around 60 kt of high grade nickel was substituted in this industry with higher volumes of ferronickel and metallised products with a lower nickel content.

In 2016, primary nickel consumption in alloy production increased by 2%, which was mainly attributable to the high demand from the aerospace industry.

Nickel is widely used in decorative and protective platings with their thickness ranging from 1 to 100 microns (nickel electroplating). In 2016, primary nickel consumption in the electroplating industry grew by 4% (5 kt), mainly due to the increased demand in Asia.

Nickel coating is highly corrosion-resistant, hard and pleasing aesthetically. It is also used as an alternative to chromium plating.

In recent years, China has been the leading manufacturer of nickel electroplating products. Since 2012, though, the electroplating industry has started to develop in other Asian countries, and the Chinese businesses are now transferring their production to achieve cost savings.

The battery industry uses nickel as a major component of cathodes for battery cells. The extent of nickel utilisation depends on the battery type.

Nickel-cadmium batteries (Ni-Cd).
The first nickel-based batteries were developed in 1899. Currently, their use is restricted, since cadmium is banned as a toxic substance under the EU directive of 2014.

Nickel-metal hydride batteries (Ni-MH).
Ni-MH batteries were developed in 1989 as a substitute for Ni-Cd batteries to avoid using cadmium.

Producers use nickel to manufacture this type of batteries. Currently, though, the nickel-metal hydride battery market is growing at a slow pace (with hybrid vehicles being its only growth driver) and faces tough competition from the lithium-ion batteries.

Li-Ion batteries (Li-Ion).
Li-Ion batteries were first commercially released in 1991 and became fairly widespread due to their light weight, high energy density, and low capacity loss upon recharge. There are several types of lithium-ion batteries depending on the cathode materials.

Starting from 2014, primary nickel consumption in this industry has been advancing at an accelerated pace due to the higher electric car production and a shift to lithium-ion batteries in hybrid cars. In 2016, the consumption of primary nickel in the industry increased by nearly 15 kt (over 20%). This came as a result of capacity expansion programmes for nickel-cobalt-aluminium alloys in Japan and South Korea and development of the nickel-cobalt-manganese alloy industry in China, with cobalt continuing to be partially substituted with nickel.

PRODUCTION

Primary nickel can be split into two major groups:
- **High grade nickel** (cathodes, briquettes, carbonyl nickel and compounds) is produced from both sulphide and lateritic nickel ore. In 2016, the major high grade nickel producers included Nornickel, Vale, Jinchuan, Glencore, and Sumitomo Metal Mining.
- **Low grade nickel** (ferronickel, NPI and nickel oxide) is only produced from lateritic fore. In 2016, the major low grade nickel producers included Chinese and Indonesian NPI companies and also ferronickel producers: Eramet, Anglo American, South 32, Pamco, and Posco (SNNC).

In 2016, primary nickel production decreased by less than 1% y-o-y, or 10 kt, mostly as a result of the decline in the output of refined nickel and NPI in China due to the lack of row ore and concentrate. Another reason was the closure of a number of loss-making plants and capacity reconfiguration programmes implemented by several integrated producers. However, most of the discontinued capacity was offset by the increase in output and start of commercial production at new NPI plants in Indonesia. As a result, the market is going through structural changes: extra-low prices are causing a decline in high grade nickel production (due to negative profitability and insufficient supply of nickel concentrate), which is being replaced by low grade nickel in the form of NPI in Indonesia.

Further expansion of the automotive industry, which is currently experiencing an upsurge in popularity of electric and hybrid cars, augurs well for the longer-term growth in primary nickel consumption, even though it strongly depends on the evolution of battery technologies going forward.

Increase in the consumption of primary nickel by producers of batteries for electric cars

20%

In 2016, high grade nickel output declined by 6%, or 68 kt. Production cuts were taking place at the following plants:
- Queensland Nickel Yabulu refinery in Australia and Votorantim in Brazil, which suspended the operations as unprofitable;
- Plants of Nornickel and France's Eramet due to capacity reconfiguration underway;
- Chinese refined nickel producers as a result of the lack of nickel feedstock following the closure of loss-making mines: Ban Phuc in Vietnam, Aguablanca in Spain, Santa Rita in Brazil, and a range of mines in Australia;
- Sherritt's Ambatovy (Madagascar) as a result of technical problems.

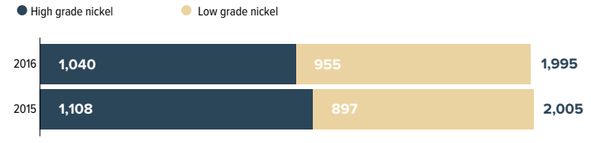
However, some producers (BHP Billiton and Glencore) increased their capacity utilisation in order to optimise cash costs while nickel prices are low.

The decline in high grade nickel output in 2016 was fully offset by the rise in the production of low grade commercial nickel (up 6.5%, or 58 kt). The latter was mostly driven by the launch of new smelting capacities to produce NPI in Indonesia as a result of capacity ramp-up at projects that went into commercial production in 2015, such as Tsingshan and Zhenshi Gebe, and new NPI facilities put on stream in 2016, which did not only offset the production cuts in China in 2016 caused by the lack of the Philippine ore and toughened environmental laws in China, but also contributed to an overall increase in global production of low grade nickel.

On a side note, Chinese producers, struggling amid low lateritic ore supplies to produce NPI and also suffering from declining nickel content in the Philippine ore, in 2016 began using nickel sulphide concentrate: after the roasting stage, it was mixed with lateritic ore to increase nickel content for NPI production. By the same token, in 2016 Chinese producers started adding nickel cathodes to the melted substance as a way to increase nickel content in the NPI production process. These new trends emerging in the market are blurring the traditional distinction between production and consumption of high grade and low grade nickel, and also nickel made of sulphide and lateritic nickel ore.

The most important factor influencing the low grade nickel production in 2016 was the government-run environmental audit of all mining facilities in the Philippines. After unprocessed ore exports from Indonesia were banned in 2014, the Philippines became the world's largest exporter of commercial nickel ore, which is the key feedstock to produce NPI in China. Following the audits, the Philippines' Department of Environment and Natural Resources ordered the closure (or suspension) of mining operations at most of the nickel mines in the country (that combined make up almost half of the Philippines' total production in 2016), which will limit the resources available to NPI producers in China.

Primary nickel production in 2015–2016, *kt of Ni units*

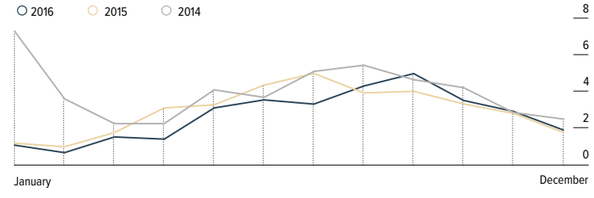


Source: Company data

NPI production, *kt*

Source: Company data

Chinese nickel ore and concentrate imports in 2014–2016, *mln t*



Source: Company data

/ Global Metals Market /

KEY TRENDS IN THE COPPER MARKET

2016: the prices surged in the second half of the year driven by the strong demand from China, the Trump factor, and supply disruptions.

Outlook: neutral. At spot price, over 90% of the total capacities are profitable. The market will remain balanced going forward, with supply disruptions and stronger demand from China acting as potential positive price drivers.

Early in 2016, copper prices kept declining, In mid-January hitting the seven-year low of USD 4,310 per tonne by mid-January. From February, though, the market started to recover buoyed by the optimism on the back of stimulating measures in China and production cuts in Chile. The market responded positively to the election of Donald Trump as the new US President on 9 November taking in his promises to boost investment in the US infrastructure. As a result, copper quotes surged to a year high of USD 5,936 per tonne by the end of November, with the average copper price for the full year standing at USD 4,863 per tonne, down 12% y-o-y.

MARKET BALANCE

In 2016, the refined copper market was slightly oversupplied. The surplus was below 1% of the total market volume, or 170 kt, up 120 kt as compared to 2015. During the year, total exchange warehouse stocks went up from 483 kt to 548 kt (or from 8 to 9 days of consumption), with off-exchange inventories showing a moderate increase.

Surplus in the copper market, *kt*

Source: Company data

Copper

No.12

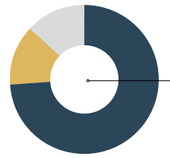
Nornickel is the world's twelfth largest producer of copper

CONSUMPTION

Refined copper consumption by region, %

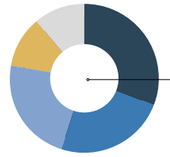
China	48
Other Asia	20
Europe	18
Americas	8
Africa and Oceania	6

Refined copper consumption by industry



22.3 mln t

First use product	%
Wire rod	74
Rolled products	13
Billets and pipe	13



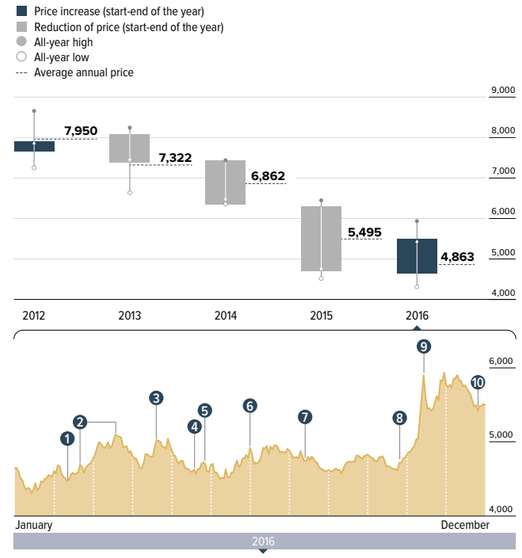
End product	%
Construction	31
Consumer goods and equipment	24
Power grids	23
Transport	11
Heavy engineering	11

Source: Company data, Wood Mackenzie

Given its high electrical and thermal conductivity, ductility and corrosion resistance, copper is widely used in various industries. Up to three quarters of refined copper produced globally are are used for manufacturing electrical conductors, including various types of cable and wire. Key copper-consuming industries include construction, electrical and electronic equipment manufacturing, power supply, transport, engineering, machine building and consumer goods production.

In 2016, global consumption of refined copper totalled 22.3 mln t (up 2.0%, or 0.43 mln t, as compared to 2015), primarily owing to stronger demand from cable and wire manufacturers. Consumption in pipe, flat rolled products and billet production segments saw moderate growth.

Copper prices, *USD/t*



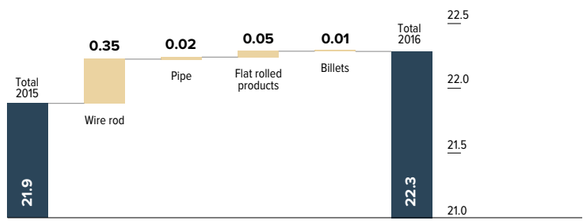
Drivers of the copper price in 2016

1. Production increase in Peru
2. China's SRB copper purchases
3. Suspended mining in Chile due to heavy rains
4. Rise in LME stocks
5. Strike at the Toromocho copper mine, Peru
6. Increase in Chinese copper concentrate imports
7. Stronger USD
8. Trump's election as the US President
9. Trump's promises to boost investment in the US infrastructure
10. Closing of long positions before the New Year

Source: LME, Company data

China remains the key copper consumer, with its market share reaching 48% in 2016 due to the demand growth of 4%. Market concerns about China's sharp economic slowdown did not materialise. China took advantage of low prices to significantly boost imports of copper and, in particular, copper feedstock. In 2016, refined copper imports grew by 3% to 4.9 mln t, while copper concentrate imports went up by as much as 28% to 17 mln t. This enabled China to meet its growing consumption needs through the local production ramp-up. The demand for copper in developed economies saw only a slight increase in 2016, with Europe (the Company's key market for copper cathodes) by 1.4%, North America by 0.3%, and Asia (excluding China) by 0.8%. Russian domestic copper cathode consumption in 2016 remained flat y-o-y.

Changes in refined copper consumption in 2016 by product, *mln t*



Source: Company data, Wood Mackenzie

PRODUCTION

In 2016, global production of refined copper increased by 2.5% (or 0.55 mln t) compared to 2015 and totalled 22.5 mln t. China remains the key driver behind that growth, with the national government firmly committed to the expansion of domestic smelting and refining capacities, which, according to the Chinese experts, increased in 2016 by 0.4 mln t and 0.3 mln t to 6.5 mln t and 10.8 mln t, respectively.

In 2016, refined copper production in China grew by 12% to 7.9 mln t, while its share in global output was 34%. Only one quarter of Chinese production is local extraction, with three quarters coming from imported copper concentrates and scrap. In the rest of Asia (excluding China) production growth was 7% (with Japan, Indonesia and the Philippines as the key contributors), while in North America it stood at 6% (up in the USA and Mexico and down in Canada).

Refined copper production in 2015–2016, *mln t*

Source: Company data, Wood Mackenzie

In 2016, global production of refined copper increased by

2.5%

In Europe and South America production went down by 1.7% and 1.5%, respectively, whereas in Africa the 10% decrease was due to reduced production in the Democratic Republic of Congo and Zambia. According to the preliminary estimates, Russia saw its production decline by 2% in 2016, to a certain extent due to the shortage of copper scrap used as a key feedstock by producers in the Urals.

In 2016, global copper mine production increased by 3.8% to 19.9 mln t. Additionally, approximately 2.6 mln t of refined copper (down 6% y-o-y amid low feedstock prices) was produced from scrap and concentrate stockpiles.

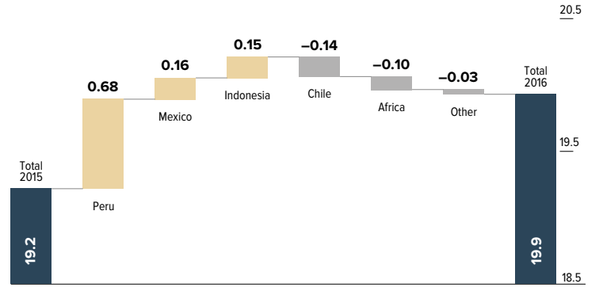
This production surge was mainly attributable to the explosive growth in Peru, the second largest copper producer after Chile, whose annual output spiked by 40%. The new Las Bambas mine acquired by the Chinese MMG from Glencore kicked off commercial production, which amounted to 0.28 mln t of copper in metal equivalent. Another major project was the doubling of copper production capacity at Freeport-McMoRan Inc.'s Cerro Verde mine in Peru to 0.5 mtpa.

Indonesia stepped up its output by 26% as a result of expansion at Grasberg mine run by Freeport-McMoRan Inc., while the permit for copper concentrate exports granted in 2H 2016 enabled the company to ship the entire output to overseas markets.

Mexico saw its production grow by 28% owing to the development of Buenavista, Southern Copper's major mine, which boosted copper output by 160 kt. Production in the USA increased by 4% as a result of the Bingham Canyon recovery and expansion at Morenci mine. In Kazakhstan, commissioning of the new Bozshakol mine by KAZ Minerals drove the output by 11%.

Production in Chile, the world's leading copper supplier, fell by 3% in 2016 on the back of an expected 15% decline at BHP Billiton's Escondida, the world's largest copper mine delivering lower copper grade heaps, along with a 3% decline registered by the state-owned Codelco that failed to raise sufficient financing to maintain production at its oldest mines.

Copper production in 2015–2016, *mln t*



Source: Company data, Wood Mackenzie

African production was down 5%, as, in late 2015, amid declining copper prices, Glencore announced an 18-month suspension of operations at its Katanga mine in the Democratic Republic of Congo and Mopani mine in Zambia to launch upgrade works. In Australia, copper output shrank by 5% following a widespread power outage that occurred as a result of storm damage.

While in the previous years the actual copper production growth was below the analyst expectations due to strikes, accidents, delays in the commissioning of new facilities, engineering and occasionally political issues, the reporting year saw way fewer emergencies and disruptions, with production exceeding the estimates by 0.5 mln t. However, an increase in concentrate production was offset by the relative shortage of copper scrap amid low market prices, which brought the refined copper output for the full year in line with January's analyst estimates. At the same time, consumption growth was slightly above the expectations, causing the surplus estimates to be revised down by 0.1 mln t.

In 2016, global copper production increased to

22.5 +2.5% **mln t**

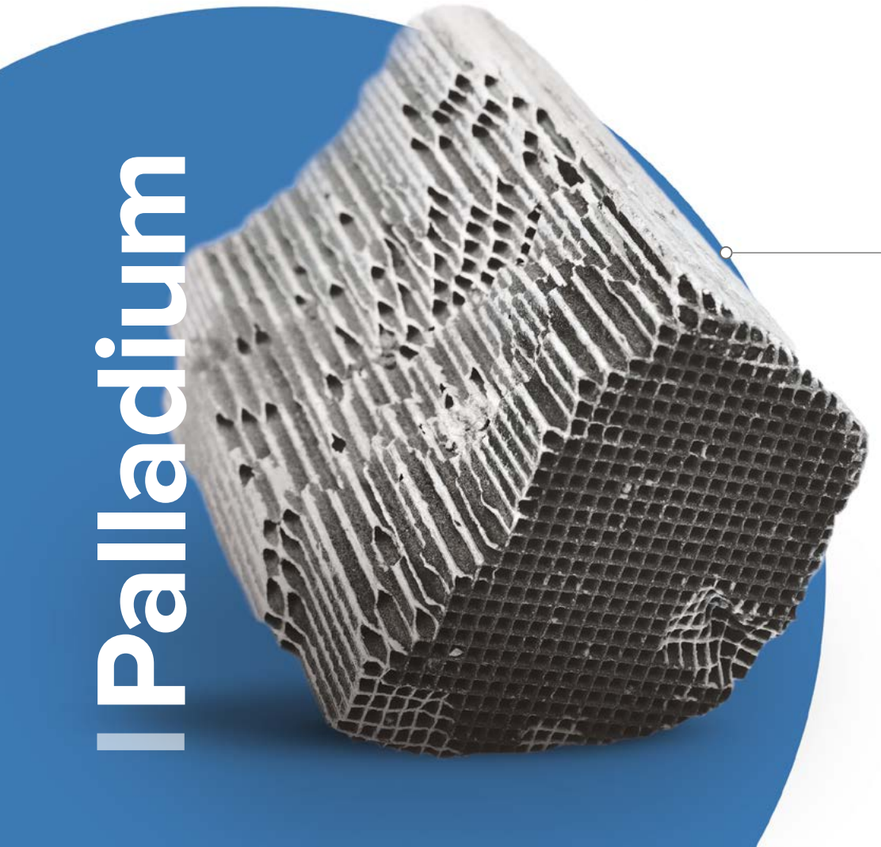
KEY TRENDS IN THE PALLADIUM MARKET

2016: impressive price recovery from the January lows on the back of sustainably high industrial demand

Outlook: positive. The marcet deficit to grow as a result of stable supply, growth of industrial consumption, and stabilised investor demand.

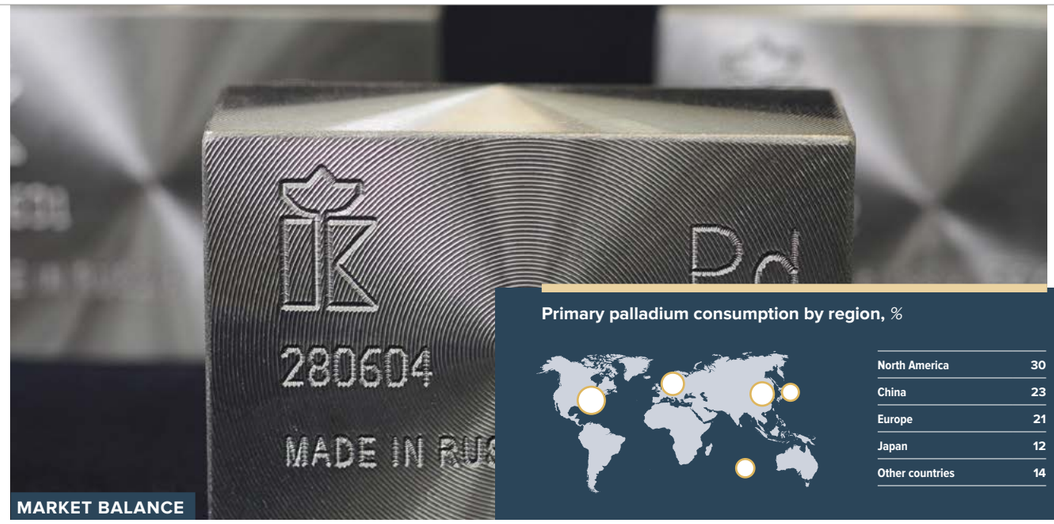
In January 2016, prices for platinum group metals tumbled to multi-year lows. Palladium prices went down to a five-year low of USD 470 per troy ounce. This continued the downward trend of late 2015 caused by the general weakness of commodity markets, no long-awaited closures of unprofitable South African mines, major investment outflows from palladium exchange-traded funds, and the strengthening of the US dollar against the production countries' currencies. Throughout the year, despite some large fluctuations, prices bounced back reaching maximum since May 2015 in late November (USD 770 per troy ounce) followed by a moderate year-end downward adjustment.

The positive trend throughout the year was driven by the unexpectedly high growth rates of car production in China (+14%) driven by the tax cuts for small engine cars, the growth in US car sales hitting a new record in 2016, and a reported drop in diesel car sales in favour of petrol vehicles with a higher share of palladium-based catalysts. Prices for PGM and other precious metals were also affected by the US Federal Reserve's cautious attitude towards rates hike, uncertainty following the unexpected Brexit vote, the growing demand for defensive assets, as well as the victory of Donald Trump and expectations of higher economic growth and auto sales in the USA. Despite the positive 2016 trend, the average annual palladium prices were at their lowest in six years (USD 613 per troy ounce) on the back of sliding prices in September 2015–August 2016.



No.1

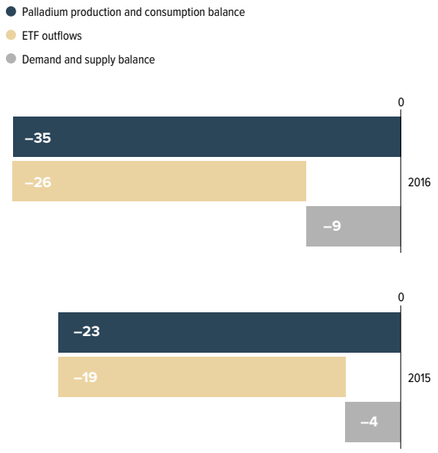
Nornickel is the world's largest producer of palladium



Primary palladium consumption by region, %

North America	30
China	23
Europe	21
Japan	12
Other countries	14

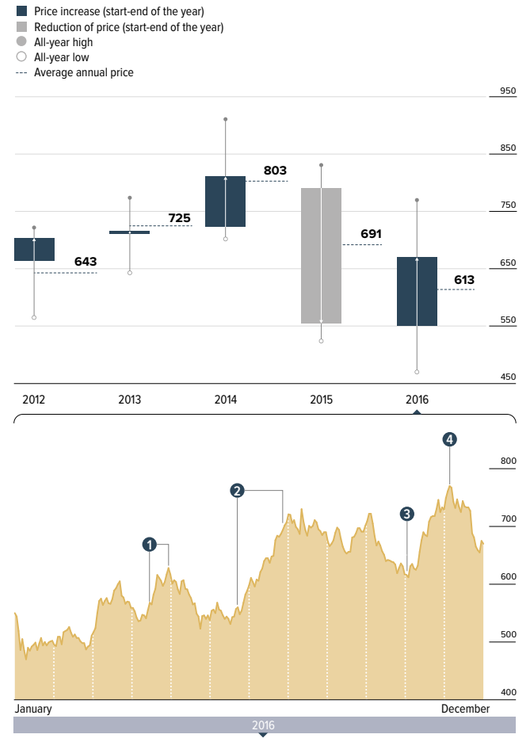
Palladium market balance, *t*



Source: Company data

In recent years, there has been a sustained undersupply in the palladium market covered by the consumption of reserves accumulated in previous periods. During the reporting period, this imbalance was partially offset by withdrawals from palladium ETFs, mainly in the second half of the year.

Palladium price in 2016, *USD/oz*



Drivers of the palladium price in 2016

1. Cautious Fed, weak US dollar
2. Rally in precious metals post-Brexit
3. US presidential election results
4. The automotive industry statistics from China exceeded projections, rally after the Fed's interest hike

Source: LBMA Palladium price, Company data

CONSUMPTION

Industrial consumption of palladium in 2016 increased by 8 t (+3% y-o-y) to an all-time-high of 316 t. With that, the primary palladium consumption increased by 10 t (+5% y-o-y) on the back of a 2 t decrease in scrap processing volumes, mainly, electronic scrap; automotive and jewellery scrap processing volumes remained flat. This continues the 2015 trend of decreased recycled metal supply in the market.

The automotive industry accounts for over three quarters of total palladium consumption. In this sector, palladium is used in catalytic converters to detoxify exhaust fumes. In most countries, such converters are legally required to be installed on all cars. Due to its unique catalytic properties ensuring effective chemical reactions throughout the entire vehicle life cycle (at least 150,000 miles in the USA), palladium has no substitutes except for platinum, which is more expensive and not economically justified due to the price gap between these metals, and rhodium, which, given the significant share of already produced vehicles and small market size (the world only produces 30 t of the metal) suffers from high price volatility and the risk of physical metal deficit.

In 2016, palladium consumption in the automotive industry grew by almost 10 t, reaching an all-time high of 246 t. The additional demand for the metal was mainly attributed to the growing car production in China (+14% y-o-y), India (+9% y-o-y) and recovery of production in Europe (+17% y-o-y). The US car market saw a modest growth in palladium consumption still hitting a new high since 2015. The increase in palladium consumption was also triggered by the growth of per-vehicle use, a trend that is likely to continue in the years to come due to toughened vehicle emission standards in certain countries.

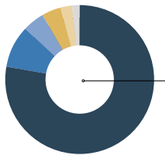
Palladium consumption in the automotive industry will grow further. Hybridisation involving the use of petrol engines featuring palladium-based exhaust gas catalysts is slated to become a key trend in the development of environmentally friendly transport. Despite strong media attention, the leading analytical agencies forecast that the share of electric vehicles that do not require catalysts is unlikely to exceed 2% of global output by 2022, or 2 mln of electric vehicles against the annual global output of over 107 mln of vehicles. Palladium consumption in the electronics industry continued a moderate downward trend in 2016: lower use of palladium in multi-layer ceramic capacitors was partially offset by an absolute increase in their production and increased use of palladium in the connectors and lead frames.

In the healthcare sector, primary palladium demand continued declining on the back of transition to alternative composites and dental scrap processing. While palladium has a number of advantages for jewellery manufacturing, its consumption in the industry dropped by 0.7 t (9%) in 2016 because it does not have a strong brand as a jewellery metal. After a continued fall in palladium consumption in China, now it is used mainly in white gold alloys or for wedding rings (in its pure form), mainly in the European and US markets. The 2016 primary palladium consumption in the production of chemical catalysts decreased by 8% as a result of China's chemical industry slowdown on the back of delayed capacity expansion, increased life cycle of catalysts used in the terephthalic acid production (feedstock to produce fibres, food containers, photo and video films), and reduced palladium content. 2016 saw lower investor demand for palladium. Investor withdrawals from palladium ETFs (mainly in the second half of the year) totalled 20 t. This reduction resulted from the profit taking that followed a significant price surge coupled with investor migration to stocks. Investors are generally positive on the palladium market: as at the end of the reporting period, net speculative positions in palladium on the New York Mercantile Exchange and the Tokyo Commodity Exchange were +47 t. Additional retail demand for palladium bars accounted for 1 t.

Palladium consumption in 2015–2016, *t*

Source: Company data

Palladium consumption in 2016 by industry

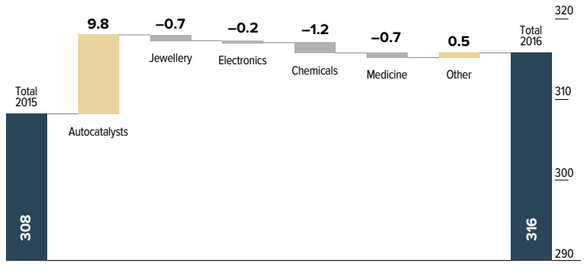


316 t

	share in consumption, %	t
Automobile exhaust systems	78.0	246
Electronics	9.3	29
Dental alloys	4.4	14
Catalysts	4.3	14
Jewellery	2.5	8
Other	1.5	5

Source: Company data

Changes in palladium consumption by application area, *t*

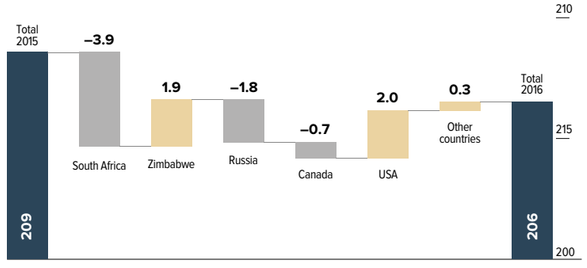


Source: Company data

PRODUCTION

Despite the challenging market conditions and a considerable number of unprofitable mines, 2016 saw only a moderate decline in primary palladium output by key producers. In South Africa, the output of palladium declined primarily due to repairs of a smelter at Anglo American Platinum and scheduled closure of unprofitable shafts at Lonmin. This reduction was partially offset by the launch of new projects, such as Platinum Group Metals (Maseve), and higher output by Northam. Russia recorded a lower output due to the planned reconfiguration of the Company's production facilities. Zimbabwean production grew thanks to restored output volumes at Zimplats. There was also a slight improvement in US output. As a result, global output of primary platinum in 2016 decreased by 3 t, or 1% y-o-y.

Annual primary palladium output in 2015–2016, *t*



Source: Company data

The main sources of recycled palladium are used exhaust gas autocatalysts, as well as jewellery and electronic scrap. In 2016, recycled output shrank by 3 t, primarily due to reduced collections of electronic scrap as palladium contents lowers because of component miniaturisation. Collection of end-of-life automotive catalysts remained in the lower range owing to low PGM prices.

The sources of previously accumulated palladium stockpiles include trading companies, financial institutions, government reserves, and surplus inventories of consumers. In the 1990s and 2000s, Russia's palladium supply came primarily from the country's government stockpiles. Supply of palladium from these stockpiles had long been the main driver of market surplus. In recent years, Russian stockpiles ceased to be part of the palladium supply, which points to their depletion and marks the transition towards a palladium market that is completely market-driven.

KEY TRENDS IN THE PLATINUM MARKET

2016: strong industrial consumption and support on the investor demand side.

Outlook: neutral. In 2017, the market will remain balanced state on the back of stable supply, recovering jewellery demand, but weaker industrial consumption.

In January 2016, platinum prices fell to a seven-year low last seen during the global financial crisis of 2008–2009. This development was caused by the overall downward trend in the commodities market on the back of a strong US dollar and repercussions of the Volkswagen diesel emissions scandal, which had an adverse impact on investor sentiment about the future of diesel vehicles. The ongoing unprofitable mines production and stable metal supply put additional pressure on prices.

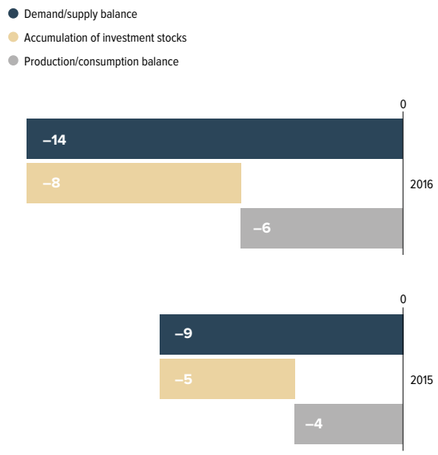
Later on, in the first half of the year, when the US Federal Reserve left rates unchanged and investors fled to the safety after the unexpected Brexit vote in the UK, platinum prices bounced back reaching their maximum since May 2015 in August (USD 1,182 per troy ounce). This was followed by a downward movement, with prices falling to the levels of the beginning of the year (USD 900 per troy ounce) affected by the negative news about a slump in diesel car sales, low demand for platinum from the jewellery sectors in China and India, and an expected surplus in the metals market in 2017. The average platinum price in 2016 was at its eleven-year low (USD 989 per troy ounce).

MARKET BALANCE

Primary platinum consumption by region, %

Europe	30
China	25
North America	14
Japan	12
Other countries	19

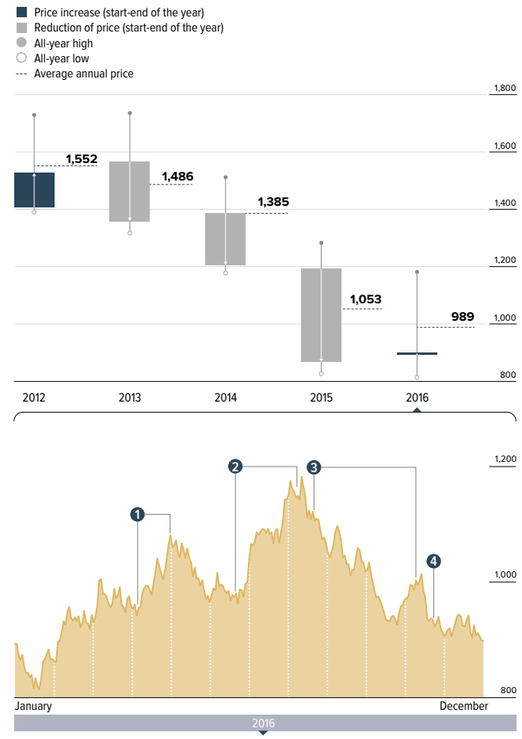
Platinum market balance, *t*



Source: Company data

The deficit in the platinum market increased in 2016 compared to 2015, driven primarily by the growth in consumption that exceeded platinum production, and discontinued outflow from exchange-traded funds (ETFs).

Platinum prices, *USD/oz*



Drivers of the platinum price in 2016

1. Cautious Fed, weak US dollar
2. Rally in precious metals post-Brexit
3. Negative background related to the declining share of diesel cars in major markets, waning jewellery demand in China and India, and expected market surplus in 2017
4. US presidential election results

Source: LBMA price, Company data

Platinum

No. 4

Nornickel is the world's fourth largest producer of platinum

CONSUMPTION

Industrial consumption of platinum in 2016 increased by 4 t (+2% y-o-y) to an all-time-high of 251 t, while the consumption of primary platinum remained flat at 193 t mainly due to the use of jewellery scrap, with recycling volumes remaining the same despite weaker demand.

The automotive industry is the largest consumer of platinum. Over 70% of platinum in this industry is used to manufacture exhaust gas catalysts for diesel vehicles. In 2016, the industry's consumption increased by 3 t fuelled by growing diesel car production and tightening environmental standards. At the same time, the reporting period was affected by the consequences of the 2015 scandal around Volkswagen manipulating vehicle emission tests to demonstrate environmental compliance. Many car manufacturers, including Volkswagen, which became the world's largest automaker in 2016 by the number of cars manufactured, announced plans to reduce the share of diesel sales and to shift to hybrid (combining petrol and electric engines) and, ultimately, fully electric propulsion systems. Governments and municipalities of a number of nations, including key diesel engine markets such as the UK, EU and India, announced plans to restrict the use of diesel vehicles in large cities. These developments affected consumer behaviour, especially in the EU, where diesel's market share fell below 50% for the first time in years. The leading analytical agencies have revised downwards their forecast regarding the share of diesel vehicles in production. Yet, in absolute terms, manufacturing of this type of vehicles will continue to show a positive trend in the nearterm.

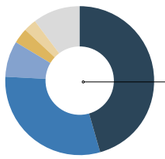
The second biggest platinum consumer is the jewellery industry. In 2016, its consumption rates decreased significantly (by 6 t, or 7% y-o-y), primarily due to weaker consumption in China and India. In China, a decrease in consumption was caused by the overall contraction of jewellery demand on the back of lower consumer confidence, high stockpiles of precious metals accumulated in 2015, and consumer shift to white gold owing to an aggressive marketing campaign. A drop in platinum consumption by the Indian jewellery industry comes as a result of higher import duties on gold and platinum, new requirement to identify buyers of expensive jewellery, and the currency reform in the country.

In 2016, primary platinum consumption for industrial catalyst manufacturing increased by 2 t, following the ramp-up of catalytic reforming, isomerisation, nitric acid and silicone production capacities, as well as the launch of plants to produce paraxylene used in China for paint and varnish manufacturing and propane dehydrogenation purposes.

Platinum consumption in 2015–2016, *t*

Source: Company data

Platinum consumption by industry



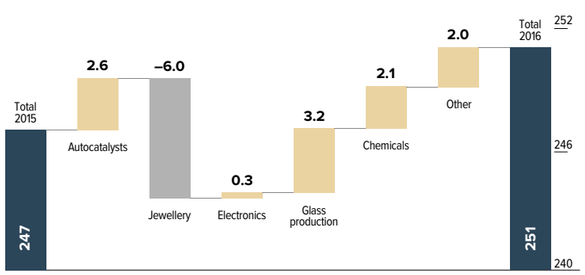
Source: Company data

251 t

	t	%
Exhaust gas treatment systems	114.6	45.6
Jewellery	75.9	30.2
Chemical catalysts	19.7	7.8
Glass production	8.2	3.3
Electronics	7.4	3.0
Other applications	25.3	10.1

Source: Company data

Changes in platinum consumption by application area, *t*



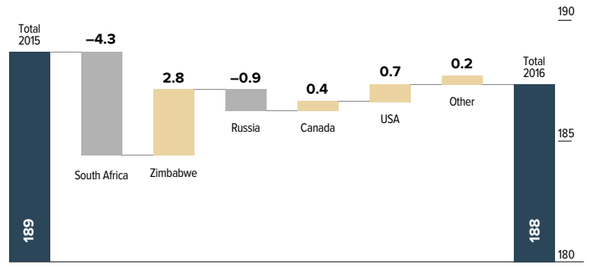
Source: Company data

The glass industry needs platinum to produce glass fibre and optical glass used in the LCDs of the majority of electronic products. The demand for the primary metal in this industry continued recovering after the decline of 2012–2013.

The electronics industry saw a modest growth in primary platinum consumption triggered by the increase in the platinum-based hard drive production due to the expansion of remote data storage capacities.

Platinum is also widely used as an investment instrument. Physical investments may vary from coins and smaller bars to investments in ETFs that accumulate large amounts of platinum in the form of standard-sized bars. 2016 brought considerable retail demand for platinum bars in Japan (13 t) driven by low JPY prices for the metal and a discount to gold. Investments in platinum ETFs for the full year remained flat.

Primary platinum production in 2015–2016, *t*



Source: Company data

PRODUCTION

In 2016, global primary platinum output decreased by 1 t, or 1%, compared to 2015.

In South Africa, the output of refined platinum declined due to the maintenance at one of Anglo American Platinum's smelters and the scheduled closure of unprofitable shafts at Lonmin. This reduction was partially offset by the launch of new projects and higher output by Northam.

Russia recorded lower output, primarily as a result of a drop in Russian Platinum production volumes.

Zimbabwean production grew thanks to restored operations at Zimplats. There was also a slight improvement in the US production numbers.

The main sources of recycled platinum are used exhaust gas catalysts and jewellery scrap. Recycled output in 2016 increased by 4 t chiefly due to higher jewellery scrap volumes. Collection of autocatalyst scrap remained flat, as low platinum prices put pressure on recycling volumes, but growing prices of scrap steel and higher recycling volumes of European diesel cars with a high platinum content in the catalysts have offset this negative trend.

The sources of previously accumulated platinum stockpiles include trading companies, financial institutions, and surplus inventories of consumers, while the movement of these inventories is non-transparent.

Platinum is used in production of glass fibre and optical glass used in the LCDs of the majority of electronic products.

BUSINESS OVERVIEW
Mineral resource base

Nornickel boasts a unique mineral resource base and is committed to actively developing its Tier I assets on Russia's Taimyr (Polar Division) and Kola (Kola MMC) Peninsulas and in the Trans-Baikal Territory (Bystrinskoye Mining Company). The continued expansion of the resource base augurs well for the Company's long-term development.

31.12.2016[1]

Measured and indicated mineral resources on Taimyr and Kola Peninsulas

2,059 mln t of ore

- Ni **14.3** mln t
- Cu **23.5** mln t
- PGM[2] **8.2** kt (263.6 mln oz)

Proven and probable reserves of Taimyr and Kola Fields

828 mln t of ore

- Ni **7.1** mln t
- Cu **12.1** mln t
- PGM[2] **3.9** kt (124.0 mln oz)

[1] Information about the Company's ore reserves and mineral resources as at 31 December 2016 is stated as per the analysis and operating alignment of the Russian divisions' ore and metal balance reserves (Russian classification, Form No. 5-gr) with the JORC Code standards. The calculations are made in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") and the Russian Code for Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (the "NAEN Code"), and are subject to the rules and regulations developed by Micon International Co Limited during the audit of field reserves of the Company's Polar Division in 2013.

[2] The platinum group metals are a family of six elements such as platinum, palladium, rhodium, ruthenium, osmium and iridium.

TAIMYR PENINSULA

(Norilsk Nickel's Polar Division)

Norilsk Nickel's Polar Division holds licenses to develop three copper-nickel sulphide deposits on the Taimyr Peninsula. Those include Talnakhskoye and Oktyabrskoye Fields (jointly the "Talnakh Ore Cluster"), and the Norilsk-1 Field (part of the Norilsk Ore Cluster).

The Company has a strong potential to maintain the current level of ore reserves given the significant mineral resources available within the existing mining operations. The depleted rich and cuprous ore reserves at the existing mines are mainly replaced through inferred resources on the flanks of the developed fields.

The Company plans to ramp up its mining operations by tapping into new rich ore deposits and focusing on the gradual and active development of disseminated and cuprous ore horizons. The Company will leverage the approved projects to develop new deposits and horizons in the Talnakh Ore Cluster and promising geological exploration data to ensure a sustainable mineral resource base going forward.

Proven and probable reserves **695 mln t of ore**

- Ni >6.4 mln t
- Cu ~11.8 mln t
- PGM 3.9 kt (123.8 mln oz)

Measured and indicated mineral resources **>1,719 mln t of ore**

- Ni 12.0 mln t
- Cu 22.3 mln t
- PGM 8.2 kt (~262.7 mln oz)

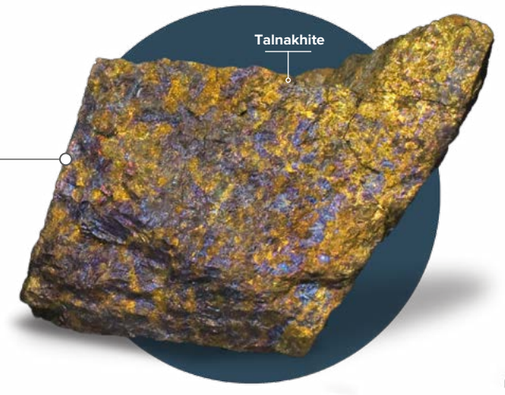
Changes in on-balance reserves in 2016[1]

Depleted
- Ni — 243.7 kt
- Cu — 418.6 kt

Added[2] **80,4 mln t of ore**

average metal content
- Ni — 0.41%
- Cu — 0.48%
- PGM — 4.73 g/t

Norilsk-1 is the oldest ore field of Norilsk. It hosts approximately 60 ore minerals with around 25% of them being exotic minerals, including those belonging to the platinum and gold groups.



[1] According to the classification of reserves and prognostic resources of solid minerals approved by Order No. 278 of the Russian Ministry of Natural Resources and Environment dated 11 December 2006

[2] As a result of operational and follow-up exploration, and re-estimation of reserves within the boundaries of the fields under exploitation (Oktyabrskoye, Talnakhskoye, Norilsk-1)

KOLA PENINSULA

(Kola MMC)

Severny Mine was allotted to develop Pechenga ore fields (the Kola Peninsula), including Zhdanovskoye, Zapolyarnoye, Kotselvaara-Kammikivi, and Semiletka (Kaula-Kotselvaara mine) Fields. In addition to those, Severny Mine's allotment also embraces Sputnik, Bystrinskoye, Tundrovoye, and Verkhneye Fields.

The copper-nickel reserves of Zhdanovskoye, Zapolyarnoye, Kotselvaara-Kammikivi and Semiletka were further explored and assigned higher classification categories.

Proven and probable reserves **~133 mln t of ore**

Ni ~0.8 mln t Cu ~0.4 mln t

Measured and indicated resources **340 mln t of ore**

Ni 2.3 mln t Cu 1.1 mln t

Changes in on-balance reserves in 2016[1]

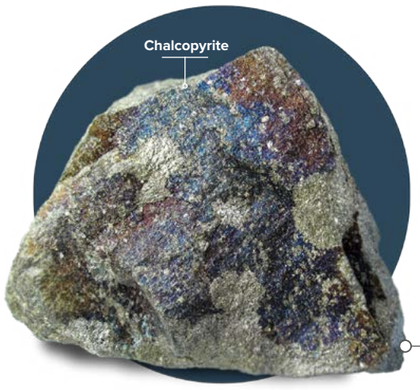
Depleted

Ni — 44.8 kt
Cu — 18.7 kt

Upgraded to a higher category[2]

6.8 mln t of ore

average metal content
Ni — 0.63%
Cu — 0.26%



In the long term, the Kola Peninsula's available mineral resource base will allow Norilsk Nickel to maintain its current level of metal output.

[1] According to the classification of reserves and prognostic resources of solid minerals approved by Order No. 278 of the Russian Ministry of Natural Resources and Environment dated 11 December 2006
[2] At the Zhdanovskoye, Zapolyarnoye, Kotselvaara-Kammikivi and Semiletka Fields

TRANS-BAIKAL TERRITORY

(Bystrinskoye Mining Company)

Bystrinskoye Field

In 2016, the Group mined 1,893 kt of balance gold-iron-copper ores at Bystrinskoye Field.

Bugdainskoye Field

The Bugdainskoye molybdenum deposit is located in the Alexandrovo-Zavodsky District of Trans-Baikal Territory. Geological exploration of the Bugdainskoye Field sought to prepare it for commercial development. In 2007, the State Reserves Commission confirmed the availability of B + C_1 + C_2 reserves. In 2010–2012, the Company conducted an engineering survey of the Bugdainsky Mining and Processing Plant with a special focus on access roads and facilities along with laboratory research capacities. 2013 saw the launch of the development project on the Bugdainskoye Field. In 2014, faced with low international molybdenum prices, the subsoil user suspended its right to develop the Bugdainskoye Field for three years.

Bystrinskoye Field – Reserves[1] **286 mln t of ore**

Cu 2,037 kt Ag 33,558 koz
Fe 66 mln t Au 7,458 koz

Bugdainskoye Field – Reserves[1] **812 mln t of ore**

Mo 600 kt Ag 6,221 koz
Pb 41 kt Au 360 koz

AUSTRALIA

(Norilsk Nickel Cawse)

The Group holds a licence to develop Honeymoon Well Project including:

- fields with disseminated nickel sulphide ores (Hannibals, Harrier, Corella and Harakka);
- Wedgetail Field hosting solid and vein ores.

Measured and indicated resources **173 mln t of ore**

Ni 0.68%

[1] Balance reserves B + C_1 + C_2

/ Business Overview /

Geological exploration

Geological exploration is one of Nornickel's core businesses ensuring sustainable extraction volumes and an optimal structure of mineral reserves.

TAIMYR PENINSULA

(Norilsk Nickel's Polar Division)

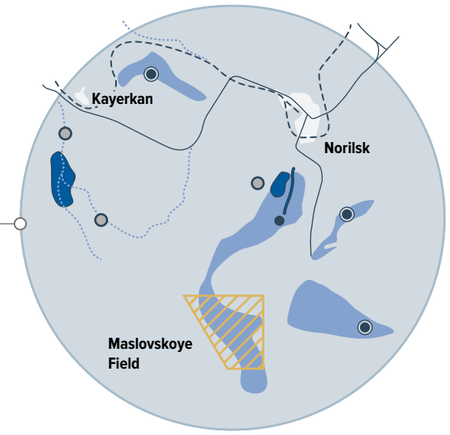
Exploration is underway at Maslovskoye Field, deep horizons and flanks of the Oktyabrskoye and Talnakhskoye Fields, and the northern flank of Norilsk-1 Field. Industrial limestone was prospected and appraised in the Verkhne-Tomulakhskaya Area of the Norilsk Industrial District.

In 2016, the Company also kept prospecting for sulphide ores in Lebyazhninskaya, Razvedochnaya, Mogenskaya, Khalilskaya, Nizhne-Khalilskaya and Nirungdinskaya Areas of the Norilsk Industrial District, 150 km south-east of Norilsk.

Maslovskoye Field

Ni Cu Pt

The Field is located in the Norilsk Industrial District, 12 km south of Norilsk-1 Field



- Outlines of ore-bearing intrusives
- Operations area

Copper-and nickel ore deposits:

- Operated
- Off-balance
- Outlines of open-pit minings
- Coal-bearing deposits
- Railroad
- Motorways
- Winter roads

Global estimated reserves of disseminated ores make it possible to classify Maslovskoye Field as one of the largest platinum-copper-nickel deposits. Areas of rich ore veins were found in the disseminated ores of this field. In 2015, the Group was granted a license to explore and mine copper-nickel sulphide ores.

In 2016, exploration project for Maslovskoye Field was prepared and reviewed by dedicated bodies. A feasibility study of permanent exploratory standards is underway.

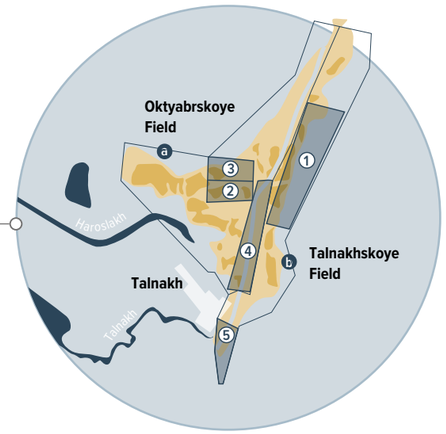
Balance reserves of Maslovskoye Field

Metal	$C_1 + C_2$ mineral reserves	Metal content in ore
Ore (mln t)	215	
Palladium (koz)	32,262	4.56 g/t
Platinum (koz)	12,479	1.78 g/t
Nickel (kt)	728	0.33%
Copper (kt)	1,122	0.51%
Cobalt (kt)	34	0.016%
Gold (koz)	1,304	0.19 g/t

Flanks and deep horizons of the Talnakhsky Ore Cluster (copper ores)

Cu

The Group's geological exploration of the unregistered reserves focuses on the follow-up exploration of rich and cuprous ores at Oktyabrskoye and Talnakhskoye Fields.



Field boundaries
- a Oktyabrskoye
- b Talnakhskoye

Allotment boundary
- a Oktyabrskoye Field
- b Talnakhskoye Field

Rich ore deposits

Boundaries of exploration areas
- 1 Eastern flanks of the Skalisty mine
- 2 Flanks of Severnaya 3 deposit
- 3 Flanks of Severnaya 4 deposit
- 4 Southern flank of the Talnakh deposit
- 5 Southern flank of the Mayak mine

Taimyrsky and Skalisty Mines

Geological exploration (follow-up exploration) is underway in the northern flanks of Taimyrsky Mine and eastern flanks of Skalisty Mine to properly assess the boundaries of the producing deposits and convert C_2 reserves to the C_1 category. This has already resulted in reassessing 9,983 kt of copper-nickel reserves of the Severnaya 3 deposit.

Norilsk-1 Field

Exploration completed at the shaft pillar of Norilsk-1 Field. Off-balance reserves in the amount of 25.5 mln t as entered into the government books were converted from the underground mining reserves into reserves intended for open pit operations.

Reserves re-entered into the government books

Metal	Inventories
Ore, mln t	11.8
Nickel, kt	352.8
Copper, kt	435.3
PGM, t	100.6

A + B + C_1 + C_2 copper-nickel reserves entered into the government books in 2016

Metal	For open-pit mining	For underground mining
Ore, mln t	96.5	4.4
Nickel, kt	253.3	13.4
Copper, kt	310.6	15.2
PGM, t	421.4	21.5

Reserves entered into the government books in 2016

11.8
mln t of ore

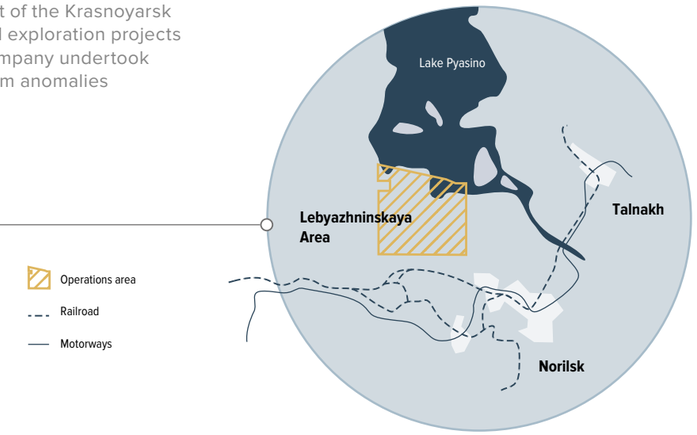
Reserves Cu-Ni ores entered into the government books

96.5
mln t of ore

Prospecting and appraisal of new copper-nickel sulphide ore fields

Ni Cu

In 2014, the Company received licenses permitting it to use subsurface for geological exploration for the purpose of prospecting and appraisal copper-nickel sulphide deposits in Lebyazhninskaya, Razvedochnaya, Mogenskaya, Khalilskaya, Nizhne-Khalilskaya and Nirungdinskaya Areas in the Dolgano-Nenets municipal district of the Krasnoyarsk Region. The respective prospecting and exploration projects have all been prepared. In 2016, the Company undertook exploration drilling in the areas to confirm anomalies identified earlier.



- Operations area
- Railroad
- Motorways

Ore clusters
- a Kulumbinsky (licenced to MMC Norilsk Nickel)
- b Khalilsky (licenced to Norilskgeologiya)

Boundaries of exploration areas
- 1 Exploration Area
- 2 Mogenskaya Area
- 3 Nizhne-Khalilskaya Area
- 4 Khalilskaya Area
- 5 Nirungdinskaya Area

Limestone prospecting and appraisal in Verkhne-Tomulakhskaya Area

The license block is located in the Taimyrsky Dolgano-Nenetsky Municipal District and borders the northern part of the Talnakh District. The central point of the Area is 10 km away from the industrial facilities of Oktyabrsky and Taimyrsky Mines.

The Company appraised the Area, developed the permanent exploratory standards, and prepared a mineral reserves estimation report. In 2016, C_1+ C_2 limestone pit reserves totalling 116,686 kt were entered into government books. A certificate confirming the discovery of the Mokulaevskoye limestone deposit was issued to Norilsk Nickel. Upon the discovery, the Company applied for the relevant exploration and mining licence.

KOLA PENINSULA

(Kola MMC)[1]

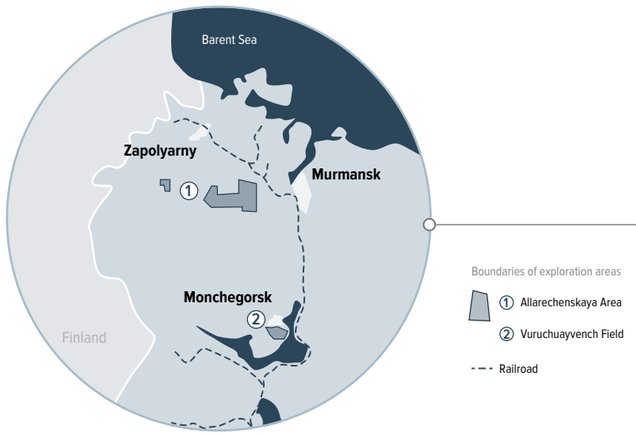
Allarechenskaya Area

In 2010–2014, the Company completed geological and geophysical ground surveys and drilling operations in the Area, but did not identify any cost-efficient commercial deposits. In 2016, no geological exploration was conducted; the licence period for the Allarechenskaya Area ended on 31 December 2016.

Vuruchuayvench Field

The Vuruchuayvench platinum-group metal deposit is located in the central part of the Kola Peninsula and Murmansk Region, 10 km from Monchegorsk and 5 km from the industrial site of the Severonickel Plant owned by Kola MMC.

In 2016, due to the unfavourable economic environment, the Company decided to renounce its subsoil use rights to explore and develop the Vuruchuayvench Field.



TRANS-BAIKAL TERRITORY

(Bystrinskoye Mining Company)

Geological exploration in the Trans-Baikal Territory is aimed at developing and maintaining the mineral resource base of both the Company and the Chita project.

[1] In 2016, no geological exploration was conducted on the Kola Peninsula.

Bystrinskoye Field

The Bystrinskoye Field is located in the Gazimuro-Zavodsky District of Trans-Baikal Territory. The closest residential areas are Novoshirokinsky, 14 km north-east of the field, and Gazimursky Zavod, a district centre 25 km to the north-west.

In 2015–2016, to increase the volume of development-ready reserves on the flanks and deep horizons of the field, the Company launched a follow-up exploration exercise. Drilling showed that the commercial mineralisation extended into both flanks of the explored areas and deep horizons.

Bystrinsko-Shirinskoye Field

The Bystrinsko-Shirinskoye Gold Field is located in the Gazimuro-Zavodsky District of Trans-Baikal Territory, 24 km south-east of Gazimursky Zavod. The Bystrinsko-Shirinskoye licence block is adjacent to Bystrinskoye Field.

In 2015–2016, the Company launched a pilot mining project on the Field using in-situ chlorination.

Zapadno-Shakhtaminskaya and Tsentralno-Shakhtaminskaya Areas

In 2015, the Company obtained a subsoil exploration licence to prospect for and appraise deposits of copper, gold, iron and associated minerals in Zapadno-Shakhtaminskaya and Tsentralno-Shakhtaminskaya Areas.

These areas are located in the south-eastern part of Trans-Baikal Territory, 22 km away from the Borzya – Gazimursky Zavod railway, and span the Alexandrovo-Zavodsky, Shelopuginsky and Gazimuro-Zavodsky Districts. The licence blocks are located in immediate proximity to the well-developed infrastructure of the former Shakhtaminsky mine, with the settlement of Vershino-Shakhtaminsky sitting right in the middle of the area.

In 2016, the Company launched a comprehensive prospecting and exploration project in the area, including geochemical and geophysical operations and geological traverses. A number of prospecting gold-copper mineralisation areas were identified; further prospecting is currently underway.

Chingitayskaya Area

In 2015, the Company obtained a subsoil exploration licence to prospect for and appraise deposits of copper, gold, molybdenum and associated minerals in Chingitayskaya Area. The Area is located in the Alexandrovo-Zavodsky District of Trans-Baikal Territory, 25 km north-west of the district centre. Near the licence block, some 3 km to the south, there is a Borzya – Alexandrovsky Zavod asphalt road (managed by the territorial government) and the Borzya – Gazimursky Zavod railway. In 2016, the Company launched a comprehensive prospecting and exploration project in the area, including geochemical and geophysical operations and geological traverses, which showed no potential for discovering an iron-copper-skarn field in the area.

AUSTRALIA

(Norilsk Nickel Cawse)

Honeymoon Well Development Project

In 2016, geological exploration under the Company's Australia licences focused on the Honeymoon Well Nickel Project (Wedgetail, Hannibals, Harrier, Corella and Harakka Fields) and prospective Albion Downs North and Albion Downs South Areas.

The geological exercise featuring drilling operations identified a sulphide nickel mineralisation on the flanks and deep horizons of the Wedgetail Field. The results served as the basis for a feasibility study of the potential Wedgetail mining. The Company also completed a technological research programme aimed at determining the talc content in ores mined at the Hannibals Field and assessing its impact on the processes.

In 2016, to further assess the potential of Albion Downs North, the Company launched electromagnetic geophysical ground surveys and desktop studies of chemical analytical data obtained earlier. The results were used to estimate the West Jordan site's resources and conduct a feasibility study for open-pit mining.

/ Business Overview /

Production

MINING

1 Stripping
Provides access from the surface to the deposit through underground workings used to transport mined ore, people, etc.

2 Development workings
The deposit is divided into separate sections, including mining levels, blocks, sublevels, stoops, etc.

3 Stoping
- separation of ore from the rock;
- delivery of ore from the mine face to the haulage level;
- maintenance of the excavated area.

4 Rock mass removal
Ore is removed by load-haul dumpers and delivered to the surface by conveyor, railway and motor vehicles, or through skip shafts.

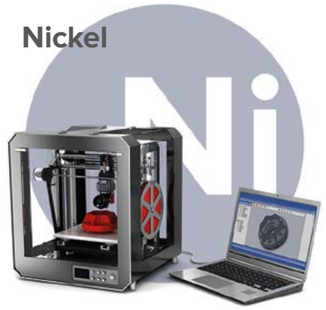
To the concentrators

Continued on the page spread

APPLICATION

Prospective metal applications

Nickel



Important today, essential tomorrow

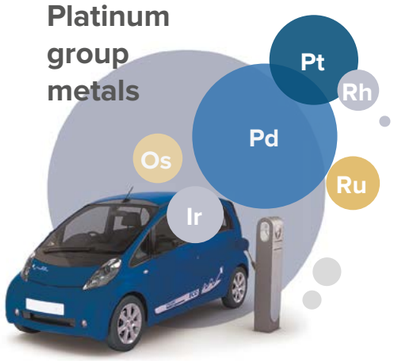
Today, nickel has a multitude of applications in the production of industrial and consumer goods, construction, aviation, space and transport industries. It is essential for the production of lithium-ion batteries and makes them safer, longer-lasting, more energy efficient and suitable for electric cars, which are becoming increasingly widespread all over the world. Nickel is also an important component of materials used in 3D printing, a technology that has gained immense popularity over the past decade.

Copper

At the core of infrastructure projects and transport electrification

In recent years, many leading world economies have been increasingly focused on new large-scale infrastructure projects as a platform for economic growth, new industrialisation and ramp-up of domestic industrial output. These projects are dependent on copper, a basic element in construction, power grid building, vehicle manufacturing and heavy engineering. Another important area for copper application is electric engine manufacturing: compared to conventional cars, their hybrid and electric counterparts use twice and thrice as much copper, respectively.

Platinum group metals



Key to environmentally safe hydrogen power

PGM serve as a platform for transition to environmentally safe and sustainable energy. Platinum is used in fuel cell engines, a new type of engine that converts the chemical energy of hydrogen into electricity. In these engines, platinum acts as a catalyst in the reaction between hydrogen and oxygen, which generates energy and water, its only by-product. Compared to conventional internal combustion engines, fuel cell ones offer zero emissions and doubling of efficiency. Thanks to a compact size, they are widely used in vehicle manufacturing, and at stationary hydrogen power plants that have been growing in number.

Safeguarding our health

Owing to their unique cytostatic properties, non-toxicity and hypoallergenicity, PGM are widely used in medicine, including complex electronic medical devices in lasting contact with a human body, such as pacemakers and glucose meters, and in dental prosthetics as a material for dentures. Medications based on isotopes of palladium and platinum are the game changers in conservative (non-invasive) treatment of cancer, especially prostate and breast cancer.

ENRICHMENT

1 **Crushing**
Ore pieces are squeezed and broken between the two surfaces of crushing machines

2 **Screening**
Granulated ore material is separated by particle size

3 **Grinding**
Crushed ore is ground in mills providing a water solution (pulp)

4 **Sizing**
Ground ore is separated by size as a result of different settling rates of the moving pulp

5 **Flotation**
Specific mineral particles suspended within the pulp attach to air bubbles, which leads to their separation

Tailings to be transported to tailings pits

Copper concentrate to be used in copper production

Talnakh Concentrator is the first Russian facility to be putting onstream three vertical fine grinding mills Vertimill VTM3000 by Metso Minerals.

35–50%
of energy savings compared to the traditional ball mill

The construction of a tailings pit with a capacity of up to 230 mln t of tailings in the vicinity of Talnakh Concentrator is nearing completion

Ore mined at Nornickel's deposits are uniquely rich

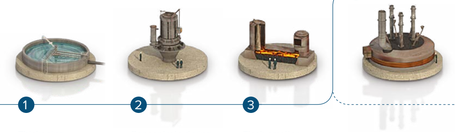
For more details, please see the Mineral Resource Base section on page 44

STRATEGIC PRIORITY:

Major upgrade of production capacities

For more details, please see Our Strategy section on page 22

NICKEL PRODUCTION



Nickel concentrate to be used in nickel production

1 **Thickening**
Partial concentrate dehydration

2 **Concentrate drying**
Removal of moisture from concentrates (to a moisture level below 9%)

3 **Flash smelter**
Smelting is achieved by mixing finely ground feedstock with a gaseous oxidiser, which holds melted metal particles suspended. The heat from oxidation reactions is actively used in the process

4 **Slag cleaning furnace**
Re-extraction of metals from metallurgical furnace slag

Granulated slag is used to fill underground workings

COPPER PRODUCTION

1 **Thickening**
Partial concentrate dehydration

2 **Filtration**
The process of reducing the pulp's moisture level by forcing it through a porous medium

3 **Concentrate drying**
Removal of moisture from concentrates (to a moisture level below 9%)

4 **Vanyukov furnace**
Uses the feedstock energy without any external power sources

5 **Basic oxygen furnace**
Oxidation and removal of slag iron and other contaminants

6 **Anode electric furnace**
Smelting of the fluidised bed furnace product to produce crude nickel anodes

7 **Casting wheel**
Casting of anode metal to the moulds to produce copper anodes

8 **Electrolysis baths**
Electrochemical oxidation at the electrolyte-immersed electrodes driven by the electric current coming from an external source

Nickel slag to be used in nickel production

Sludge to be used in precious metals production

Pd Pt Ag Au

Ni

Cu

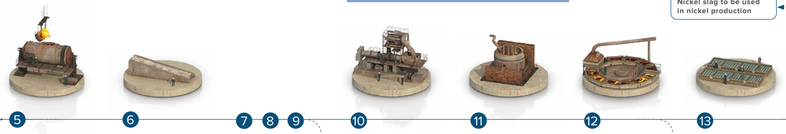
Delivery to end consumers

C **Ore-thermal furnace**
Smelting occurs due to the heat released from passing electrical current through melted slag

B **Agglomeration**
A method for forming relatively large porous blocks by roasting fine or powder ore

A **Filtration**
The process of reducing the pulp's moisture level by forcing it through a porous medium

Kola MMC completed the transition from the obsolete pelletisation and roasting technology to the briquetting of copper-nickel concentrate. The introduction of the new feedstock preparation technology aims to improve environmental conditions in Zapolyarny.



5 **Basic oxygen furnace**
Oxidation and removal of slag iron and other contaminants

6 **Casting mould**
Converter matte is cast into the moulds and cooled

7 8 9 **Crushing Grinding Flotation**

Copper concentrate to be used in copper production

Cu

10 **Fluidised bed furnace**
Oxidising concentrate roasting with conversion of metals from sulphides into oxidised powder

11 **Anode electric furnace**
Smelting of the fluidised bed furnace product to produce crude nickel anodes

12 **Casting wheel**
Casting of anode metal to the moulds to produce nickel anodes

13 **Electrolysis baths**
Electrochemical oxidation at the electrolyte-immersed electrodes driven by the electric current coming from an external source

Pd Pt Ag Au

Nickel slag to be used in nickel production

Iron-cobalt alloy to be used in cobalt production

Co

Kola MMC started migration to a ground-breaking electrowinning technology to reduce metal loss and emissions.

RUB 18 bn
of project investments

Kola MMC's Smelting Shop completed the overhaul of its ore-thermal furnace No. 5, which included the use of more reliable sealing technologies to reduce pollutant emissions and the facility's environmental footprint.

UPDATED STRATEGIC PLAN

Under the updated strategic development plan of the Norilsk Nickel Group for 2016, the key tasks of the Operations Function were as follows:

- redefinition of the upstream project portfolio;
- operating efficiency improvement;
- portfolio assessment of the Group's production assets.

The redefined base strategic portfolio of Polar Division's Upstream is aimed at building a strong production profile to ensure efficiency improvements going forward. The base portfolio was updated to include the most attractive and highly profitable projects. The Company's next step will be to draft comprehensive mine development plans with potential involvement of additional reserves and resources. Current project portfolio is sufficient to ensure sustainable production volumes for the next 5–10 years.

The Company has developed and started implementing the Processing Capacities Reconfiguration Programme seeking to materially improve its upstream and downstream operating efficiency. In 2016, the Company commissioned Stage 2 of Talnakh Concentrator. The facility upgrade is going as planned, with the Nickel Plant shutdown completed by now.

The operating efficiency programme for 2015–2017 seeks to streamline the mining planning process, increase overall recovery rates for nickel, copper, cobalt, and PGM, re-process secondary resources (tailings, copper slags, and nickel bearing pyrrhotite with a low nickel content), and optimise the work-in-progress inventory levels. Other efficiency programmes include upgrade of nickel and cobalt production technologies at Kola MMC (completed), improvement of product quality and optimisation of production costs.

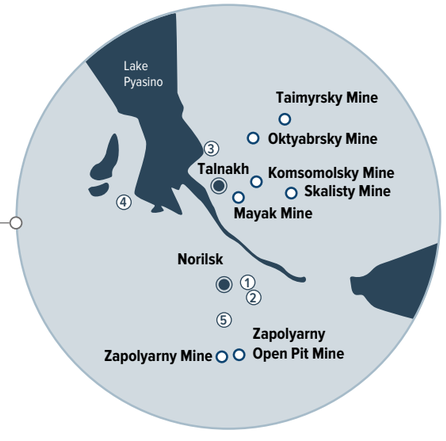
THE RECONFIGURATION OF THE COMPANY'S SMELTING AND REFINING CAPACITIES AIMS AT

- Improving operating efficiency through a more balanced and fuller utilisation of capacities following the Nickel Plant shutdown (completed in August 2016),
- raming up of pyrometallurgical capacities at Nadezhda Metallurgical Plant (completed),
- reconstruction of nickel refining capacities at Kola MMC (2015–2018).

TAIMYR PENINSULA

(Norilsk Nickel's Polar Division)

Polar Division is located on the Russian Taimyr Peninsula (beyond the Arctic Circle at 69oN). It is linked to other regions by inland waterways (the Yenisey River), the Northern Sea Route and air.



Residential Area
Mines
① Copper Plant
② Nickel Plant (shut down in August 2016)
③ Talnakh Concentrator
④ Nadezhda Metallurgical Plant
⑤ Norilsk Concentrator

Polar Division is the Group's flagship subsidiary featuring a full metal production cycle that embraces operations ranging from ore mining to the shipment of end products to consumers. This is where the Company has its largest ore deposits.

Mining

Mining assets

Field/Mine	Mine type	Ores[1]
Oktyabrskoye Field		Copper-nickel sulphide ores
Oktyabrsky Mine	Underground	Rich, cuprous and disseminated
Taimyrsky Mine	Underground	Rich
Talnakhskoye Field		Copper-nickel sulphide ores
Komsomolsky Mine[2,3], including		
Komsomolskaya mine[2,3,4]	Underground	Cuprous and disseminated
Skalistaya mine[2,3]	Underground	Rich
Mayak Mine[2,3,5]	Underground	Rich and disseminated
Norilsk-1 Field		Copper-nickel sulphide ores
Zapolyarny Mine[6], including		
Zapolyarny open pit	Open pit	Disseminated
Zapolyarnaya mine	Underground	Disseminated

Talnakhskoye and Oktyabrskoye Fields are developed by Taimyrsky, Oktyabrsky, Komsomolsky (including Komsomolskaya and Skalistaya mines) and Mayak Mines. Ores are extracted through slicing and chamber mining with flowable backfilling.

Norilsk-1 Field is developed by Zapolyarny Mine through open-pit and underground mining. Underground mining is carried out through sublevel (level) caving using front ore passes and mechanised vehicles.

[1] Rich ores are characterised by a higher content of non-ferrous and precious metals; cuprous ores are characterised by a higher copper content vs nickel; disseminated ores are characterised by a lower metal content.
[2] In 2010, the Talnakh Mining Administration was transformed into Komsomolsky Mine consisting of Komsomolskaya, Skalistaya and Mayak mines.
[3] In 2015, Mayak mine was spun off from Komsomolsky Mine (consisting of Komsomolskaya, Skalistaya and Mayak mines) to become an independent operation, Mayak Mine. Komsomolsky Mine was left with Komsomolskaya and Skalistaya mines.
[4] Komsomolskaya mine is responsible for the development of Talnakhskoye Field and the eastern part of Oktyabrskoye Field.
[5] In 2013–2014, part of Komsomolsky Mine.
[6] In 2010, the Norilsk-1 Mining Administration was transformed into Zapolyarny Mine. Medvezhy Ruchey Mine was integrated into Zapolyarny Mine as Zapolyarny open pit.

Ore output, *t*

Field	Ore type	2014	2015	2016
Oktyabrskoye Field				
Oktyabrsky Mine	Rich	1,891,800	1,682,250	1,294,200
	Cuprous	2,938,400	2,982,700	3,038,820
	Disseminated	290,134	457,791	984,762
Taimyrsky Mine	Rich	3,614,544	3,713,600	3,545,686
Talnakhskoye and Oktyabrskoye Fields				
Komsomolsky Mine	Rich	1,041,521	1,112,021	1,314,425
	Cuprous	2,484,095	2,421,055	4,041,807
	Disseminated	2,035,231	1,535,514	0
Talnakhskoye Field				
Mayak Mine	Rich	0	33,670	37,520
	Disseminated	0	898,120	951,240
Norilsk-1 Field				
Zapolyarny Mine	Disseminated	2,748,718	2,490,848	2,035,750
Total	Rich	6,547,865	6,541,541	6,191,831
	Cuprous	5,422,495	5,403,755	7,080,627
	Disseminated	5,074,083	5,382,273	3,971,752
	Total	17,044,443	17,327,569	17,244,210

In 2016, Polar Division's total ore output stood at 17.2 mln t, down 83.4 kt, or 0.5% y-o-y. The production of rich and disseminated ores declined by 15%, whereas the output of cuprous ores spiked by 31% thanks to higher volumes at Oktyabrsky and Komsomolsky Mines. The change in ore output was in line with the annual production plan.

Average metal content in ore, %

Metal	2014	2015	2016
Nickel	1.29	1.27	1.23
Copper	2.08	2.06	2.09
PGM, g/t	6.77	6.85	6.81

Ore production breakdown by metal content in 2016, %

Mines	Ore output	Metal content in ore		
		Nickel	Copper	PGM
Oktyabrsky	30.9	26.5	44.1	39.6
Taimyrsky	20.6	41.0	26.3	17.7
Komsomolsky	31.0	27.4	24.1	29.3
Komsomolskaya mine	23.3	11.4	14.8	20.4
Skalistaya mine	7.7	16.0	9.3	8.9
Mayak	5.7	2.2	2.9	3.6
Zapolyarny	11.8	2.9	2.6	9.8
Total	100	100	100	100

Concentration

Concentration facilities:
- Talnakh Concentrator
- Norilsk Concentrator

Talnakh Concentrator processes rich and cuprous ores from Oktyabrskoye Field to produce nickel, copper and pyrrhotite concentrates. The key processing stages include crushing, breaking, flotation and thickening.

Norilsk Concentrator processes all disseminated and cuprous ores from Talnakhskoye and Oktyabrskoye Fields to produce nickel and copper concentrates. The key processing stages include crushing, breaking, gravitation and flotation enrichment, and thickening.

Thickened concentrates are transported via a pipeline from Talnakh and Norilsk Concentrators to the smelting facilities for further processing.

Metals recovery in concentration, %

Metal	2014	2015	2016
Nickel	82.0	81.3	77.1
Copper	95.8	95.5	94.2
PGM	81.4	79.3	77.7

In 2016, Polar Division's Production Association of Concentrators processed a total of

16.7 mln t

of feedstock (including rich, cuprous and disseminated ores)

In 2016, sulphide ore processing volumes at Talnakh Concentrator were up 0.6 mln t y-o-y (8.6 mln t in 2016 vs 8.0 mln t in 2015). 1H 2016 saw the installation of new flotation machines, a semi-autogenous grinding mill (SAG), and fine grinding mills. From 2H 2016, Talnakh Concentrator has been fine-tuning the new technology, which temporarily reduced the recovery rates for 2016. On the flip side, higher nickel and copper content in the collective flotation concentrate, as a result of the upgrade, improved its overall quality as compared to 2015, with the nickel content growing by 0.6% (5.3% in 2016 vs 4.8% in 2015) and the copper content increasing by 2.2% (10.0% in 2016 vs 7.8% in 2015). In the reporting year, the rate of copper recovery in copper concentrate was up 3.2% y-o-y (82.2% in 2016 vs 78.9% in 2015).

In 2016, the ore processing volumes at Norilsk Concentrator were down 0.7 mln t y-o-y (8.1 mln t in 2016 vs 8.8 mln t in 2015), as cuprous ores from Oktyabrsky Mine were processed at Talnakh Concentrator. In 2H 2016, the disseminated ores branch of Norilsk Concentrator processed Copper Plant's low-grade ores as part of a pilot project, which helped to partially offset the loss of copper volumes from Oktyabrsky Mine. In 2016, nickel content in the collective concentrate produced at Norilsk Concentrator went up by 0.3% y-o-y (3.4% in 2016 vs 3.1% in 2015), while copper content remained almost flat (10.13% in 2016 vs 10.11% in 2015). Copper content in the copper concentrate increased by 0.4% (23.6% in 2016 vs 23.2% in 2015).

Ore processing volumes at Talnakh Concentrator, *mln t*

Ore processing volumes at Norilsk Concentrator, *mln t*

Smelting

Smelting facilities:

- Nadezhda Metallurgical Plant
- Nickel Plant (shut down in August 2016)
- Copper Plant
- Smelting Shop (part of Copper Plant)

In 2016, the Company's smelting operations continued reconfiguring their production capacities, streamlining production processes and improving maintenance of the core production equipment.

In August 2016, Nickel Plant's Smelting, Roasting, Nickel Electrolysis, and Chlorine and Cobalt Shops were shut down in the Company's Polar Division. Nickel is now being refined at Kola MMC and Norilsk Nickel Harjavalta.

Prior to the Nickel Plant shutdown, Nadezhda Metallurgical Plant processed most of the nickel concentrate, nearly all of the pyrrhotite concentrate from Talnakh Concentrator, part of the nickel concentrate from Norilsk Concentrator, some of the pyrrhotite concentrate previously stored at Kayerkansky Open Pit Coal Mine (KUR-1) to produce converter matte and elemental sulphur. Pyrrhotite concentrate from Talnakh Concentrator, steam cured sulphide concentrate and stored pyrrhotite concentrate from Kayerkansky Open Pit Coal Mine are delivered to the flash smelting furnaces. The matte is then blown into high-grade converter matte. From 2H 2016, after the Nickel Plant shutdown, Nadezhda Metallurgical Plant's pyrometallurgical capacities have been processing all nickel-pyrrhotite concentrate from Talnakh Concentrator and nickel concentrate from Norilsk Concentrator, while the stored pyrrhotite concentrate from Kayerkansky Open Pit Coal Mine has been delivered for processing to its Hydrometallurgical Shop.

Prior to the shutdown, Nickel Plant processed nearly all of the nickel concentrate from Norilsk Concentrator, some of the pyrrhotite and nickel concentrates from Talnakh Concentrator, part of the pyrrhotite concentrate previously stored at KUR-1 and some of the converter matte from Nadezhda Metallurgical Plant to produce commercial nickel and cobalt.

Metals recovery in smelting, %

Metal	2014	2015	2016
Nickel	92.4	93.1	93.4
Copper	94.7	94.2	94.1
PGM	93.3	93.8	95.0

Metals output

Metal	2014	2015	2016
Nickel, t	122,390	96,916	50,860
Copper, t	297,552	292,632	280,347
Palladium, koz	2,065	1,935	1,703
Platinum, koz	500	488	449

Copper Plant processes all of the copper concentrate from Norilsk and Talnakh Concentrators to obtain commercial copper, elemental sulphur and sulphuric acid for production needs of Polar Division. Smelting Shop (part of Copper Plant) recycles sludge from Copper Electrolysis Shop and Nickel Electrolysis Shop (prior to the Nickel Plant shutdown) to produce concentrates of precious metals, silver metal and selenium.

Precious metals produced by Polar Division are refined at Krasnoyarsk Gulidov Non-Ferrous Metals Plant under a tolling agreement.

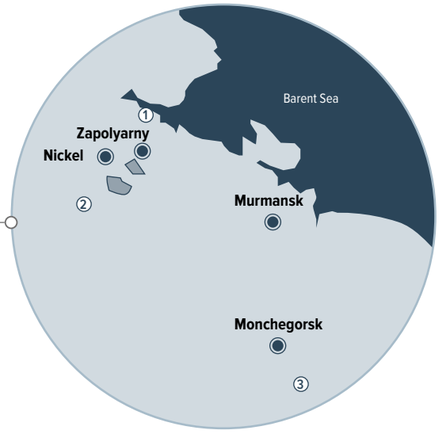
At Polar Division, metals are produced from its own raw materials. From Q4 2016, all nickel converter matte from Nadezhda Metallurgical Plant was processed at Kola MMC due to the Nickel Plant shutdown.

In 2016, the output of key metals at Polar Division was down compared to 2015. That was mainly attributable to the reconfiguration of production facilities, including the Nickel Plant shutdown and pre-commissioning operations at Talnakh Concentrator.

KOLA PENINSULA

(Kola MMC)

Located on the Kola Peninsula, Kola MMC is fully integrated into the transport infrastructure of the Northwestern Federal District as the leading industrial facility of the Murmansk Region.



- Residential Area
- Kaula-Kotselvaara Mine
- ① Zapolyarny Concentrator
- ② Refining Plant
- ③ Severonickel Plant, Smelting Shop, Refining Shop, Nickel Electrolysis Shop

Mining

Kola MMC is currently developing Zhdanovskoye, Zapolyarnoye, Kotselvaara and Semiletka Fields. Severny Mine (including Kaula-Kotselvaara mine) produces disseminated sulphide ores containing nickel, copper and other commercial components. Severny Mine leverages various ore mining methods as follows:

- Zhdanovskoye Field uses sublevel longwall caving with front ore passes, block caving (limited scope of application), and open-pit mining (at the open pit sections, for example, at Yuzhny Open Pit) methods.
- At Zapolyarnoye Field, in 1H 2016, ores were extracted through chamber mining with deep-hole stoping from sublevel drifts and flowable and dry backfilling.
- Kotselvaara and Semiletka Fields primarily use stoping from sublevel drifts and sublevel caving, as well as room-and-pillar short-hole and long-hole stoping (limited scope of application).

Kola MMC is the Company's second largest production asset.

Kola MMC mining assets

Field / mine (section)	Mine type	Ores
Zhdanovskoye Field		Copper-nickel sulphide ores
Severny open pit section	Open pit	Disseminated
Severny underground section	Underground	Disseminated
Zapolyarnoye Field		Copper-nickel sulphide ores
Severny underground section	Underground	Disseminated
Kotselvaara and Semiletka Fields		Copper-nickel sulphide ores
Kaula-Kotselvaara mine[1]	Underground	Disseminated

Ore output, *mln t*

Field	2014	2015	2016
Zhdanovskoye Field			
Severny open pit section	476,833	558,418	459,707
Severny underground section	6,081,295	6,181,010	6,309,574
Zapolyarnoye Field			
Severny underground section	695,101	489,308	138,967
Kotselvaara and Semiletka Fields			
Kaula-Kotselvaara mine	787,935	733,490	707,270
Total	8,041,164	7,962,226	7,615,518

[1] In December 2013, Kaula-Kotselvaara Mine was merged with Severny Mine and incorporated therein as Kaula-Kotselvaara mine.

In 2016, Kola MMC's total ore output amounted to 7.6 mln t, down 347 kt, or 4% y-o-y.

The comparison of actual ore outputs in 2016 and 2015 shows:

- a 72% decline in Severny Mine's output at Zapolyarnoye Field due to additional development of the Field's balance ore reserves;
- a 4% decline in Kaula-Kotselvaara mine's output due to the five-day working week;
- the decline in output at Zapolyarnoye Field and Kaula-Kotselvaara mine in line with the mining plan for 2016.

Average metal content in ore

Metal	2014	2015	2016
Nickel, %	0.65	0.62	0.53
Copper, %	0.27	0.25	0.22
PGM, g/t	0.08	0.07	0.08

In 2016, Kola MMC's total ore output amounted to

7.6 mln t (–4%)

Ore production breakdown by metal content, %

Mines	Ore output	Metal content in ore		
		Nickel	Copper	PGM
Severny Mine	100	100	100	100
Severny open pit section	6.0	4.0	4.5	2.7
Severny underground section (Zhdanovskoye Field)	82.9	80.9	78.0	67.8
Severny underground section (Zapolyarnoye Field)	1.8	4.6	4.8	9.2
Kaula-Kotselvaara mine	9.3	10.5	12.7	20.3

Concentration

Concentration facilities:

- Zapolyarny Concentrator

The Concentrator produces briquetted copper-nickel concentrate. Nkomati concentrate also undergoes briquetting. Briquettes are delivered to Smelting to produce converter matte.

In 2016, Kola MMC's Concentrator processed 7.568 mln t of ore, down 282 kt y-o-y as a result of lower mining volumes.

In 2016, the rate of metals recovery in collective concentrate was below the 2015 level due to a higher content of hard-to-process finely disseminated and talcose ores in the ore mixture.

Metals recovery in concentration (ore to concentrate), %

Metal	2014	2015	2016
Nickel	72.4	72.7	69.0
Copper	75.2	76.0	73.6

In 2016, Kola MMC's Concentrator processed

7.6 mln t (–3.6%)

Smelting

The refining facilities of Kola MMC in Monchegorsk process converter matte from Smelting Shop and Polar Division, and copper cake from Norilsk Nickel Harjavalta.

Precious metals produced by Kola MMC are refined at Krasnoyarsk Gulidov Non-Ferrous Metals Plant under a tolling agreement.

In 2016, Kola MMC produced more metals as compared to 2015. The main driver behind this growth was the increased converter matte supply from Polar Division owing to reconfiguration of the production facilities.

Smelting facilities:

- Smelting Shop (Nickel)
- Metallurgical Shop (Nickel)
- Refining Shop (Monchegorsk)
- Nickel Electrolysis Shop (Monchegorsk)

Metals recovery in refining, %

Metal	2014	2015	2016
Nickel	97.8	97.8	98.0
Copper	97.2	97.3	97.1
PGM	95.2	97.1	96.3

Metals output

Metal	2014	2015	2016
Nickel, t	106,048	125,100	131,235
including the Company's Russian feedstock	100,834	123,335	126,937
Copper, t	57,392	63,075	70,272
including the Company's Russian feedstock	48,345	60,134	63,542
Palladium, koz	595	671	851
including the Company's Russian feedstock	517	640	815
Platinum, koz	127	134	173
including the Company's Russian feedstock	95	122	159

FINLAND

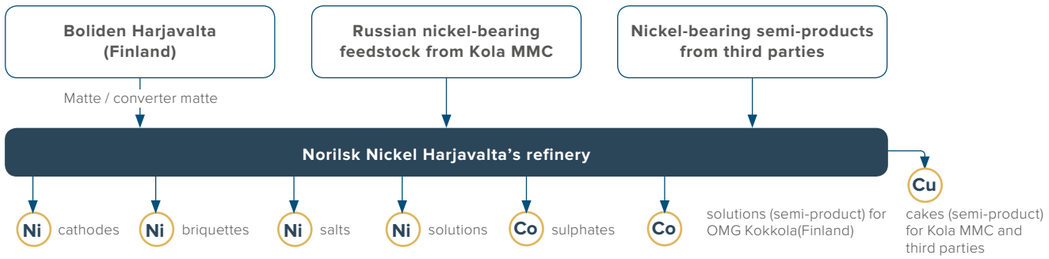
(Norilsk Nickel Harjavalta)

Harjavalta processes the Company's Russian feedstock and nickel-containing raw materials sourced from third-party suppliers.

Norilsk Nickel Harjavalta has a total nickel processing capacity of 66 ktpa. The plant uses sulphuric acid leaching, the best-in-industry solution for nickel semi-products with the metal recovery rates of over 98%.

Norilsk Nickel Harjavalta's commercial products include nickel cathodes, briquettes and salts, and cobalt sulphates. The plant also manufactures semi-products, including PGM-bearing copper cake and cobalt solution for further processing by third parties.

PRODUCTION FLOWCHART OF NORILSK NICKEL HARJAVALTA



From 2H 2016, the refining facilities in Monchegorsk have been gradually increasing their nickel feedstock supplies in line with the Group's nickel production reconfiguration strategy. Feedstock supplies from third parties continued unabated and included converter matte from BHP (Australia), matte and converter matte from Boliden Harjavalta (Finland), converter matte from BCL (Botswana), and nickel sulphide concentrate from Terrafame (Finland).

In 2016, Norilsk Nickel Harjavalta produced 53.7 kt of seleable nickel, up 23% y-o-y, owing to reconfiguration of the Company's refining facilities and, consequently, larger nickel feedstock supplies from Kola MMC.

The third party sales of copper in copper cake totalled 9.6 kt, down 26% y-o-y. This was mainly due to the increased supplies to Kola MMC.

Nickel and copper recovery rates improved on the back of a decrease in losses of nickel and copper with ferrous cakes.

Metals recovery in smelting, %

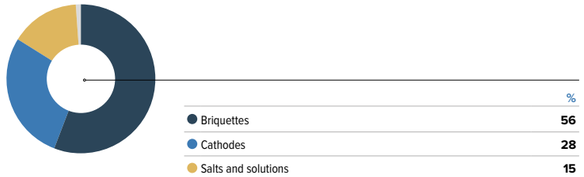
Metal	2014	2015	2016
Nickel	97.1	97.8	98.3
Copper	99.3	99.6	99.7
Palladium	99.3	99.6	99.4
Platinum	99.3	99.6	99.4

Utilisation of refining capacities, % of max

Seleable nickel production by Norilsk Nickel Harjavalta.

53.7 +23% **kt**

Seleable nickel produced by NN Harjavalta, %



Source: Company data

Metals production by Norilsk Nickel Harjavalta

Metal	2014	2015	2016
Seleable nickel, t	42,603	43,479	53,654
including the Company's Russian feedstock	0	424	19,012
Copper in copper cake, t	10,629	13,048	9,598
including the Company's Russian feedstock	0	0	593
Palladium in copper cake, koz	71	78	64
including the Company's Russian feedstock	0	0	8
Platinum in copper cake, koz	31	33	22
including the Company's Russian feedstock	0	0	2

AFRICA

(Norilsk Nickel Nkomati)

Nkomati is a 50/50 unincorporated joint venture of the Norilsk Nickel Group and African Rainbow Minerals. It is located 300 km east of Johannesburg, Mpumalanga Province, South Africa.

Nkomati is the only nickel concentrate producer in South Africa. Apart from nickel, the concentrate produced by Nkomati contains copper, cobalt, chromium and PGM.

Production facilities:
- open pit and underground mines;
- MMZ Concentrator with installed capacity of 375 ktpm (up to 410 ktpm).
- PCMZ Concentrator with installed capacity of 250 ktpm (up to 300 ktpm).

Production technology

Nkomati has a substantial resource base represented by disseminated copper-nickel sulphide ores with several major ore bodies. The Main Mineral Zone is comprised of a solid sulphide ore body with a relatively high nickel content. The field also contains a Peridotite Chromite Mineralization Zone with a lower metal content vs MMZ and a relatively high chromium content.

The feedstock produced by open-pit and underground mining operations is processed at Concentrators using the method of sulphide floatation. The produced concentrate is then further processed at Boliden and Kola MMC.

Mining

In 2016, total ore mined by Nkomati reached 2.8 mln t (attributable to the Group's 50% shareholding) with an average nickel content of 0.37%. The Group accounted for 8.5 kt of nickel concentrate production, down as compared to 2015 due to lower mining volumes and decreased nickel content in processed ore.

Average metal content in ore, %

Metal	2014	2015	2016
Nickel	0.36	0.34	0.37
Copper	0.13	0.14	0.13

Concentration

Metals recovery in concentration, %

Metal	2014	2015	2016
Nickel	75.9	74.1	70.6
Copper	90.8	86.1	89.5

Smelting

Metals production for Norilsk Nickel's internal processing needs

Metal	2014	2015	2016
Nickel, t	11,359	11,350	8,486
Copper, t	4,958	5,301	4,007
Palladium, koz	48	53	40
Platinum, koz	19	20	15

/ Business Overview /

Key investment projects

TAIMYR PENINSULA (NORILSK NICKEL'S POLAR DIVISION)

Talnakh Concentrator

Geography
Norilsk Industrial District

HIGHLIGHTS

Stage 2
- Design ore processing capacity of 10,2 mtpa
- Increased nickel content in nickel concentrates from 8.6% to 13.5%
- Reduced smelting costs due to a 12% decrease in sulphide mass in the concentrate received (starting from 2016)
- Increased sulphur disposal to tailings by 16%
- 2016 CAPEX of ca. RUB 10 bn (USD 148 mln)
- Outstanding CAPEX of ca. RUB 4 bn (USD 69 mln)
- IRR (Stages 1–2) > 40%

Project overview

The main phase of a major Talnakh Concentrator reconstruction project was launched in April 2014. Stage 1 was commissioned in January 2015. Talnakh Concentrator's Stage 2 involved expansion of the main building, reconstruction of the reagent preparation building, and construction of several new facilities. In fact, Stage 2 was equivalent to constructing a new concentrator capable of processing all ores from the Talnakhskoye Field.

Environmental effect

Sulphur emissions per tonne of produced non-ferrous metals were reduced due to a 12% decrease in sulphide content in the concentrate.

PROJECT STATUS

Stage 2: Phase 1 of the new tailings pit fully commissioned in September 2016; processing equipment installation completed in October 2016.

Project schedule

1. **Launch and commissioning of Stage 1** — Q1 2015 (completed)
2. **Launch of processing capacity at Stage 2** — October 2016 (completed)
3. **Commissioning of Talnakh Concentrator's new tailings pit** — Q4 2016 (completed)
4. **Full commissioning of Stage 2** — Q1–Q2 2017

Skalistaya mine

Geography
Norilsk Industrial District

HIGHLIGHTS

- Gradual increase in the annual ore output to 0.95 mln t by 2018 and 2.4 mln t by 2024
- Ore reserves of 58 mln t
- 2016 CAPEX of ca. RUB 10 bn (USD 153 mln)
- Outstanding CAPEX for 2017–2024 of ca. RUB 80 bn
- IRR > 30%

Project overview

The project is aimed at boosting the existing annual ore output by stripping rich cuprous ore reserves of the Talnakhskoye and Oktyabrskoye Fields and preparing them for extraction.

PROJECT STATUS

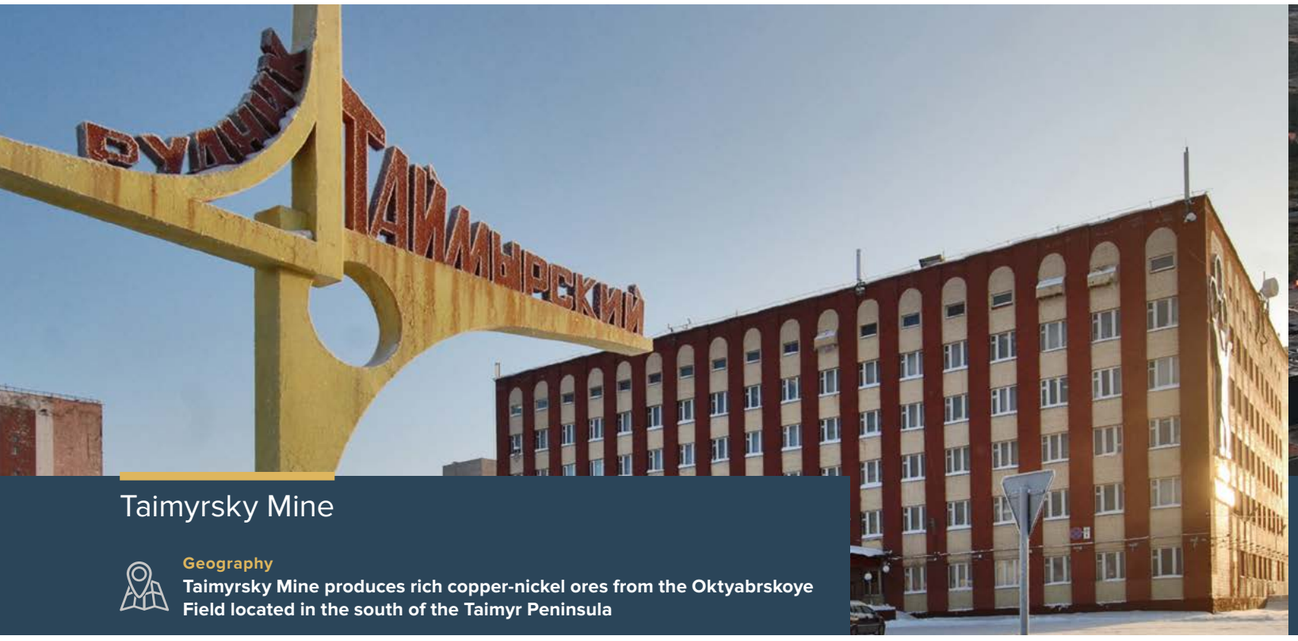
Commissioned in 2016: Stage 1 and Stage 4 of the production facility with an annual capacity of 300 kt of rich ore.
Sinking in 2016: 420 metres of ventilation shaft–10 (1.8 out of 2.1 km completed) and 455 metres of skip-cage shaft–1 (1.3 out of 2.1 km completed); drifting of over 2.3 km.

Average metal content

Ni **2.7%** Cu **3.1%** PGM **8.0 g/t**

Project schedule

1. **Capacity commissioning (500 kt)** — 2015 (completed)
2. **Capacity commissioning (300 kt)** — 2016 (completed)
3. **Production ramp-up (to 1.75 mln t)** — 2017
4. **Completion of ventilation shaft-10 construction** — 2018
5. **Completion of skip-cage shaft-1 construction** — 2019
6. **Production ramp-up (to 2.4 mln t)** — 2024



Taimyrsky Mine

Geography

Taimyrsky Mine produces rich copper-nickel ores from the Oktyabrskoye Field located in the south of the Taimyr Peninsula

HIGHLIGHTS

- Ore reserves of 63.0 mln t
- 2016 CAPEX of ca. RUB 4 bn (USD 68 mln)
- Outstanding CAPEX for 2017–2022 of over RUB 30 bn
- IRR > 60%

Project overview

The project is aimed at increasing rich ore production from 3.5 mln t to 3.9 mln t by 2020 through improved performance.

PROJECT STATUS

Over 5.9 km of underground workings completed and 0.2 mtpa of new capacity commissioned in 2016.

Average metal content

Ni **2.3%** Cu **3.5%** PGM **7.3** g/t

Project schedule

1. **Capacity commissioning (300 kt)** — 2016 (completed)
2. **Capacity commissioning (100 kt of rich ore)** — Q3 2017
3. **Capacity commissioning (800 kt of rich ore)** — Q4 2018
4. **Capacity commissioning (200 kt of rich ore)** — Q4 2019
5. **Production ramp-up (to 3.9 mln t)** — 2020

Oktyabrsky Mine

Geography

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

HIGHLIGHTS

- Ore reserves of 59 mln t
- 2016 CAPEX of ca. RUB 4 bn (USD 59 mln)
- Outstanding CAPEX for 2017–2022 of ca. RUB 11 bn
- IRR > 75%

Project overview

The project is aimed at maintaining the current annual production level at 5.2 mln t until 2023.

PROJECT STATUS

In 2016, 6 km of underground workings were completed and Stage 4 commissioned to maintain cuprous ore output at 3.0 mtpa.

Average metal content

Ni **1.0%** Cu **3.1%** PGM **7.6** g/t

Project schedule

1. **Capacity commissioning (250 kt of disseminated ore)** — Q2 2018
2. **Capacity commissioning (100 kt of rich ore)** — Q1 2019
3. **Capacity commissioning (50 kt of rich ore and 700 kt of cuprous and disseminated ore)** — Q2 2020
4. **Capacity commissioning (300 kt of cuprous and disseminated ore)** — 2020–2025

Komsomolsky Mine (excluding Skalistaya mine)

Geography

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

HIGHLIGHTS

- Ore reserves of 24.9 mln t
- 2016 CAPEX of ca. RUB 3 bn (USD 40 mln)
- Outstanding CAPEX for 2017–2020 of over RUB 16 bn
- IRR > 43%

Project overview

The project is aimed at maintaining the current annual production level at 3.8–4.1 mln t until 2020.

PROJECT STATUS

In 2016, ca. 3 km of underground workings were completed and 100 ktpa of new capacity commissioned.

Average metal content

Ni **1.5%** Cu **1.8%** PGM **5.5** g/t

Project schedule

1. **Capacity commissioning (100 kt of rich ore)** — 2016 (completed)
2. **Completion of the western backfilling shaft Capacity commissioning (800 kt)** — 2017
3. **Capacity commissioning (200 kt of rich ore)** — 2018
4. **Capacity commissioning (100 kt of rich ore)** — 2019
5. **Capacity commissioning (200 kt of rich ore)** — 2020

Nickel Plant shutdown

Geography

Nickel Plant is the Company's oldest asset (put in operation in 1942) located within the boundaries of Norilsk

Project overview

All operations at Nickel Plant were shut down on 1 September 2016, with pyrometallurgical capacity at Nadezhda Metallurgical Plant expanded to process all nickel feedstock of Polar Division. Refining operations are being moved to Kola MMC and Norilsk Nickel Harjavalta.

Environmental effect

Upgrade of Talnakh Concentrator and shutdown of Nickel Plant are expected to reduce sulphide emissions by 15% and significantly decrease ground-level concentrations of pollutants in adverse weather conditions.

PROJECT STATUS

Nadezhda Metallurgical Plant

March 2016: smelting operations launched to process all of the Polar Division's nickel concentrate by ramping up pyrometallurgical capacity to 2.4 mtpa of ore; 2016 CAPEX of ca. RUB 1.3 bn; outstanding CAPEX for 2017 of ca. RUB 0.8 bn.

Q1 2016: existing capacity upgraded to process 150 ktpa of nickel slag from Copper Plant; CAPEX of RUB 0.1 bn.

July 2016: all nickel feedstock transferred from Norilsk Concentrator; CAPEX of RUB 0.7 bn.

Copper Plant

Project launched to transfer sodium bisulfate production from Nickel Plant's sintering shop; CAPEX of RUB 0.7 bn.

Project schedule

1. **Shutdown of Nickel Plant's sintering and smelting shops** — April 2016 (completed)
2. **Shutdown of all operations at Nickel Plant** — August 2016 (completed)
3. **Design documents for mothballing and decommissioning of the plant's production facilities** — December 2016 (completed)

Sulphur project at Nadezhda Metallurgical Plant

Geography
NMP site, 8 km from Norilsk

HIGHLIGHTS

- Sulphur output of up to 600 ktpa
- Sulphur dioxide recovery rate of at least 95%
- 2016 CAPEX of RUB 0.6 bn.

PROJECT STATUS

- SNC Lavalin began to develop engineering documents
- Estimation of power supply infrastructure costs in progress
- Engineering surveys for the Engineering Documents stage completed
- Preparation of the construction site in progress.

Project overview

The project aims to design and introduce new solutions and technology to extract elemental sulphur from waste gases of Nadezhda Metallurgical Plant's flash smelters, and reduce sulphur dioxide emissions down to the level prescribed by regulations.

Environmental effect

This project will have the strongest impact on improving environmental performance among other upgrade projects of the Company. Its goal is to reduce sulphur dioxide emissions with the most effective technology.

Project schedule

1 **Sulphur project design documents; approval of design documents and results of engineering surveys and inspections by Russia's State Expert Review Board**

2015 (completed)

2 **Engaging SNC Lavalin (Canada) to develop engineering documents**

Q4 2016 (completed)

Sulphur project at Copper Plant

Geography
Copper Plant site, 1 km from Norilsk

HIGHLIGHTS

- Sulphur output of up to 280 ktpa
- Sulphur dioxide recovery rate of at least 90%
- 2016 CAPEX of ca. RUB 13 mln
- Estimated completion in 2021

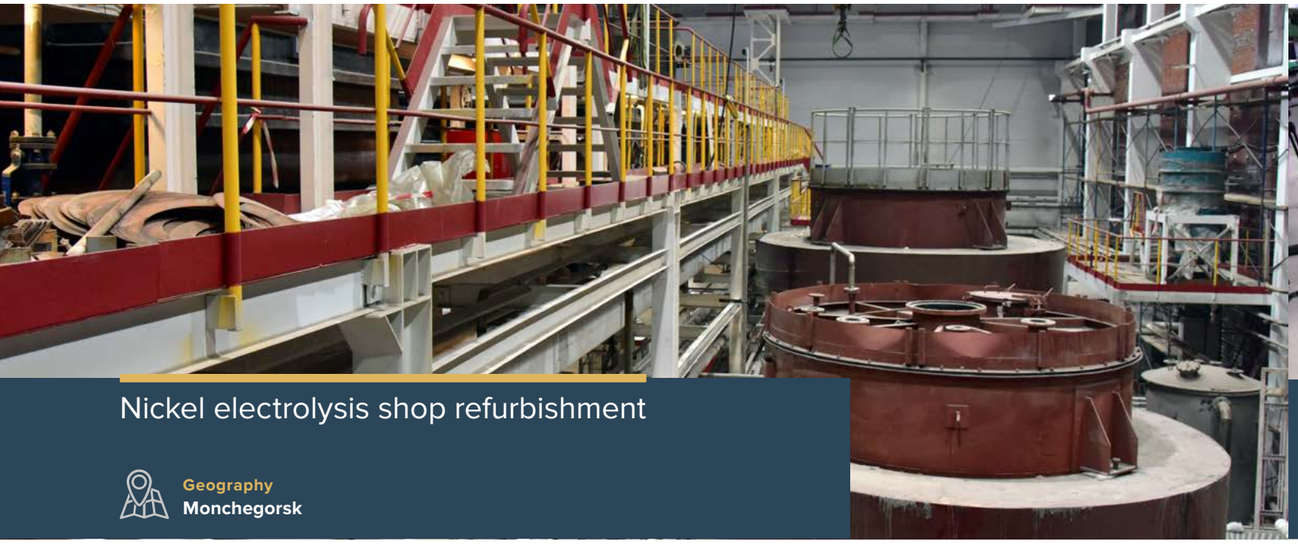
Project overview

The project aims to design and introduce new solutions and technology to extract elemental sulphur from waste gases of Copper Plant's Vanyukov furnaces, and reduce sulphur dioxide emissions down to the maximum permitted level. The project is an alternative solution to high sulphur dioxide emissions and provides for sulphur production refurbishment at Copper Plant with technology developed by Gipronickel Institute with an option to use some of the existing buildings, structures, machinery and infrastructure.

PROJECT STATUS

Feasibility study and preparation of design specifications in progress; completion expected in Q1 2017.

KOLA PENINSULA (KOLA MMC)



Nickel electrolysis shop refurbishment

Geography
Monchegorsk

HIGHLIGHTS

NES-1 highlights

- Nickel output of up to 45 ktpa
- CAPEX of ca. RUB 0.8 bn
- Project completed in 2016

NES-2 highlights

- Nickel output of up to 145 ktpa
- 2016 CAPEX of ca. RUB 1 bn;
- Outstanding CAPEX of ca. RUB 18 bn
- Project completion in Q4 2018

Project overview

Nickel electrolysis shop-1 saw refurbishment of buildings, structures, processing machinery, auxiliary equipment, engineering networks and ventilation. The purpose of refurbishment was to prepare the shop for production capacity reconfiguration following the shutdown of Nickel Plant. Re-launch of the shop will maintain stable commercial output while the main electrolysis shop (nickel electrolysis shop-2) of Kola MMC is being upgraded.

Nickel electrolysis shop-2 is to be transformed into an advanced, cost-efficient cathode nickel facility by introducing the technology of nickel electrowinning from chlorine dissolved tube furnace nickel powder. The metal will have maximum purity.

Saline effluent disposal

Geography
Monchegorsk

HIGHLIGHTS

- Annual disposal of 350 thousand cubic meters of saline effluents and manufacturing of commercial or internal use products
- 2016 CAPEX of RUB 0.4 bn
- Project CAPEX of RUB 1.5 bn

Project overview

The project provided for the construction of a liquid waste evaporation unit for electrolytic nickel production. It offset the adverse effect of nickel production facilities on water bodies adjacent to the Company's production site in Monchegorsk by significantly decreasing sodium sulphate, sodium chloride and boron content in wastewater discharged from the nickel electrolysis shop through production of commercial sodium sulphate, sodium chloride, boric acid and thermal power.

TRANS-BAIKAL TERRITORY (BYSTRINSKOYE MINING COMPANY)

Bystrinsky MPP

Geography
The Bystrinskoye Field is located in the Gazimuro-Zavodsky District of Trans-Baikal Territory

HIGHLIGHTS

- Output of 10 mtpa
- Ore reserves of 294 mln t
- 2016 CAPEX of over RUB 18 bn (USD 269 mln)
- Outstanding CAPEX for 2017 (excluding power infrastructure costs) of ca. RUB 36 bn (ca. USD 500 mln)
- New jobs for 3 thousand employees
- IRR > 40%

Project overview

The project aims to construct an open-pit mine and a mining and processing plant in order to utilise untapped reserves.

Average metal content

Cu **0.7%** Fe **23%** Au **0.8 g/t**

Annual average output at design capacity in 2020–2030

Cu **67 kt** in concentrate

Fe **2.9 mln t** of magnetite concentrate (66% Fe)

Au **252 koz** in concentrate

PROJECT STATUS

Temporary operations on Naryn-1 (Borzya) – Gazimursky Zavod railway.

Construction of 220 kV Kharanorskaya GRES – Bugdainskaya – Bystrinskaya power line with 220 kV Bystrinskaya substation in progress; when completed, facilities will be purchased by FGC UES.

Turnkey construction of a concentrator, camp, power infrastructure and a boiler in progress; stripping and preparatory operations at the Verkhneildikansky and Bystrinsky-2 open-pit mines underway.

Delivery and installation of core processing equipment in progress; contracts concluded to supply mining and stripping machinery.

Interior finishing and engineering network installation in the main and auxiliary Bystrinsky MPP buildings as soon as they are connected to heating systems.

Bystrinsky Field resource model updated to include gold and mixed ores; reserves expected to increase following additional exploration.

In 2016, the Company and Sberbank CIB signed a USD 800 mln 8-year project financing facility agreement to finance the Chita project.

In July 2016, China's Highland Fund acquired a 10.67% stake in the Chita project.

The Board of Directors approved the sale of a 39.32% stake in the Chita project to CIS Natural Resources Fund. The Company will retain more than 50% in the project and its operator status.

Project schedule

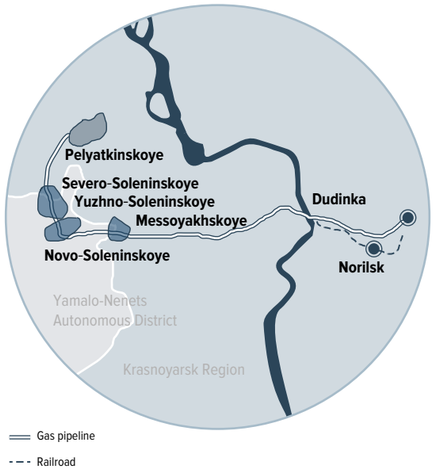
1. **Construction and launch of Naryn-1 (Borzya) – Gazimursky Zavod railway**
   2017
2. **Commissioning of a 220 kV power line. Mining and processing plant pilot launch**
   2017
3. **Plant to reach design capacity**
   2020

/ Business Overview /

Gas and energy assets

GAS ASSETS

The Company's gas assets operate as a stand-alone business unit focusing on sustainable development of the entire Norilsk Industrial District. The Company views them as strategic assets, but does not include them into the core value chain.



Natural gas and gas condensate reserves as at 31 December 2016

Field	Residual hydrocarbon reserves within licence blocks (categories A+B+C_1)	
	Free gas, bcm	Recoverable condensate, mln t
Norilskgazprom		
Messoyakhskoye Gas Field	6.86	–
Yuzhno-Soleninskoye Gas Condensate Field	52.95	0.5
Severo-Soleninskoye Gas Condensate Field	44.74	0.5
Taimyrgaz		
Pelyatkinskoye Gas Condensate Field	187.77	6.9
Total residual reserves	292.32	7.9

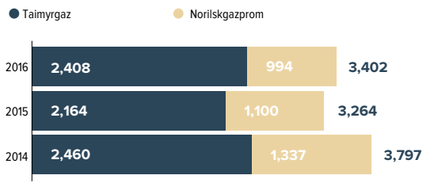
Taimyrgaz/Taimyrtransgaz

The company operates the Pelyatkinskoye Gas Condensate Field.

In March 2016, Taimyrtransgaz was spun off from Taimyrgaz as part of the reorganisation process, splitting the regulated activities into gas transportation and gas production.

During the same year, the company completed the construction and pilot-testing of an appraisal well in the northeastern flank of the Pelyatkinskoye Field.

Natural gas output, *mcm*



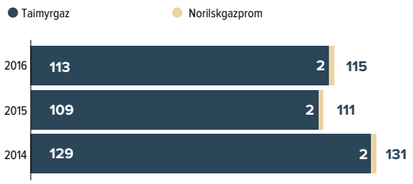
Norilskgazprom/Norilsktransgaz

The company operates the Messoyakhskoye, Yuzhno-Soleninskoye and Severo-Soleninskoye Gas Condensate Fields and also transports natural gas and condensate to consumers in the Norilsk Industrial District.

In November 2016, Norilsktransgaz was spun off from Norilskgazprom as part of the reorganisation process, splitting the regulated activities into gas transportation and gas production.

Actual volumes of gas deliveries in 2016 stood at 930.361 mcm (102.74% of the target). The company produced 997.106 mcm of gas (99.72% of the target), with the above-target gas volumes delivered via savings through internal needs and losses.

Gas condensate output, *kt*



ENERGY ASSETS

NTEK (Norilsk-Taimyr Energy Company)

NTEK engages in power and heat generation, transmission and sale using the facilities of Norilskenergo (MMC Norilsk Nickel's branch) and Taimyrenergo. The energy sources include renewables (hydropower) and gaseous hydrocarbons (natural gas).

To generate power from renewable energy sources, NTEK operates Ust-Khantayskaya and Kureyskaya HPPs (441 MW and 600 MW of installed capacity, respectively).

In 2016, the share of renewable energy stood at 25% for the Norilsk Nickel Group and 38% for the Norilsk Industrial District.

In the reporting period, the low water level at the HPP water storage reservoirs led to increased TPP generation and lower HPP volumes in order to achieve long-time average annual levels to coincide with the peak load of the heating season. In 2016, TPP generation reached 5,259,908 thousand kWh, while the HPPs produced 2,929,888 thousand kWh.

Bystrinsk Electric Grid Company

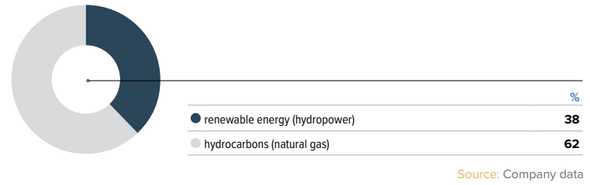
Bystrinsk Electric Grid Company was set up as a construction management company to carry out an investment project.

In 2016, it completed the following works:

- adjusted technical data and estimates in the design documents;
- received an approval following the review of the fibre optic communication line and 220 kV overhead line design documents;
- drafted 95% of the engineering documents;
- completed the construction of the 220 kV overhead line, except for land rehabilitation and corrections;
- completed main installation works at the 220 kV Bystrinskaya substation. In 2017, the facilities are scheduled to be commissioned following the completion of all the works.

In 2017, the facilities are scheduled to be commissioned following the completion of all the works.

NTEK's power generation in 2016



Source: Company data

USE OF RENEWABLE ENERGY

The Group's investment programme includes two large-scale projects that aim to increase the use of renewable energy (hydropower):

- Ust-Khantayskaya HPP investment project provides for the replacement of obsolete hydroelectric units to make better use of water resources, increase overall HPP generation volumes, and improve the reliability of energy supplies to the Norilsk Industrial District. Two out of seven hydroelectric units have been replaced, while 2017 sees the replacement of hydroelectric unit – 3 underway;
- Opornaya substation investment project covers installation of an additional autotransformer to increase the intake of power and capacity from the Ust-Khantayskaya and Kureyskaya HPPs for the Norilsk Industrial District across the 110 kV network to 350 MW and 500 MW in normal and emergency conditions, respectively (the project was completed in 2016).

/ Business Overview /

Transportation and logistics

The Company's transportation and logistics assets

Own sea fleet
- 6 ice-class vessels

Own river fleet
- 555 vessels
  - 163 self-propelled vessels
  - 392 towed vessels

Own rail car and locomotive fleet
- 118 container flatcars
- 1 switch locomotive
- 1 Yermak electric locomotive
- 1 2M62 diesel locomotive

Operated aircraft fleet
- 31 aircraft
  - 16 helicopters (operated by Norilsk Avia)
  - 15 planes (operated by NordStar Airlines, former Moscow Branch of Taimyr Air Company)

The Company's transportation and logistics assets also include Norilsk Airport and port terminals in Murmansk, Dudinka, Krasnoyarsk and Lesosibirsk.

Norilsk Nickel has a unique Arctic cargo fleet comprising five Norilsk Nickel container vessels and one Yenisey heavy-duty ice-class tanker (ARC 7 under the PMPC classification). The vessels are able to break through 1.5 m thick Arctic ice without icebreaker support.

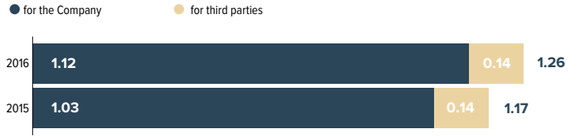
The Company's dry cargo fleet does not only ensure year-round service between Dudinka, Murmansk, Arkhangelsk, Rotterdam and Hamburg sea ports, but also offers commercial voyages to other destinations. In 2016, 69 voyages were made from Dudinka (vs 63 voyages in 2015), including 11 direct voyages to European ports.

The Yenisey tanker ensures export deliveries of gas condensate from the Pelyatkinskoye Gas Condensate Field to European ports and operates commercial voyages to other destinations.

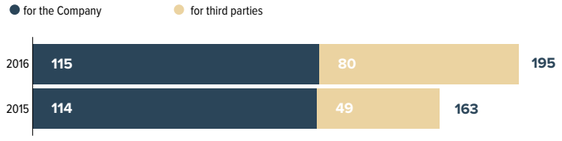
In 2016, the waterway cargo traffic at the Dudinka port (Polar Transportation Branch) totalled 3.9 mln t (vs 3.7 mln t in 2015), including 1.2 mln t along the Northern Sea Route and over 2.7 mln t along the Yenisey River.

The waterway cargo traffic at the Company's transfer terminal in Murmansk (Murmansk Transportation Branch) was 926.3 kt (vs 777.8 kt in 2015), with 139 vessels handled (vs 127 vessels in 2015), including 91 vessels on coastal voyages (vs 80 vessels in 2015) and 48 vessels on export and import voyages (vs 47 vessels in 2015). The Company's own rail car and locomotive fleet carried 456.7 kt of cargo (vs 337.7 kt in 2015). In the reporting period, the terminal handled 12.8 thousand rail cars (vs 9.8 thousand in 2015) and 10.9 thousand road cars (vs 7.4 thousand in 2015).

Dry cargo shipmentsby the Company's fleet, *mln t*



Shipmentsby the Yenisey tanker, *kt*



Waterway cargo traffic at Dudinka port, *mln t*

Waterway cargo traffic at Murmansk terminal, *kt*

In 2016, the Company sold its stake in Arkhangelsk Commercial Sea Port (the Company controlled 74.78% of the shares). The sale came as a step towards implementation of the Company's strategy to gradually dispose of its non-core assets.

Nornickel also sought to bring down the transshipment costs by moving some of its cargo flows to the new cargo transfer terminal in Murmansk.

In 2016, a new stage of the Norilsk Airport reconstruction programme was launched. As was ordered by the President of the Russian Federation, the 2010–2020 Russian Transport Development Federal Programme provides for the reconstruction of the Norilsk Airport and associated infrastructure maintenance works. The key objective is to reconstruct the airport's runway and apron. The project is implemented under the 2014–2018 public-private partnership agreements between MMC Norilsk Nickel and the Federal Air Transport Agency. The reconstruction funding has already been approved, with RUB 9 bn to be sourced from the federal budget and RUB 3 bn to be contributed by MMC Norilsk Nickel.

In 2016, the first stage of reconstruction of the 720 m long runway was completed, which helped maintain the established passenger traffic for Boeing 737 and similar aircraft across the existing route network from 3 June 2016 (start of the construction works) to 15 September 2016 (commissioning of the entire runway).

To keep Norilsk's air traffic going in the summer seasons of 2017 and 2018, the airport will also serve light aircraft. In addition, 2017 will see the launch of another project, reconstruction of the Norilsk Airport's apron.

Норильск Авиа

Norilsk Avia responds to industrial and social needs of the Norilsk Industrial District and the Dolgano-Nenets Municipal District of the Taimyr Peninsula. The company provides air transportation related to:
- operations of Norilsk Nickel's production facilities;
- emergency air medical services and search-and-rescue operations;
- local passenger traffic

NordStar

NordStar Airlines is a rapidly developing aviation project launched on 17 December 2008, when the Board of Directors of Taimyr Air Company (a wholly-owned subsidiary of MMC Norilsk Nickel) resolved to establish Moscow Branch of Taimyr Air Company along with the NordStar Airlines brand. The company's fleet comprises 15 aircraft, including nine Boeings 737-800, one Boeing 737-300 and five ATRs 42-500. With a passenger traffic in excess of 1 mln people per year, NordStar Airlines annually confirms the status of a major air carrier not only for the Siberian Federal District, but also nationwide. The air company's current route network covers over 30 cities in Russia and the CIS. Each year, NordStar operates seasonal charter flights from Moscow, St Petersburg and other cities.

Авиакомпания НОРДАВИА

In April 2016, the Company sold its 100% stake in Nordavia. Nordavia continues to operate flights, including in Murmansk and Arkhangelsk Regions.

Traffic volume of own rail car and locomotive fleet increasing

35%

/ Business Overview /

Products and sales

Nornickel operates its own global sales network covering all major markets: Russia, Europe, Asia Pacific, and the USA.

Sales, along with production, have traditionally been a key value adding line of Nornickel's business. In 2016, the Company started implementing its updated sales strategy with a committed focus on enhanced positioning in end consumer markets to ensure long-term efficiency of sales. The strategy relies on added value as one of the core performance indicators to measure sales efficiency.

In 2016, the Company's nickel sales in the market were represented by full-plate and cut cathodes of marketable quality. Those are supplied to customers that use primary nickel to produce stainless and other special steels, alloys, perform electroplating, produce catalysts, cathodes for current sources, and other materials for a wide range of industries, including food and chemicals manufacturing, energy, aerospace and automotive sectors, construction, etc.

The Company fully covers the demand for nickel in Russia.

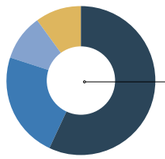
As the world's largest producer of high grade nickel also makes its products available in the key sales markets worldwide, including Asia, Europe, and Americas. In 2016, in line with the sales strategy, the Company was also diversifying its nickel sales by industry, gaining greater presence in alloy, electroplating, and battery manufacturing sectors.

Due to the scheduled shutdown of Nickel Plant in Norilsk and the subsequent reconfiguration of the production facilities, primary nickel production in 2016 was concentrated at Kola MMC and Norilsk Nickel Harjavalta.

As the world's largest producer of palladium, the Company continues to implement the strategy of entering into direct contracts with end consumers to ensure sustainable growth of the industrial use of platinum group metals and demand for them. This is achieved through long-term contracts with major customers.

Palladium and platinum are produced in two main forms: bars (20% of total output) and powders (80% of total output). Bars are predominantly used in medicine (dental equipment), electronics (conductors and radio equipment components), and jewellery manufacturing. For powders, the key consumers are autocatalyst producers and the chemical industry.

Sales geography, %



36 countries

	%
Europe	57
Asia	23
Americas	10
Russia and CIS	10

Source: Company data

A significant share of sales based on long-term prepaid supply arrangements.

Higher sales premiums and improved liquidity are secured through Norilsk Nickel's products being registered on the world's major exchanges. After copper produced by MMC Norilsk Nickel's Polar Division was registered on the London Metal Exchange in December 2015, the Company launched supplies of its NORILSK-branded copper.

In 2016, sales were made against the backdrop of a tough market environment, a significant surplus of physical nickel supply and a slowdown in global commodity and financial markets. However, the Company managed to outperform its global peers in terms of average selling prices. This proved the effectiveness of Norilsk Nickel's sales network, which enabled the Company to maintain its presence in all key sales markets, along with securing profitable sales.

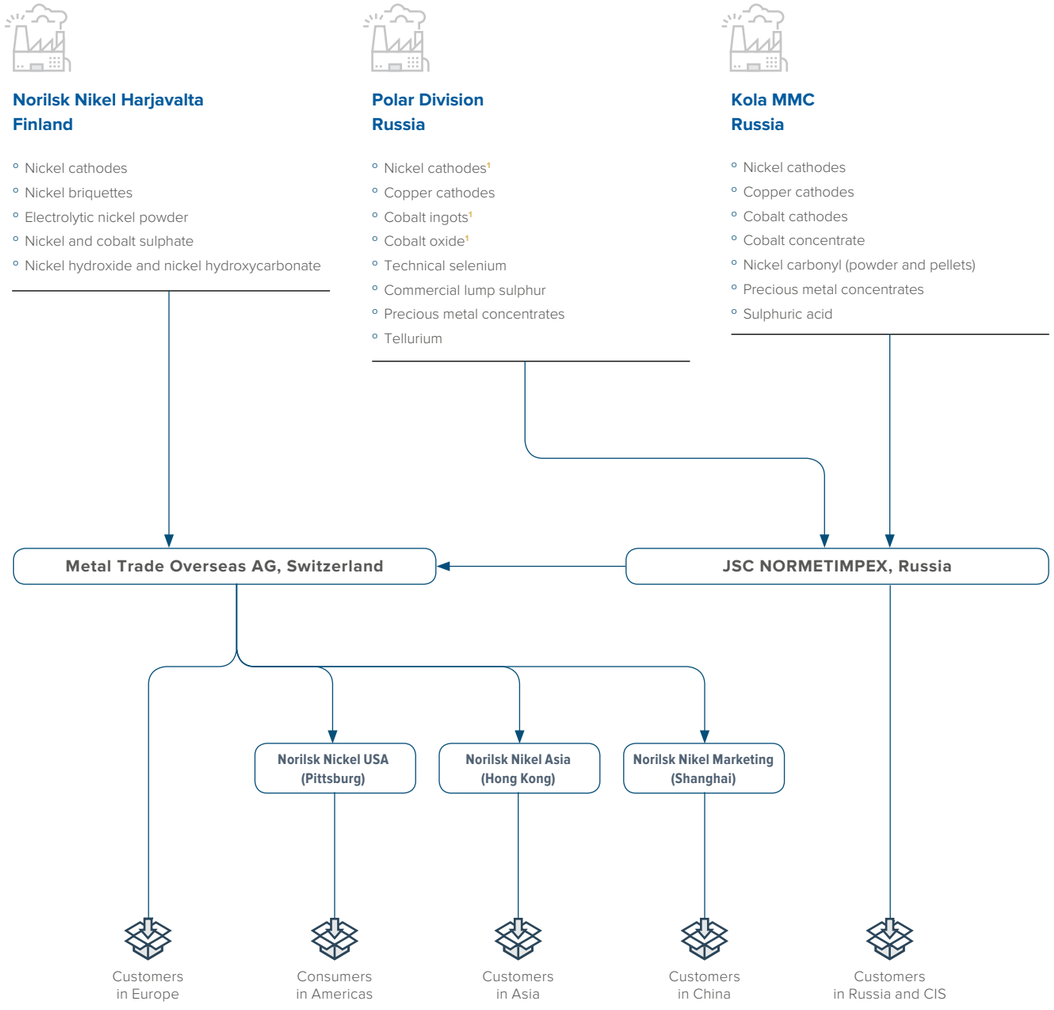
Most of the Company's products were sold to end consumers, direct access to whom is at the core of Norilsk Nickel's sales strategy.

Throughout 2016, Norilsk Nickel continued to maintain the reputation of a highly reliable supplier, seeing customer confidence as its top priority.

Its customer satisfaction index with regard to the quality of products and services also remained high.

Precious metals were refined from raw materials produced by Polar Division and Kola MMC at Krasnoyarsk Gulidov Non-Ferrous Metals Plant under a tolling agreement.

PRODUCTS AND SALES



[1] Produced until August 2016 at Nickel Plant

/ Business Overview /

Procurement

All materials and equipment procurement activities are based on the regulated purchase procedures and policies and are in full compliance with Federal Law No. 223-FZ On Procurement of Goods, Work and Services By Certain Types of Legal Entities dated 18 July 2011.

In 2016, the Company signed approximately five thousand contracts for centralised procurement of materials and equipment, which totalled around USD 1.6 bn and covered about 99% of its materials and equipment needs. During the reporting period, around 40% of materials and equipment were purchased based on category procurement policies.

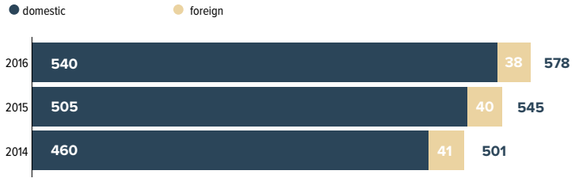
Given the key role of domestic suppliers, the Company pays great attention to fostering ties with reliable Russian businesses. International suppliers are mainly engaged for delivering unique equipment or systems that do not currently have Russian alternatives.

As at the end of 2016, domestic suppliers outnumbered foreign ones by 14 to 1, and their total amount in the procurement system increased by 7% against the previous year, while foreign suppliers saw a minor decline in numbers.

The Company's Tender Committee and tender commissions, which handle larger purchases, carried out procurement procedures for a total of over USD 750 mln. They also oversaw tender procedures of the Company's branches and subsidiaries in Russia to purchase services for over USD 200 mln.

The Company's Tender Committee focuses on improving the procedures for identifying reliable suppliers of quality products at a fair market value. In 2016, the Company secured the purchase of the required equipment and materials with a total price decrease of 5%, which is lower than the industry indices and the data by the Federal State Statistics Service of Russia. The year saw continued efforts aimed at expanding and improving the participant pool of procurement procedures. The procedures are now more open and transparent, among other things thanks to trading at open e-commerce platforms such as Fabrikant and B2B-Center. As a result, over 65% of new contracts were signed directly with producers or with their trading companies.

Number of the Company's suppliers and contractors



PROCUREMENT PROCESS IMPROVEMENT

The unified methodology centre led the ongoing efforts focused on developing and implementing guidelines on procurement processes. The Company also worked on harmonising the regulatory procurement framework across its Russian subsidiaries and branches, including services procurement.

The Company pilot-tested a SAP SRM/SLC–based automated system for supplier relationship management, which helped improve the transparency and competitiveness of the procurement procedures.

MATERIALS AND EQUIPMENT INVENTORY MANAGEMENT

In 2016, the Company's inventory management remained focused on stock cuts and improvements in the stock structure and turnover. As a result, inventory volumes decreased by 5% to USD 1,120 mln on the back of better requirements planning by internal customers and material and technical procurement units at production sites, improved inventory monitoring and controls, and the introduction of standardised inventory levels by category.

ANTI-CORRUPTION POLICY

As part of its anti-corruption initiatives, the Company has formulated a standard anti-corruption clause to be included in contracts with counterparties. In addition, in 2016 the Company continued to work on improving counterparty due diligence procedures. Before signing a contract, the Corporate Security Unit evaluates the business reputation, reliability and solvency of potential counterparties.

Research and development

The main focus of Nornickel's R&D function was the Company's large-scale Processing Capacities Reconfiguration Programme. In the reporting year, it carried out several research and technological development projects, along with a number of feasibility studies.

The Company's operating efficiency programme for 2015–2017 aims to find unique solutions to streamline the mining planning process, increase overall recovery rates for nickel, copper, cobalt and PGM, re-process secondary resources (tailings, copper slags, and nickel bearing pyrrhotite with a low nickel content), and optimise the work-in-progress inventory levels.

Other programmes include upgrade of nickel and cobalt production technologies at Kola MMC, improvement of product quality and optimisation of production costs.

In 2016, Nornickel acquired three patented technologies developed by employees of the Company and Gipronickel Institute.

As part of its environmental protection programme, the Company is going to upgrade the equipment at its smelting facilities in order to reduce sulphur dioxide emissions

KEY R&D AREAS IN 2016

Company Development Strategy

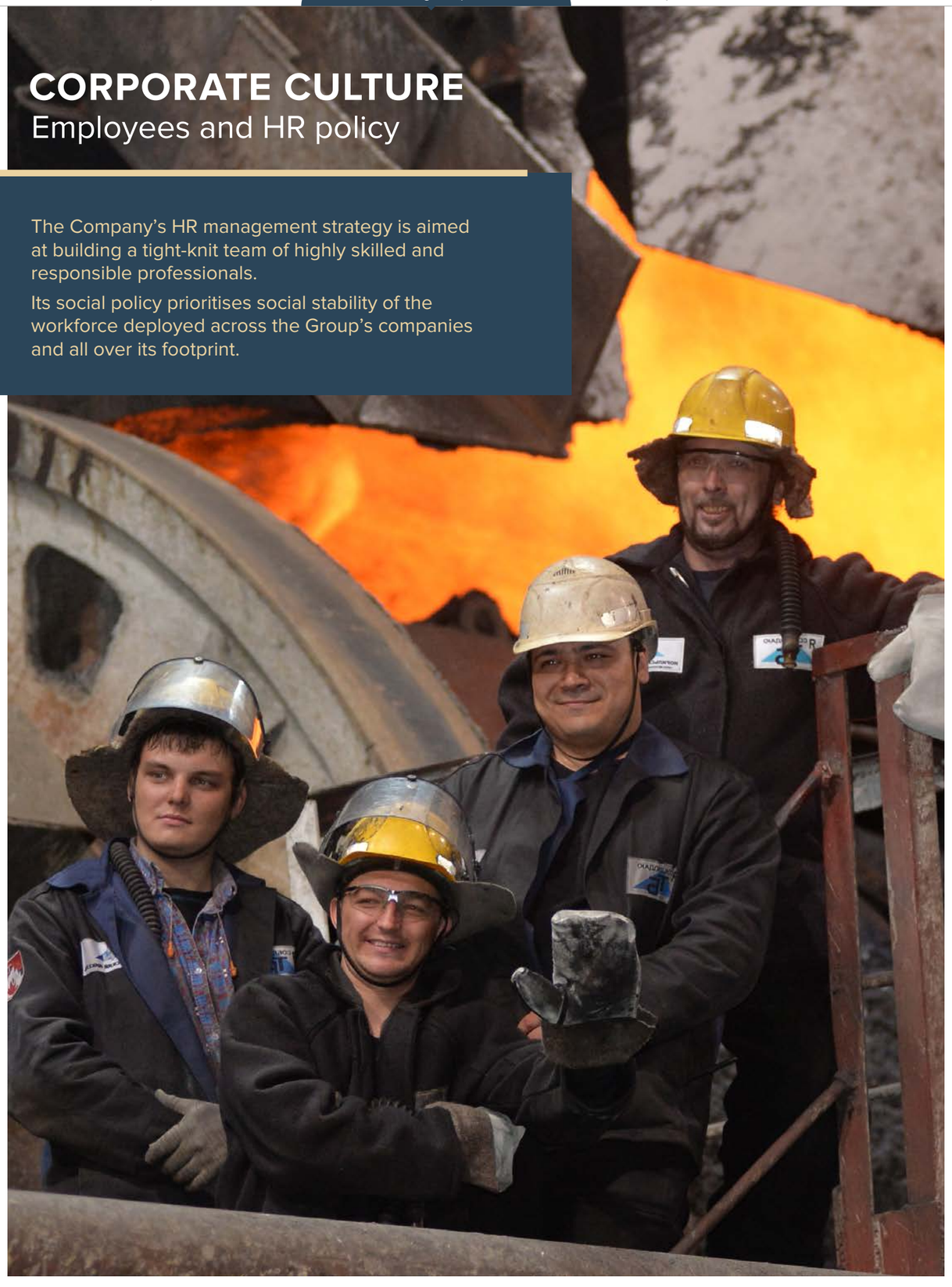
- feasibility study to choose the optimal design for the Company's copper refining facilities
- development of alternative methods for processing copper electrorefining sludge at Kola MMC

Production

- feasibility study on mining balance reserves of all ore types at Polar Division's mines
- development of operating procedures for processing ores at the Company's concentrators
- development of operating procedures for efficient processing of nickel bearing pyrrhotite with a low nickel content at Nadezhda Metallurgical Plant, and processing of Cu-Ni-Fe alloys at Copper Plant
- feasibility study on the efficiency as regards processing of the magnetic fraction of precious metal concentrates produced at Kola MMC

Environmental protection

- development of a technology to neutralise commercial sulphuric acid with natural limestone, and feasibility study to compare it with the elemental sulphur production technology used at Nadezhda Metallurgical Plant
- feasibility study to choose an acceptable option for setting up a third field of Lebyazhye tailings pit



CORPORATE CULTURE
Employees and HR policy

The Company's HR management strategy is aimed at building a tight-knit team of highly skilled and responsible professionals.

Its social policy prioritises social stability of the workforce deployed across the Group's companies and all over its footprint.

The Company uses a segmentation approach to HR management, taking into account employee involvement in the end-product output and difficulties associated with skill replacement/acquisition. HR segmentation and a segment-specific targeted approach to HR management enable the Company to focus its resources on the employees who create added value for the business.

This helps boost the prestige of key jobs in the labour market and streamline staffing processes. HR segmentation and a targeted approach to remuneration and benefits increase the transparency and appeal of the value proposition (a set of tangible and intangible benefits the Company offers to its employees) for the staff and their families.

The Norilsk Nickel Group's average headcount

Region/country of operation	2014	2015	2016
Russia	79,897	81,637	81,081
USA	10	10	10
Europe	290	307	311
Asia	12	12	13
Australia	15	6	5
South Africa	883	870	586
Botswana	748	780	–
Indonesia	–	2	–
Total	81,855	83,624	82,006

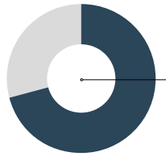
STAFF COMPOSITION

In 2016, the Norilsk Nickel Group's average headcount totalled 81,100 employees in Russia and 1,000 employees abroad. Most of the Russia-based employees (70% of the Russian headcount) work in Norilsk and the Taimyrsky Dolgano-Nenetsky Municipal District. Another 16% of the Group's Russian headcount work on the Kola Peninsula.

The headcount reduction in 2016 was due to the Nickel Plant shutdown and disposal of certain assets.

In 2016, the Company continued rolling out the SAP HCM-based automated HR management system: on 1 January 2016, it was implemented in Bystrinskoye Mining Company, and on 1 April 2016 – in Polar Division. In February 2016, the Head Office saw the launch of a business travel automation project (SAP FI-TV) rolled out to Kola MMC and Pechengastroy on 1 July 2016. In the reporting year, Polar Division also introduced self-service kiosks and SMS notifications for employees.

Gender profile for the Russian operations

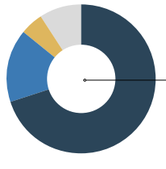


81,081 employees

	%
Male	71
Female	29

Source: Company data

Headcount breakdown for the Russian operations



	%
Taimyr Peninsula	70
Kola Peninsula	16
Krasnoyarsk Territory (excl. Taimyr Peninsula)	5
Moscow and other Russian regions	9

Source: Company data

EMPLOYMENT FOR THE NICKEL PLANT STAFF

To retain the unique skills of Nickel Plant after its shutdown, the Company took steps to provide redundant employees with new jobs in the Company's Polar Division and other Russian subsidiaries.

In accordance with the labour and employment laws, the Company informed the local employment agency, its social partners, the trade union of MMC Norilsk Nickel and its subsidiaries, Social and Labour Council, and the elected body of Nickel Plant's primary trade union organisation of launching the redundancy procedures at Nickel Plant.

By the end of 2016, the Company had finished informing the employees that had not yet selected a new job, on the expected openings in Polar Division and the Company's subsidiaries in the Norilsk Industrial District, and signed addenda to employment contracts to provide new positions within the Company's Polar Division and other operations. As at 31 December 2016, 1,680 employment contracts were signed, and all employees were redeployed.

The Company signed agreements with 569 employees as part of the Metallurgy Veterans Programme; as at 31 December 2016, all participants received a one-off redundancy payment.

To allocate jobs for the redeployed Nickel Plant employees, the Company signed a total of 160 agreements with the staff of Copper Plant and Nadezhda Metallurgical Plant, enabling them to participate in the Complementary Corporate Pension Plan in case of employment termination in 2016. As at 31 December 2016, one-off termination payments were made to all participants (107 employees received payments under the Complementary Corporate Pension Plan, and 53 employees received severance payments).

For the redundant workers of Nickel Plant classified as "vulnerable", the Company offered additional benefits and termination guarantees. As at 31 December 2016, 41 respective employees signed redundancy agreements with the Company, terminated their employments and received all due payments.

The Company also offered additional social guarantees to Nickel Plant female employees who were not reemployed. As at 31 December 2016, it signed redundancy agreements with 24 such employees, providing for additional social guarantees. All of them terminated their employment contracts and received due payments.

From the beginning of 2016, 644 Nickel Plant employees completed professional training to gain new vocational qualifications, with another 69 in process. On top of that, 514 employees underwent training to upgrade their qualification category and get permits for specific types of work.

As at 31 December 2016

1,680 employment contracts

were signed, and all employees were redeployed

644 employees

completed professional training to gain new vocational qualifications

While implementing these initiatives, the Company was continuously engaged in internal and external communications (meetings of working groups with the management and employees of Polar Division's metallurgical units, staff and face-to-face meetings, interviews, TV and media communications, distribution of information materials, etc.).

Recruitment

The Company applies a wide range of advanced sourcing technologies. In particular, we use a specialised website called Norilsk Nickel – Jobs and Careers at www.hr.nornik.ru and a free employment hot line 8 800 700 1943.

The Company also implements corporate programmes to attract workers and specialists from among young people that are completing training in their professional schools. The Company has ongoing relations with colleges and universities and offers internships to students majoring in much sought-after professions and qualifications.

In 2015, the Company reconfigured its classical field internship programme by focusing on the educational component of the development for its future employees to become new industry leaders. Norilsk Nickel was the first company in the Russian mining industry to apply the method of interaction with students and graduates based on their participation in solving real business tasks. The method served as a basis for the Conquerors of the North business game held as part of the Professional Start programme that took place in Norilsk in summer 2015.

In 2016, the programme brought together 360 people, with 215 of them taking part in the business game. For two summer months, the programme participants were offered to take a hands-on training and a multi-stage business game with a focus on team work to try and tackle some of the Company' real tasks. The participants were assisted by 20 mentors from among the Company's employees.

In 2016, Kola MMC joined the Conquerors of the North business game.

In 2016, the Company won the Graduate Award 2016 for the best student engagement programme in Russia.

The Company also attracts employees from other regions as part of the programme called Assistance to New Employees in Adapting to the New Place of Residence in Norilsk and the Taimyrsky Dolgano-Nenetsky Municipal District. To do that, we are recruiting young talents and qualified workers from across Russia to fill positions on the skills shortage list.

In 2016, there were 1,943 people participating in the programme. As part of it, the Company helps to provide comfortable living conditions for the visiting employees and reimburses the relocation and resettlement costs.

As a way to identify and recruit the best candidates to fill open vacancies and reduce staff turnover, in 2016 the Company started using the latest methods of employee evaluation and capacity assessment. Those help measure intellectual abilities and risk appetite of each individual, which are important in recruiting candidates to positions with a high level of exposure to occupational hazards. They are also helpful in obtaining information about each employee's motivating and demotivating factors. The project was first piloted at Bystrinskoye Mining Company, where 100% of new employees were recruited following successful assessment results.

Personnel development

MMC Norilsk Nickel's business is based on respect for each employee and their rights. The Company's position on human rights is reflected in the Code of Business Ethics, Personal Data Policy, and Anti-Embezzlement Regulation.

In 2016, the Company started implementing a talent pool management framework for lower and middle line managers. Approaches to building the talent pool were cascaded to operations of Polar Division, Kola MMC, and Pechengastroy. More than 800 talent pool candidates went through the assessment and selection stages. A total of 112 candidates with strong potential capacities were included into the talent pool for managerial positions. Each employee in the talent pool is supervised by their manager, who is assigned to share knowledge and experience and help develop managerial skills and professional competencies, while also acting as a mentor.

The Company launched a project to automate talent pool management using SAP HCM.

In 2016, we implemented a programme called Management Start to provide training in managerial skills for recently appointed managers at production units. The programme covered 93 people in the Norilsk Industrial District and 45 people in Kola MMC. Ten best performing programme participants were offered internships at the Company's European facilities.

We carried out a large-scale programme to provide retraining to more than 70 thousand employees of the Group, including more than 19 thousand people aged below 30. Over 43 thousand employees were trained in corporate training centres.

Financing of the Assistance programme, *USD mln*

In 2016, we continued our efforts to develop managerial skills in managers from the Top 500 and Top 1,000 categories. More than 350 managers and other employees were covered by training in communication skills.

The reporting year saw the launch of a project to assess professional competencies of managers in the Power and Mechanics functional units. The project aims to gauge and help develop professional qualifications in employees who fill managerial positions. The assessment is based on functional models of competencies and job profiles. Managers of different levels within the two units underwent dedicated tests to identify priority areas for professional growth. In 2017, efforts to develop models and tools for professional competencies assessment will continue.

In 2017, the key focus will be made on re-building the corporate training framework and enhancing the operational performance of corporate training centres. The Company plans to create and roll out training programmes for Top 100 managers. An area of special attention will be the introduction of modern technologies to assist in the training of various personnel categories. With our reconfigured production cycle, modernised operations, and new technologies, forms and approaches to activities in a rapidly changing operational environment, we need to make sure our employees meet new requirements to professional knowledge, skills, and competencies. The corporate training framework must provide employees with a quick and easy access to new knowledge, helping them master new professional skills and receive training and development support for horizontal and vertical job rotation.

Social partnership

Russian operations of Norilsk Nickel have established a social partnership framework aimed at reconciling interests of employees and employers on matters pertaining to the regulation of social and labour relations. The Company meets all obligations under the Labour Code of the Russian Federation, collective bargaining agreements and joint resolutions.

In regulating labour relations, employee interests are represented by social and labour councils and trade union organisations.

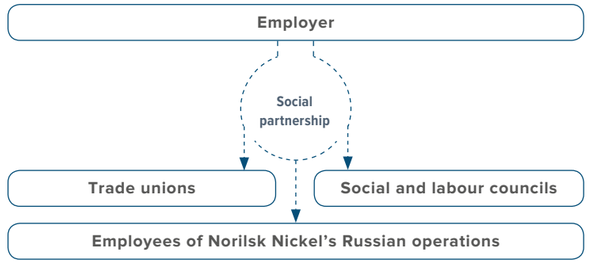
Our companies in the Norilsk Municipal District, Taymyrsky Dolgano-Nenetsky Municipal District and Murmansk Region have social and labour councils representing 92% of employees. Norilsk Nickel's Corporate Social and Labour Council has been in place since 2006, covering over 52 thousand employees at facilities based in Norilsk and the Taimyrsky Dolgano-Nenetsky Municipal District.

As at the end of 2016, 11.5% of employees engaged in Norilsk Nickel's Russian operations were members of trade union organisations.

Trade union organisations of Nornickel and its subsidiaries, Kola MMC and its subsidiaries, NordStar Airlines and Zapolyarye Health Resort are all members of the Trade Union of MMC Norilsk Nickel Employees, an interregional trade union organisation. In the reporting year, the relationship between the employer and the Trade Union was governed by the Social Partnership Agreement signed in 2014 to formalise implementation procedures for joint initiatives ensuring sustainable performance, operating and financial excellence, employee welfare, health and safety, and enhancement of social benefits.

As part of the social partnership framework implemented at Norilsk Nickel's Russian facilities, the following bodies have been established: collective bargaining commissions, labour dispute commissions, social benefits commissions/committees, social insurance commissions, health and safety commissions/committees, social and labour relations committees, etc.

SOCIAL PARTNERSHIP FRAMEWORK



Membership in trade unions

Company	Employees enrolled in trade unions, %
Group's operations in the Norilsk Industrial District	8
Gipronickel Institute	8
Krasnoyarsk Shipyard	13
NordStar Airlines	16
Kola MMC and subsidiaries	17
Zapolyarye Health Resort	33
Lesosibirsk Port	46
Krasnoyarsk River Port	53
Yenisey River Shipping Company	59

In 2016, a number of Norilsk Nickel's Russian operations entered into new collective bargaining agreements and extended the expired ones. Collective bargaining commissions amended the relevant agreements in the reporting year. The need to make those amendments was mostly related to adjustments in wage rates arising from legislative changes, organisational structure transformation and introduction of a new automated HR system. In general, Norilsk Nickel's Russian operations comply with the applicable laws and substantially meet employee expectations.

REMUNERATION

2016 saw the Company's compensation policy approved. It is aimed at:
- employee recruitment and retention;
- promotion of productive attitude to work;
- administrative efficiency and simplicity;
- compliance with legal requirements.

Key principles of Norilsk Nickel's compensation policy include the following:
- progressive remuneration system in line with the job grading framework (single approach to salaries and wages);
- incentivisation to achieve targets by improving individual, business unit and Group performance;
- salary competitiveness in the current labour market environment;
- promotion of the Company's image as a responsible and reliable employer.

In addition, the Company's employees are provided with benefits. The largest portion of benefits is represented by reimbursements of vacation travel expenses (round trip travel expenses and baggage fees) for employees living in the Far North and their families. Since 2012, the Company has been providing such compensations on an annual basis (previously, it reimbursed travel expenses once every two years). Benefits also include discounted tours for health resort treatment and vacations for employees and their families.

In 2016, the Company spent over USD 103 mln on benefits for employees of its Russian operations, or USD 1,300 per employee (on average).

Efficiency improvement initiatives

In 2016, around 2,000 people (including employees of the Company's Head Office, branches and Russian subsidiaries) took part in the KPI-based assessment.

In 2016, the Company spent over

USD 103 mln

on benefits for employees of its Russian operations

Efforts to roll out the employee performance management framework across Nornickel companies will continue into 2017. The KPI-based assessment will be extended to include managers up to section heads at key production facilities. Particular emphasis will be placed on communications to ensure that managers view the framework as an efficient management tool resting on competent leadership and successful mentoring of subordinates coupled with ongoing feedback.

Average monthly salary across the Group's Russian operations

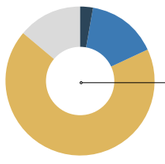
Currency	2014	2015	2016
USD	1,963	1,392	1,404
thousand RUB[1]	75.4	84.9	94.2

[1] based on the following annual average USD/RUB exchange rates: 67.0349 in 2016; 60.9579 in 2015; 38.4217 in 2014.

The salary includes a fixed and a bonus components (70% and 30%, respectively).

Average monthly salary across the Group's Russian operations, *thousand RUB*

Number of awards granted for outstanding production achievements, long-term track record and diligent work



4,980 employees

	awards
Government awards	55
Awards from ministries and agencies	303
Awards from regional and municipal authorities	1,338
Corporate awards	271

SOCIAL PROGRAMMES FOR EMPLOYEES

Health improvement programmes for employees

The harsh climate of the Far North and the heavy working conditions of the mining and smelting facilities require that the Company make an extra effort to protect its employees' health. Hence, health improvement and health resort treatment programmes for employees and their families are a key priority of the Company's social policy.

In 2016, over 10,000 employees and their families received recreational treatment in Zapolyarye Health Resort (Sochi) owned by the Company. Around 13,000 people spent their vacations in other health resorts, including over 5,000 people travelling to Bulgarian resorts.

Health resort treatment available to employees' children includes programmes for chronic disease prevention and summer vacation programmes. As part of this initiative, over 1,500 children spent their holidays in Anapa and Varna (Bulgaria).

Sports programmes

Sports programmes serve to promote a healthy lifestyle, foster corporate solidarity, and develop corporate culture. The Company pays special attention to corporate competitions, including in futsal, volleyball, basketball, alpine skiing, snowboarding and swimming.

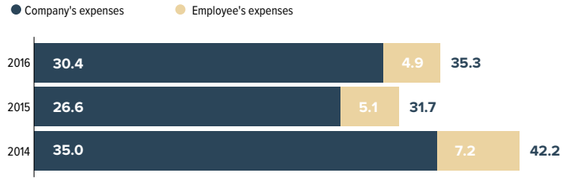
The Company's employees are especially enthusiastic about the Dad, Mum and I – a Sporty Family corporate competition and the Polar Olympics held since 2015.

Events for local communities include annual Spartakiads. In Norilsk, the Spartakiad is held across 14 sports and is attended by about 4,000 people. One of Nornickel's social policy highlights is the support of amateur sports. In 2016, the number of participants in the Company's corporate sports events exceeded 20,000 people.

Nornickel's sports events are attended not only by its employees, but also by local communities.

Health improvement and health resort treatment programmes for employees and their families are a key priority of the Company's social policy.

Financing of health resort treatment and vacation programmes for employees and their families, *USD mln*[1]



Financing of sports programmes, *USD mln*

In 2016, the number of participants in the Company's corporate sports events exceeded

>20 thousand people

[1] Before 2015, the Company's expenses included the total cost of employee vacation packages. In 2015, the accounting system was changed, and now the expenses do dot include the amounts paid by employees.

Housing programmes

Our Home and My Home programmes

These programmes aim to provide the Company's employees with housing in Russia's mild climate regions. The Company purchases ready-for-living apartments in various Russian regions, and provides them to eligible employees under co-financing agreements. In 2014–2016, apartment locations included the Moscow and Tver Regions and the Krasnodar Territory.

Our Home programme has been in place since 2010 and is intended for employees of Polar Division, Polar Transportation Branch and Kola MMC. My Home programme was launched in 2011 and covers 13 facilities operating in Norilsk, the Taimyrsky Dolgano-Nenetsky Municipal District and Murmansk Region. Since the roll-out of the programme, 2,841 apartments have been provided to the Company's employees. In total, the Company has purchased 3,404 ready-for-living apartments, including 560 ones in 2016.

Under the programme, the Company pays up to half the cost of the apartment (up to USD 30,000), with the rest paid by the employee within a certain period of employment with Norilsk Nickel (from five to ten years). The cost of housing remains unchanged for the entire period of the employee's participation in the programme. Ownership rights are registered at the end of the programme, but the employee may move in immediately after receiving the apartment.

The Company's commitment to purchase up to 550 apartments for its employees annually was included in the collective bargaining agreement for 2012–2015.

The Company's commitment to purchase up to

560 apartments

Assistance to employees in acquiring housing

In 2016, the Company launched a new housing programme aimed at social support and employee retention, the Temporary Assistance Programme for Employees of Polar Division and Kola MMC in Acquiring Residential Property. The programme is now being piloted at Polar Division and Kola MMC. It is designed to provide the Company's employees with a greater choice indetermining their future region of residence and quality of housing, and encourage them to make responsible decisions. To this end, the Company provides employees with interest-free loans to make a down payment due in up to ten years and partially repay mortgage loan interest. In 2016, there were 122 people participating in the programme.

Participating in the programme in 2016

122 people

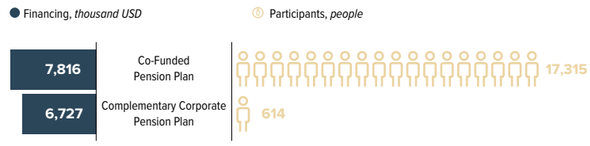
Pension plans

Norilsk Nickel offers its employees non-governmental pension plans.

Under the Co-Funded Pension Plan, the Company and the Company's employee make equal contributions to the plan.

The Complementary Corporate Pension Plan provides incentives for pre-retirement employees with considerable job achievements and a steady employment record.

2016 Pension Plans



Financing of Co-Funded Pension Plan, *USD mln*

/ Corporate Culture /

Health and safety

MANAGEMENT APPROACHES TO HEALTH AND SAFETY ISSUES

Norilsk Nickel's Health and Safety Policy gives precedence to the life and health of employees over operational performance, while also demonstrating the management's commitment to creating a safe and healthy environment and fostering sustainable employee motivation for safe workplace behaviour.

Norilsk Nickel has an HSE Committee chaired by the First Vice President – Chief Operating Officer. The Committee's health and safety objectives include:

- improving the effectiveness of efforts aimed at ensuring health and safety at the Company and its subsidiaries in Russia;
- increasing the responsibility of executives and other employees of Norilsk Nickel and its Russian subsidiaries for ensuring operational health and safety;
- assessing the effectiveness of health and safety initiatives at the Company and its subsidiaries in Russia;
- refining the health and safety management framework at Norilsk Nickel and its Russian subsidiaries.

In 2016, the Committee was engaged in considering improvements to the existing health and safety management system, as well as monitoring the implementation of the planned activities aimed at reducing injury rates and enhancing the system's effectiveness. The Committee held health and safety video conferences and on-site meetings at production sites of the Company's branches and Russian subsidiaries.

THE COMPANY'S HEALTH AND SAFETY OBJECTIVES INCLUDE

- creating a safe and healthy environment through introducing advanced technologies and scientific achievements to the production processes;
- fostering sustainable employee motivation for safe workplace behaviour and training employees in anticipation and prevention of workplace incidents.

CORPORATE STANDARDS

In accordance with the regulated procedure, Norilsk Nickel's branches and subsidiaries in Russia have organised the implementation of corporate health and safety standards.

The HSE Department monitors the implementation of the standards across the Company's branches and Russian subsidiaries.

With a view to implementing the standard on the assessment and management of risks (STO KISM 121-211-2014) in an effective and comprehensive manner, the Risk Control project has been launched. As part of the project, Norilsk Nickel's managers, specialists and blue collar workers completed dedicated training courses. The Company developed guidelines and recommendations on hazard identification and risk assessment and management.

In 2016, Corporate Standard STO KISM 121-219-2016. Requirements for Arranging Demarcation of Hazardous Areas and Visualisation of the Working Space was developed and put into effect.

Following the certification of 484 conveyors at Polar Division, fencing and drive and tension stations were repaired, including the installation of blocking devices, replacement of wiring and painting of equipment (in 2016, 220 conveyors were repaired).

In the reporting year, second-party health and safety management system audits were carried out across production units of the Company's branches and Russian subsidiaries (46 audits in total). To improve audit quality, 58 additional workshops and training sessions were held for 222 auditors.

Transport and personnel positioning systems and radiocommunications systems were introduced at all underground mines of the Group. The distance learning systems were equipped with mobile recorders and event data recorders.

The Company's branches and Russian subsidiaries have health and safety monitoring systems in place with the following prevention and control functions:

- safety behaviour audits;
- multi-stage health and safety control;
- ad hoc health and safety inspections;
- on-the-spot health and safety inspections;
- comprehensive health and safety inspections.

PERSONNEL TRAINING AND DEVELOPMENT RELATED TO HEALTH AND SAFETY

In 2016, competencies of line managers (about 5,000 people) with respect to the introduction and monitoring of safe practices were assessed across production units of the Company's branches and Russian subsidiaries.

During the same year, 94 heads of the Company's branches and Russian subsidiaries participated in a training session on the practice for managers and their subordinates to provide mutual feedback using the elements of safety behaviour audits.

In 2016, Norilsknickelremont set up a training class for employee workshops on power supply insulation. Dedicated training sessions are offered for managers and specialists of mining facilities, as well as onboarding and adaptation courses for new employees and employees with a track record of up to three years.

EXTERNAL HEALTH AND SAFETY AUDIT

From October to December 2016, DuPont Science and Technologies assessed the current situation and determined priorities for further improvement of the health and safety management framework and for mitigating injury and accident risks at Norilsk Nickel's key companies (Polar Division, Kola MMC, Norilsknickelremont, and Polar Construction Company). According to DuPont's reports, in November 2016 the industrial safety culture level (Bradley Curve indicator) amounted to 2.5 (compared to 1.4 in March 2014, 2.1 in March 2015, and 2.3 in December 2015). The safety culture improvement is driven by the implementation of risk mitigation standards, safety communication campaign and dedicated risk mitigation programmes.

To improve audit quality, 58 additional workshops and training sessions were held for

222 auditors

Five training bases at Polar Division and Kola MMC are used as a platform for training in working at heights and gaining relevant practical skills (simulators, special equipment and devices)

HEALTH AND SAFETY PERFORMANCE INDICATORS

The Group's Health and Safety Strategy approved by the Audit Committee of the Board of Directors in 2014 lays out plans to reduce production-related accidents (in absolute terms) by 20% every year (starting from 2017, by 15%).

Bringing fatal production-related accidents down to zero is one of the strategic objectives to be reached in the course of implementing the Health and Safety Strategy.

FIFR[1]

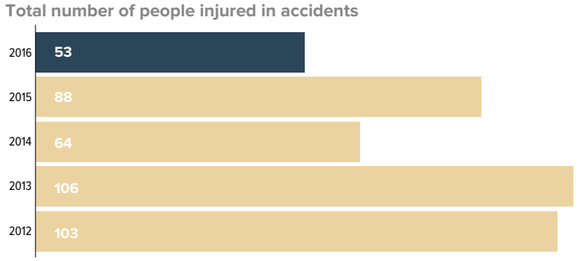
LTIFR[2]

Health and safety indicators

Indicators	2014	2015	2016
Total number of production-related accidents in accordance with the labour laws of the Russian Federation	64	88	53
Fatal production-related accidents	8	14	13
Production-related accidents resulting in lost time injuries	56	74	40
Small injuries	305	411	719

Further information on health and safety initiatives is available in the Company's Corporate Social Responsibility Report for 2016.

Total number of people injured in accidents



[1] FIFR stands for Fatal Injury Frequency Rate (FIFR = FIs / total number of hours worked * 1,000,000).
[2] LTIFR stands for Lost Time Injury Frequency Rate (LTIFR = non-fatal LTIs / total number of hours worked * 1,000,000).

Social investments

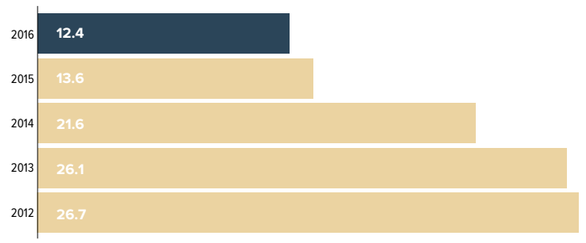
The Company makes a significant contribution to the development of local communities by implementing a range of social programmes that address current and future objectives. Norilsk Nickel's key regions of operations in Russia include the Krasnoyarsk Territory, the Kola Peninsula, and the Trans-Baikal Territory.

RESETTLEMENT PROGRAMME

In 2016, the Company together with state authorities continued implementing a joint long-term target programme to relocate people living in Norilsk and Dudinka (Krasnoyarsk Territory) to the Russian regions with favourable climate conditions. This ten-year programme has been in place since 2011 and provides for relocation from Norilsk and Dudinka of 11,265 families (1,126 families per year) registered in the respective municipalities as those entitled to resettlement under Federal Law No. 125-FZ On the Housing Subsidies for Citizens Migrating from the Far North Regions and Equated Territories dated 25 October 2002.

The Company acts as a programme sponsor, with its total donations amounting to USD 8.3 bn. Since the launch of the programme, the Company has contributed USD 140.6 mln (RUB 5.3 bn) to the Krasnoyarsk Territory budget, including USD 12.4 mln (RUB 830 mln) in 2016. In 2011–2016, some 5,786 families (as of January 2017) purchased apartments and moved to the mainland, including 4,796 families from Norilsk and 990 families from Dudinka.

The Company's contribution, *USD mln*



In 2016, the Krasnoyarsk Territory's Ministry of Construction, Housing and Utilities issued a total of 648 home purchase certificates under the applicable housing quota.

Resettlement results, 2011–2016

	2011	2012	2013	2014	2015	2016	Total
The Company's contribution, USD mln	40.2	26.7	26.1	21.6	13.6	12.4	140.6
Total apartments purchased	1,137	1,013	1,102	1,038	718	778	5,786
including Norilsk	957	850	881	862	569	677	4,796
including Dudinka	180	163	221	176	149	101	990

The ten-year programme in place since 2011 provides for relocation from Norilsk and Dudinka of

11,265 / 1,126
families families per year

The Company acts as a programme sponsor

SUPPORT OF INDIGENOUS PEOPLES

The Company recognises the right of indigenous peoples to preserve their traditional way of life and factors in their need for decent living conditions. In 2016, the Company did not commit any violations affecting the rights of indigenous minorities.

The Company contributes to the preservation of traditions and culture of indigenous minorities of the North by helping to stage professional festivals of tundra inhabitants. In 2016, the Company provided around USD 75,000 for these purposes.

In the same year, to preserve and popularise local traditions, the Company organised a large-scale ethnocultural city-wide festival in Norilsk, Big Argish, primarily with the aim of promoting and developing the region's tourist potential. Those engaged in festival preparations were Dudinka cultural institutions and family national associations of indigenous peoples of Taimyr. The Company spent USD 299,000 to stage the event.

SOCIAL INFRASTRUCTURE DEVELOPMENT

The Company is actively involved in the development and renovation of social infrastructure all across its footprint, looking to create accessible and comfortable environments for working and living.

In 2016, Norilsk Nickel continued building a fibre optic communication line between Novy Urengoy and Norilsk (the construction started in late 2014) with a view to providing people with a stable internet connection. The line will be over 900 km long, with 200 km running through permafrost and 4.5 km beneath the Yenisey River.

Under the Russian Transport Development Federal Programme, in 2014–2018 Norilsk Nickel and the Federal Air Transport Agency are to reconstruct the civilian part of the Norilsk Airport. The Company's financing of the project will total approximately USD 50 mln, with around USD 12 mln already spent in 2014–2016.

Since 2013, the Company has assisted in the development of the Tver Region under the agreement with the local government and Zavidovo Development. Results of 2016 include overhaul of a school and revamping of the adjacent territory, and construction of a bus station in the village of Zavidovo (Konakovo District, Tver Region) with convenient access roads.

On 3 October 2016, a tripartite memorandum of cooperation was signed in Norilsk between the heads of the Norilsk Municipality, Norilsk Nickel's Polar Division and the Vladimir Potanin Foundation with a view to establishing the Norilsk Development Agency. The Agency's key objectives include launching projects for economic diversification and urban space transformation, creating a favourable investment climate in the city, providing support for small and medium-sized businesses, and promoting local employment and self-employment. In addition, there are plans to develop the tourism cluster based on local natural and production facilities, hold training sessions and promote branded businesses and entrepreneurial initiatives.

The Company's costs to finance ethnocultural city-wide festival Big Argish

USD 299 thousand

The Company's costs to stage professional festivals of tundra inhabitants

USD 75 thousand

The Company continues building a fibre optic communication line going to Norilsk of the total length of

900 km

The Company's costs to reconstruct the civilian part of the Norilsk Airport

USD 50 mln

CHARITY

World of New Opportunities programme

The Company has launched World of New Opportunities charity programme to encourage and promote sustainable development of local communities. In order to achieve this goal, the Company focused on the following objectives: development of soft skills of local communities' representatives, demonstration and introduction of new social technologies, support and promotion of public initiatives, encouragement of intersectoral partnership.

The programme is comprised of three key areas – Partnership, Innovations, Development

Partnership

Partnership focuses onsupporting volunteer initiatives of active representatives from local communities, imparting new skills to the programme participants and developing local expertise.

In the spring of 2016, the Company promoted Social Technologies Forum – a city event to bring together representatives of local communities, government authorities and commercial organisations to discuss technologies and procedures of addressing social issues of the local communities, impart trends and best practices in charity and volunteer initiatives, demonstrate successful resolution of social issues. 2,265 citizens and 28 experts in developing civil society in Russia participated in social forums in Norilsk and Monchegorsk.

PARTNERSHIP / KEY INITIATIVES

- Academy for social partnership and development (a series of workshops on social project development, expertise, assessment of projects/programmes and monetisation of social projects.
- Socially Responsible Initiatives Competition
- Social technologies forum
- Social engineering workshop
- City, It's Us! and PicNick events

The Company aims to impart new skills and competencies to the participants contributing to the development of the local expertise. For the second year running, the Company stages three-day “social engineering” workshops for social activists, which combine theory and practice encompassing stages from idea generation to its implementation. In three days, 104 workshop participants from Norilsk, Dudinka, Monchegorsk and Zapolyarny developed and staged nine city events reaching out to over 1,500 local residents.

On the Company Day in 2016, Nornickel staged its first PicNick event, a festival “for a good cause” organised by local activists, participants of World of New Opportunities programme (winners of the Socially Responsible Initiatives Competition, socially responsible businessmen and FabLab employees) and Plant of Goodness corporate volunteer programme. It was a street festival with a projects fair, workshops, training, etc.

All events organised by the Company boosted charity culture in local communities, encouraged public-private partner projects. In 2016, Socially Responsible Initiatives Competition, which aims to support public initiatives, received 385 project bids, 95 of which were approved for funding. Grant funding totalled USD 1.4 mln.

Innovations

Innovations facilitate the implementation of advanced technologies, foster R&D potential and encourage innovation in engineering. This area focuses on schoolchildren, university students and adult activists interested in science and frontier technologies.

Grant funding totalled

USD 1.4 mln

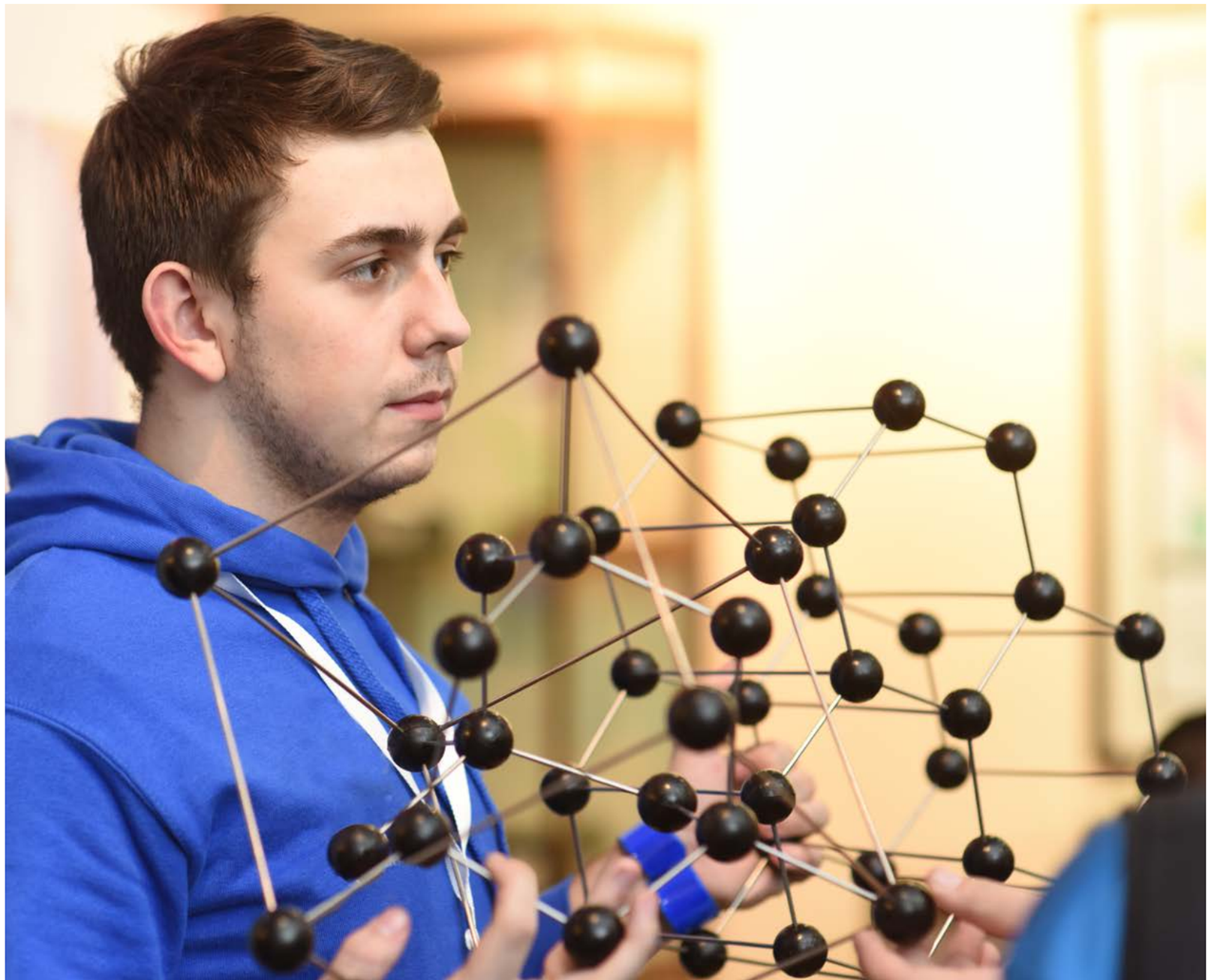
385 project bids

95 of which were approved for funding

INNOVATIONS / KEY INITIATIVES

- Arctic.PRO career guidance R&D marathon
- School of modern urban competencies
- FabLab R&D creativity laboratory
- Arctic Wave festival of R&D discoveries

In the autumn of 2016, Norilsk, Dudinka and Zapolyarny saw Arctic Wave R&D festivals aimed to promote R&D among the youth, support creative engineering and innovative thinking among schoolchildren, and demonstrate latest scientific achievements.



Over 20 interactive sites hosting science battles and intellectual team games, quests and contests, experiments and tests, lectures by young scientists and educational R&D shows. Over ten thousand people participated in the festival events.

For the third year running, the Arctic.PRO R&D marathon drew in over 1,000 schoolchildren aged 12 to 15.

For the second year running, the Company acts as the general partner of the All-Russian Festival of Science held by Lomonosov Moscow State University. In the autumn of 2016, Krasnoyarsk hosted Discovery City science festival with over 400 educational and interactive sites. Over 70,000 residents participated in three-month festival activities.

Development

Development engages active citizens and SMEs to address social issues of the local communities with the benefit of business processes.

The Company staged a course in social entrepreneurship, its participants develop business plans and showcase them at the Investment Session. Experienced trainers (active businessmen) assist participants with classes and homework.

In 2016, 19 social business projects were delivered at the Investment Session, out of which nine projects were approved for funding in the form of interest-free loans worth USD 0.4 mln. Over 60 jobs were created. Two clubs for socially responsible businessmen were open.

On 30 November, Norilsk hosted Franchising as a modern instrument of services and trade development conference and franchise fair. The event was organised by the Russian Franchise Association and sponsored by Nornickel. The participants discussed development potential of franchising and commercial real estate market, use of global experience in creating trading and hospitality infrastructure, logistic solutions. As part of the conference, the participants showcased franchises in the field of trade, services, catering, sports and beauty.

Business projects, delivered at the Investment Session:

19 social business projects

Over

60 jobs were created

SPONSORSHIP

Rosa Khutor Ski Resort

In 2016–2019, Nornickel is going to invest in the development of Rosa Khutor ski resort USD 250.5 mln. This is done in order to preserve the heritage of Sochi Olympics as part of the with Popular Sports Support Programme in Russia. The funding is aimed at transforming the Olympic resort to a year-round tourist attraction, develop new ski trails and lifts, build recreational, sport and rehabilitation facilities. As a consideration, Nornickel was granted a minority stake in the Rosa Khutor project.

Russian Olympic Committee

In May 2016, the Company signed a five-year partnership agreement with the Russian Olympic Committee, becoming the general partner of the Russian Olympic Committee and Olympic team. This enables the Company to support youth and high performance sports, including implementation of Olympic educational programmes of the Russian International Olympic University for a total amount of over RUB 1 bn.

International University Sports Federation

In April 2016, the Company signed partnership agreement with the International University Sports Federation (FISU), under which the Company as an official partner of FISU will promote the development of international university sports movement.

CSKA professional basketball club

Nornickel continues to provide support to Russia's most successful and award-winning basketball club. In 2014, the team won 2016 EuroLeague Final Four over the strongest European basketball clubs.

Minifootball club Norilsk Nickel

In 2016, the team and administration personnel of Norilsk Nickel minifootball club were moved to Norilsk. Located in Norilsk, Norilsk Nickel minifootball club participates in Russian Super League Championship and Russian Futsal Cup. The club's movement gave a powerful push to minifootbal development in the local community. Russian Futsal Association together with MMC Norilsk Nickel rapidly and successfully develop All-Russia project Minifootbal at Polar Region schools. In the framework of the projects the club's football players hold workshops for schoolchildren, and special training sessions for trainers.

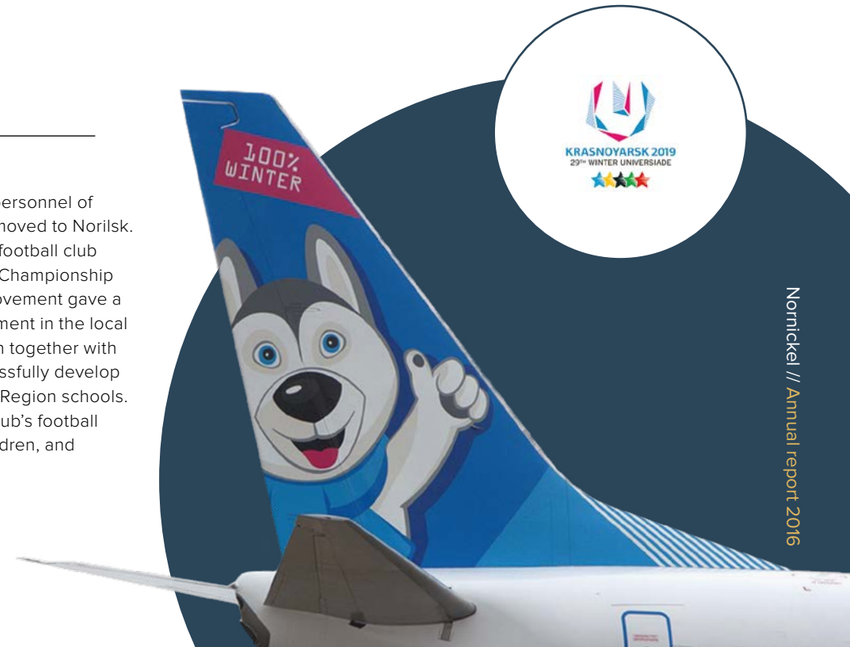
XXIX International Winter Universiade in Krasnoyarsk

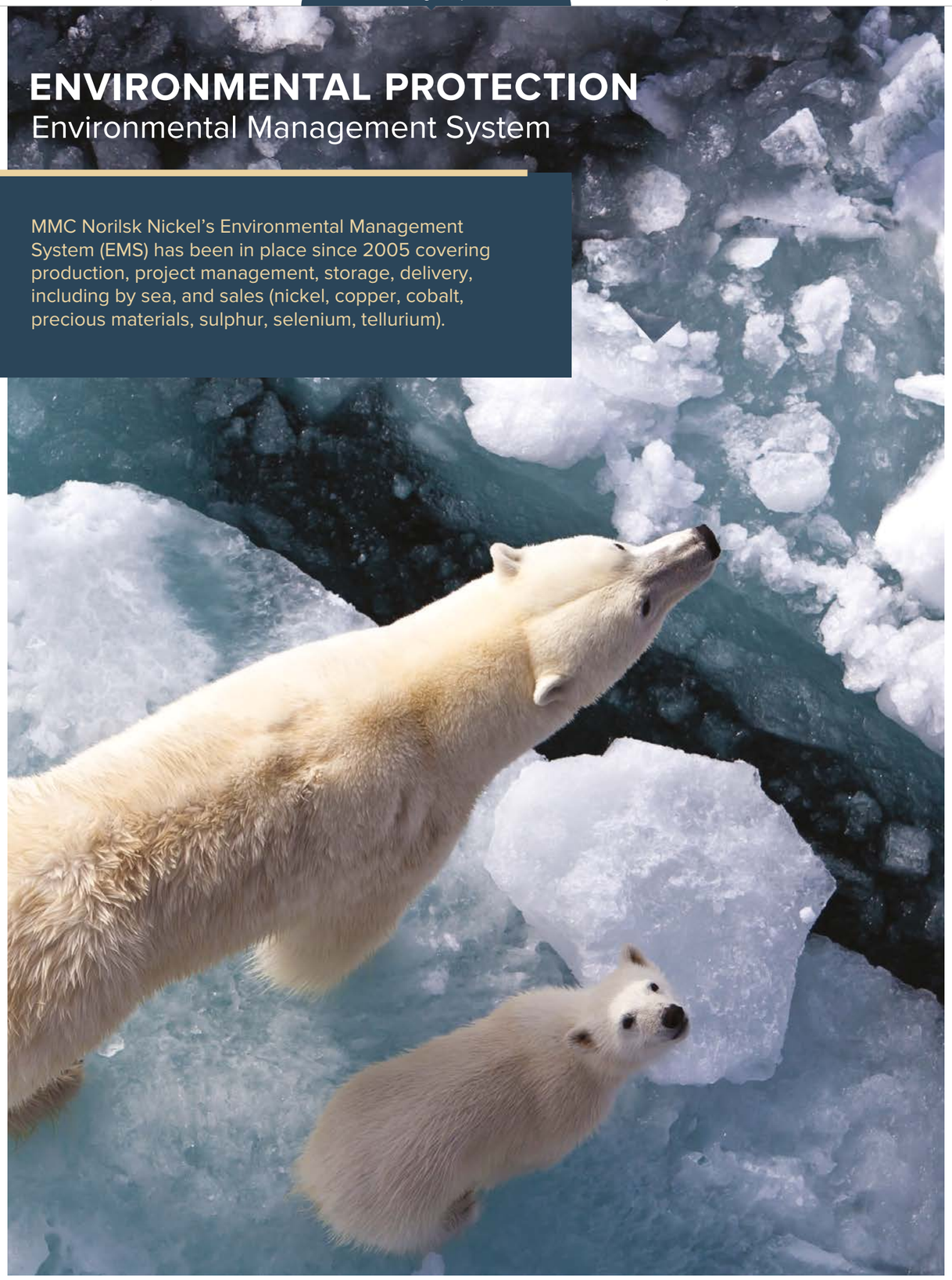
The Company, acting as the general partner of 2019 International Winter Universiade in Krasnoyarsk, successfully and promptly fulfils its obligations in line with the preparations for the upcoming international sports event. In 2016, the Company launched construction of a new athletic-training complex equipped with broadcasting system in Bobrovy Log Fun Park, expansion of skiing trails, development of integrated security system, and construction of a landing site for ambulance helicopter. During the upcoming Unversiade, 7 skiing trails will be used in Bobrovy Log Fun Park.

The Company's participation in the Winter Universiade will help create the most modern sporting infrastructure in compliance with global standards, designed for professional sportsmen training, to provide more comfortable and safer conditions for participants at the start point on the trail, broadcast the alpine competitions using the most up-to-date equipment.

The Company also trains skilled personnel and volunteers to hold the 2019 Winter Universiade. Funding, provided by Nornickel, will support training for the managers of sports facilities, heads of functional divisions and sports top-managers, as well as volunteering team-leaders in 2017–2019 in Russian International Olympic University and Siberian Federal University.

In order to promote the XXIX International Winter Universiade in Krasnoyarsk among various audience and to cover more regions, Nornickel assisted to brand three NordStar Airlnes planes for domestic and international flights with logos of the 2019 Winter Universiade.





ENVIRONMENTAL PROTECTION
Environmental Management System

MMC Norilsk Nickel's Environmental Management System (EMS) has been in place since 2005 covering production, project management, storage, delivery, including by sea, and sales (nickel, copper, cobalt, precious materials, sulphur, selenium, tellurium).

In 2016, the EMS continued to operate as part of the Corporate Integrated Quality and Environmental Management System (CIMS). This enabled the Company to harmonise environmental and quality management initiatives with the operations of other functions (such as production management, finance, health and safety) and enhance its overall performance along with environmental safety.

Throughout 2016, the Company carried out internal audits as part of the CIMS. In line with international standards and Norilsk Nickel's by-laws, internal audits were conducted by specially trained and competent personnel:

- 19 EMS internal audits were held at the Company's Head Office (as part of the CIMS internal audits);
- 57 internal audits were held at Polar Division, Polar Transportation Branch and Murmansk Transportation Branch (21, 23 and 13 audits, respectively).

To confirm compliance of the EMS with ISO 14001, the Company engages Bureau Veritas Certification (BVC) to conduct surveillance audits once a year and recertification audits once every three years. In October 2016, an EMS surveillance audit was held as part of the CIMS at the Company's Head Office in Moscow, Polar Division's production sites in Norilsk, and Murmansk.

Transportation Branch in Murmansk. The audit confirmed that MMC Norilsk Nickel's EMS complied with ISO14001:2004 (Compliance Certificate No. RU228136 QE-U of 2 November 2014). Based on the audit findings, BVC identified the scope for potential improvements while also highlighting the overall strengths of the Company's EMS.

In 2016, Norilsk Nickel was working to bring the EMS in line with the requirements of ISO 14001:2015 replacing ISO 14001:2004.

Kola MMC's EMS has been in place since 2004 covering ore mining, production of converter matte, nickel, copper, cobalt, their compounds, precious metal concentrates and sulphuric acid.

Since 2009, Kola MMC's EMS has operated as part the CIMS, in compliance with ISO 14001 and the Company's by-laws.

In 2016, following another Kola MMC's CIMS audit, the EMS was recertified for compliance with the ISO 14001 requirements as confirmed by Certificate No. RU227729 E-U of 4 May 2016.

In 2016, 30 EMS internal audits were held at Kola MMC (within the scope of the CIMS internal audits).

19

EMS internal audits

were held at the Company's Head Office in 2016

57

internal audits

were held at Polar Division, Polar Transportation Branch and Murmansk Transportation Branch

THE EMS STRENGTHENS THE NORILSK NICKEL GROUP HELPING IT TO:

- secure priority funding for environmental initiatives;
- raise environmental awareness among employees;
- improve its public image;
- gain a competitive edge in the domestic and international markets;
- demonstrate a global standard of environmental compliance to customers and other stakeholders, and win the trust of customers who require the supplier to have an effective EMS;
- gain additional opportunities for recognition in the international context and in global markets;
- boost its investment case.

/ Environmental protection /

Environmental impact

The Company's environmental programme includes the upgrade of Talnakh Concentrator to increase sulphur disposal to tailings, shutdown of all operations at Nickel Plant and construction of recycling units to extract elemental sulphur (sulphuric acid) from waste gases at Nadezhda Metallurgical Plant and Copper Plant. Kola MMC has developed and is implementing a programme to reduce sulphur dioxide emissions by introducing the briquetting and briquette melting technology along with upgrading its melting equipment, including the reconstruction of feeding and sealing systems of ore-thermal furnaces and a set of measures to prepare low-grade ores for smelting. These steps will significantly reduce the negative impact of emissions from metallurgical operations at Polar Division and Kola MMC's Zapolyarny and Nikel sites.

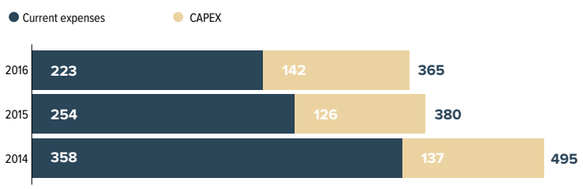
The reporting year saw the shutdown of Nickel Plant, the main source of pollution in the southern industrial area of the city of Norilsk operating within the city boundaries since 1942.

The Nickel Plant closure discontinued approximately 370 ktpa of air emissions and eliminated 600 stationary sources of air pollution, of which 458 had no purification facilities. The plant's two wastewater discharge points previously discharging approximately 37 kt of pollutants per annum were closed. Over one million tonnes of production waste is no longer generated, including coal processing products, metallurgical slag, ferrous cake and other wastes.

KEY STEPS TO MITIGATE THE GROUP'S ENVIRONMENTAL IMPACT

- comply with the applicable laws and international agreements, ISO 14001, industry and corporate environmental regulations;
- gradually reduce pollutant emissions and discharges, and expand the scope and volume of waste recycling;
- ensure sustainable use of natural resources;
- implement the best available technology.

Environmental protection expenses, *USD mln*[1]



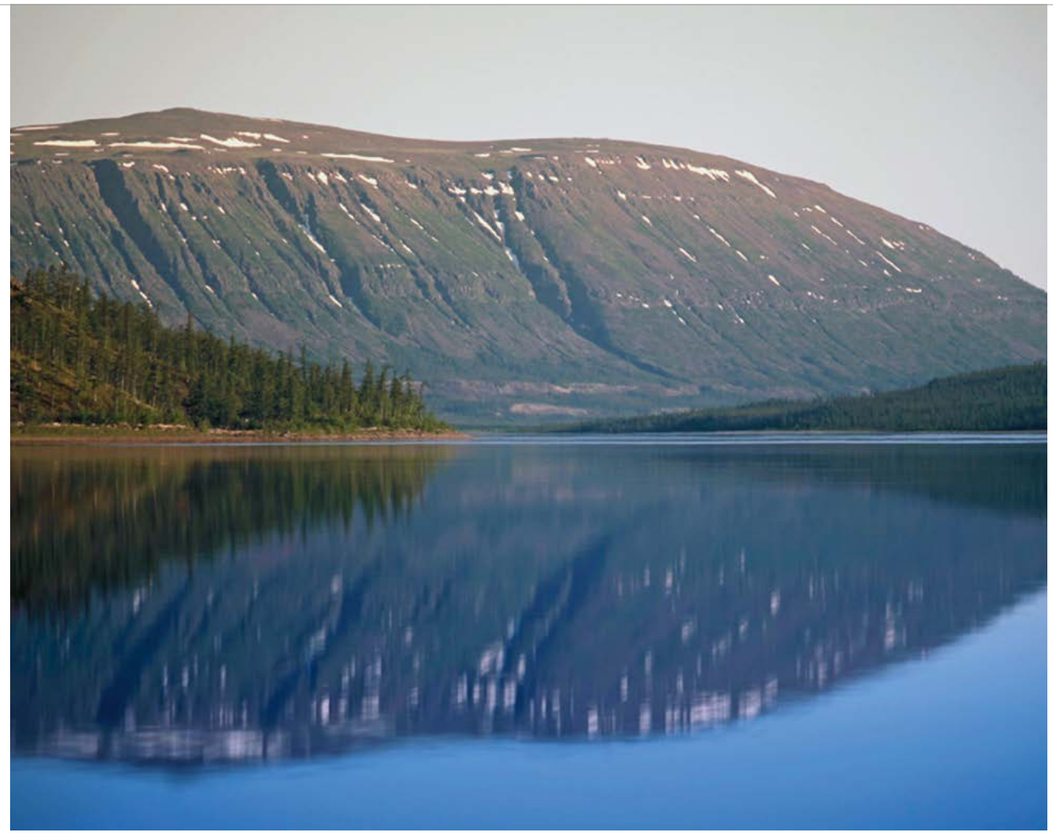
Environmental impact metrics across Norilsk Nickel's Russian operations[1]

Item	2014	2015	2016
Total air pollutant emissions, mln t	2.01	2.06	1.94
incl. sulphur dioxide, mln t	1.95	2.01	1.88
incl. solids, mln t	0.02	0.02	0.01
Wastewater disposal, mln cubic meters	62	54	52
Pollutant discharges, mln t	0.17	0.18	0.19
Use and treatment of waste at the Company's own facilities, mln t	18	19	20
Waste disposal, mln t	17	15	14

As part of upgrading the sulphur dioxide recycling units at Copper Plant and Nadezhda Metallurgical Plant, the project design documents were developed and approved by Russia's State Expert Review Board. The Company selected the EPC contractor and signed a contract for the work to be performed at the next stages of the sulphur project at Nadezhda Metallurgical Plant.

In 2016, total emissions of Norilsk Nockel's Russian operations amounted to 1.9 mln t, which is 6% lower than in 2015. The decrease was due to lower sulphur dioxide emissions (-7%) primarily resulting from the shutdown of Nickel Plant, as well as the briquetting technology introduction and lower production of pellets at Kola MMC.

[1] Including Polar Division, Polar and Murmansk Transportation Branches, and Kola MMC.



In 2016, further steps were taken to reduce air emissions with a view to gradually achieving maximum permissible emission rates. The Company also continued its efforts to improve control over emissions during unfavorable weather conditions. In the reporting period, a total of 76 emission control cases were registered at Norilsk Nickel's metallurgical operations. To inform the local community of the environmental impact of its metallurgical operations on the quality of air in Norilsk, the Company continued running an automatic toll-free enquiry service line offering environmental forecasts for the city area to anyone dialing 007 or 420 007.

The discharge of wastewater pollutants in 2016 dropped by

18%

The decrease in total wastewater discharge by 2% was mainly due to the shutdown of Nickel Plant and lower discharge of mining waters at Kola MMC. Also, the discharge of wastewater pollutants in 2016 dropped by 18% and did not exceed the maximum permissible discharge rates.

In 2016, the Company continued implementing its wastewater discharge reduction plan allowing for phased achievement of maximum permissible discharge rates for each substance subject to limits.

Norilsk Nickel's waste management efforts seek to ensure the repeated use of waste in its production cycle along with meeting statutory waste disposal limits. In 2016, the Company's waste disposal did not exceed the limits. Re-usable waste mostly comes from extraction of ore mineral resources, including mined rock crushing, backfilling of mined-out areas and pits, and construction and strengthening of tailing dumps.

In 2011, a new concentrate briquetting section was commissioned at Zapolyarny site of Kola MMC replacing the roasting section. Two new briquetting lines are now in operation, and the briquetting technology is being fine-tuned to meet the required quality standards. The full-fledged roll-out of the briquetting technology will reduce sulphur dioxide emissions generated by the production processes from 4.8 kt in 2016 to approximately 1.0 kt. Since the start of its operations in 1998, Kola MMC also implemented a number of other projects at Zapolyarny and Nickel sites that enabled it to bring down sulphur dioxide emissions from 188 kt in 1998 to 82.4 kt in 2016.

Monchegorsk site is currently implementing a Nickel Electrolysis Shop project that will allow for electrowinning of nickel from chlorine dissolved tube furnace nickel powder with the capacity of 120 kt of electrolytic nickel per annum. The project includes reconstruction of cathode nickel facilities in the nickel electrolysis shop to replace the existing electrorefining technology with electrowinning of nickel from chlorine dissolved tube furnace nickel powder. The new technology will help to reduce air emissions thanks to elimination of anode smelting.

ENVIRONMENTAL IMPACT METRICS OF NORILSK NICKEL HARJAVALTA

Norilsk Nickel Harjavalta has all the necessary environmental permits and operates a certified integrated management system that meets the requirements of ISO 9001, ISO 14001 and OHSAS 18001. Its main environmental impact is emissions of ammonia (NH_3) and nickel into the air, and discharges of nickel (Ni), sulphates (SO_4^{2-}) and ammonia ions (NH_4^+) into water bodies. In 2016, Norilsk Nickel Harjavalta's actual emission, discharge and waste disposal volumes complied with the existing permits. Lower waste volumes came from the decreased use of feedstock from Terrafame (Talvivaara), as well as reduced processing of electric furnace matte from Boliden.

Environmental impact metrics of Norilsk Nickel Harjavalta

Indicator	2014	2015	2016
Industrial wastewater, thousand cubic meters	625	728	771
Pollutants in industrial wastewater, t			
Ni	0.4	0.4	0.4
SO_4^{2-}	19,281	20,051	22,457
NH_4^+ (converted to nitrogen)	45.4	36.0	49.5
Total water consumption, mln cubic meters	10.9	10.4	10
Total air pollutant emissions, t			
Ni	1.8	1.7	1.6
NH_3	50	70	70
Waste generation, kt	30.8	16.5	7.0
Waste disposal, kt	29.8	15.7	0.8

[1] Excluding 66,189 kg (Ni) discharged in July 2014 as Ni solution due to a heat exchanger failure at the reduction plant.

Biodiversity conservation

COOPERATION WITH NATURE RESERVES

The Putoransky State Nature Reserve (Taimyr Peninsula)

The Putoransky State Nature Reserve (Taimyr Peninsula) was included on the UNESCO world heritage list in 2010. Boasting a total area of over 1,887,000 ha, it is home to 13 plant, 12 bird and 1 animal species listed on the Krasnoyarsk Territory's, Russia's and international Red Data Books. The reserve is part of the Joint Directorate of Taimyr Nature Reserves established in 2012, which includes the Putoransky, Taimyrsky and Big Arctic reserves, as well as the Purinsky and Severozemelsky natural protected areas. In 2016, the Joint Directorate of Taimyr Nature Reserves continued implementing three projects selected under Norilsk Nickel's World of New Opportunities charitable programme to support socially important initiatives. In the reporting year, the Company allocated approximately USD 100,000 to finance these projects, namely:

- Save the Bighorn Together (support for research and protection of this endangered species of the Putorana Plateau);
- Hatanga Crafts Festival (a space for demonstration, experience sharing and transfer of northern craftsmen's know-how in order to revive the indigenous peoples' forgotten crafts); and
- Environmental Camp (a summer field camp set up in the protected area of the Putoransky Nature Reserve).

In 2016, the Joint Directorate of Taimyr Nature Reserves also received the requested additional funds of approximately USD 36,000 used for the targeted purchase of various equipment.

The Pasvik Nature Reserve (Kola Peninsula)

The Pasvik Nature Reserve is featured as one of the Wetlands for the Shadow List of Ramsar Sites (the Ramsar Convention) under the name of Fjarvann – Schaannings Field Base. It covers a total area of over 14,000 ha and is home to rare species listed on the international and Russia's Red Data Books. Since 2006, as part of the contract signed with Kola MMC, the Pasvik Nature Reserve has been carrying out an ecological assessment of the natural environment in the area of Pechenganickel Plant (Zapolyarny, Nickel and their suburbs, including the Pasvik State Nature Reserve), and developing a long-term environmental monitoring programme.

The Company provides systemic support to nature reserves located in relative proximity to its production sites.

The Lapland State Nature Biosphere Reserve (Kola Peninsula)

The Lapland State Nature Biosphere Reserve is one of the largest protected areas in Europe covering over 278,000 ha. Since 2002, the Lapland Biosphere Reserve has been engaged in developing measures to reclaim disturbed natural environment in the areas affected by permanent air emissions from Severonickel Plant, and monitor areas adjacent to Monchegorsk site and the Lapland Biosphere Reserve, under the contracts signed with Kola MMC. The data obtained during a scientific research provided a basis for the subsequent contractual work to reclaim disturbed lands, and bring about sanitary and fire protection improvements in the forest areas. In 2016, the Company allocated approximately USD 130,000 to finance the projects of the Kola Peninsula nature reserves.

BIODIVERSITY RECOVERY

Norilsk Nickel's Polar Division is working on a project to breed valuable fish species and release them into natural water bodies. In 2016, it implemented a number of initiatives to compensate for the damage to water bodies of the Yenisei River caused by sand production at the Seredysh Island deposit in the 2015 summer navigation period. 14,917 Siberian sturgeon fingerlings grown at the Company's modern year-round fish breeding unit with recirculating acquaculture systems were released into the Yenisei River.

LAND RECLAMATION AND LANDSCAPING

The Company regularly allocates funds for landscaping in the municipalities of operation. Since 2003, Kola MMC, upon recommendation from the nature reserves, has rehabilitated 100 ha of area in Monchegorsk, Zapolyarny towns and Nickel settlement. For the past 12 years, Kola MMC has had approximately one million trees and bushes planted, including a pilot project to restore damaged land adjacent to the company's site together with the Kola Science Centre of the Russian Academy of Sciences. As part of the citywide programme for landscaping and restoration of urban landscapes and the surroundings of the city of Dudinka implemented in cooperation with the Dudinka municipal authorities, 2016 also saw the clean-up and improvement of external territories and areas adjacent to roads, as well as measures to protect water bodies and protected water zones, and tourist camping improvements.

Other environmental developments in 2016 included the Ecological Marathon launched by the Company in Norilsk as part of its Plant of Goodness corporate volunteer programme. Total related Norilsk Nickel's expenditure over the past year exceeded USD 7,000. As part of the Ecological Marathon, the Company had approximately 35 cubic meters of fertile soil brought to the sports stadium, 5 kg of perennial grass seeds sown, 75 seedlings of willow shrubbery planted, and 10 bird feeders made. Over 5 kg of batteries were collected at the reception point for used batteries.

An action plan, including watering, winter insulation, fertilisation and spring crown formation, was developed for the volunteer teams to take care of the seedlings jointly with the staff of the Arctic Agriculture and Ecology Research Institute. These and other initiatives will be implemented as part of the Ecological Marathon in 2017.

In 2016, Monchegorsk hosted Let's Do It, a large-format environmental festival focused on the clean-up of the Lumbolka Lake shore and the city park territory. It was part of Norilsk Nickel's Plant of Goodness corporate volunteer programme.

Energy efficiency

The Norilsk Nickel Group's major production assets are located beyond the Arctic Circle with air temperature below the freezing point during eight months of the year. It is therefore critical for the Group to ensure reliable and high-quality power supply to its enterprises, as well as to the infrastructure facilities and population in the regions where it operates.

In 2016, Norilskgazprom implemented a number of organisational arrangements and upgrades of its key power equipment as part of the Energy Saving and Energy Efficiency Programme, which enabled the saving of 25 mln cubic meters of natural gas.

The Company also uses electric power generated from renewable energy sources at NTEK's Ust-Khantayskaya and Kureyskaya HPPs (installed capacity of 441 MW and 600 MW, respectively).

In 2016, the share of renewable energy stood at 25% for the Norilsk Nickel Group and 38% for its Polar Division.

In 2017–2020, the Company will continue to renovate and upgrade the main power equipment and transmission devices along with waste water treatment systems.

Energy consumption by PJSC "MMC "NORILSK NICKEL"[1]

Type of energy resource	2016	
	Consumption in volume terms	Consumption, thousand RUB
Heat power, Gcal	5,587,849	4,594,881
Electric power, thousand kWh	5,158,974	5,259,718
Motor fuel, t	344	17,797
Diesel fuel, t	58,671	2,657,599
Heating oil, t	40,479	582,489
Natural gas, thousand cubic meters	545,712	1,363,718
Coal, t	0	0
Aviation fuel, t	115	5,008

For the past 12 years, Kola MMC has had approximately

≈1 mln trees and bushes planted

14,917 Siberian sturgeon fingerlings

grown and released into the Yenisei River

Energy consumption by Norilsk Nickel Group[1]

Type of energy resource	2014		2015		2016	
	Consumption in volume terms	Consumption, thousand RUB	Consumption in volume terms	Consumption, thousand RUB	Consumption in volume terms	Consumption, thousand RUB
Heat power, Gcal	8,800,391	6,972,592	8,523,826	6,856,778	8,970,953	7,542,227
Electric power, thousand kWh	10,357,673	11,751,583	10,314,243	12,886,849	9,558,443	12,947,152
Motor fuel, t	2,473	90,177	2,543	90,760	2,636	114,547
Diesel fuel, t	134,478	4,358,366	132,696	4,693,653	134,436	5,172,394
Heating oil, t	249,146	2,955,766	245,237	2,422,476	256,905	2,262,086
Natural gas, thousand cubic meters	3,772,668	8,374,359	3,225,467	7,619,982	3,357,366	8,386,866
Coal, tonnes	171,347	262,397	161,945	254,454	94,746	222,096
Aviation fuel, t	80,580	2,560,469	76,767	2,432,656	96,621	2,910,683

[1] No others types of energy resources were used besides those specified in the table.