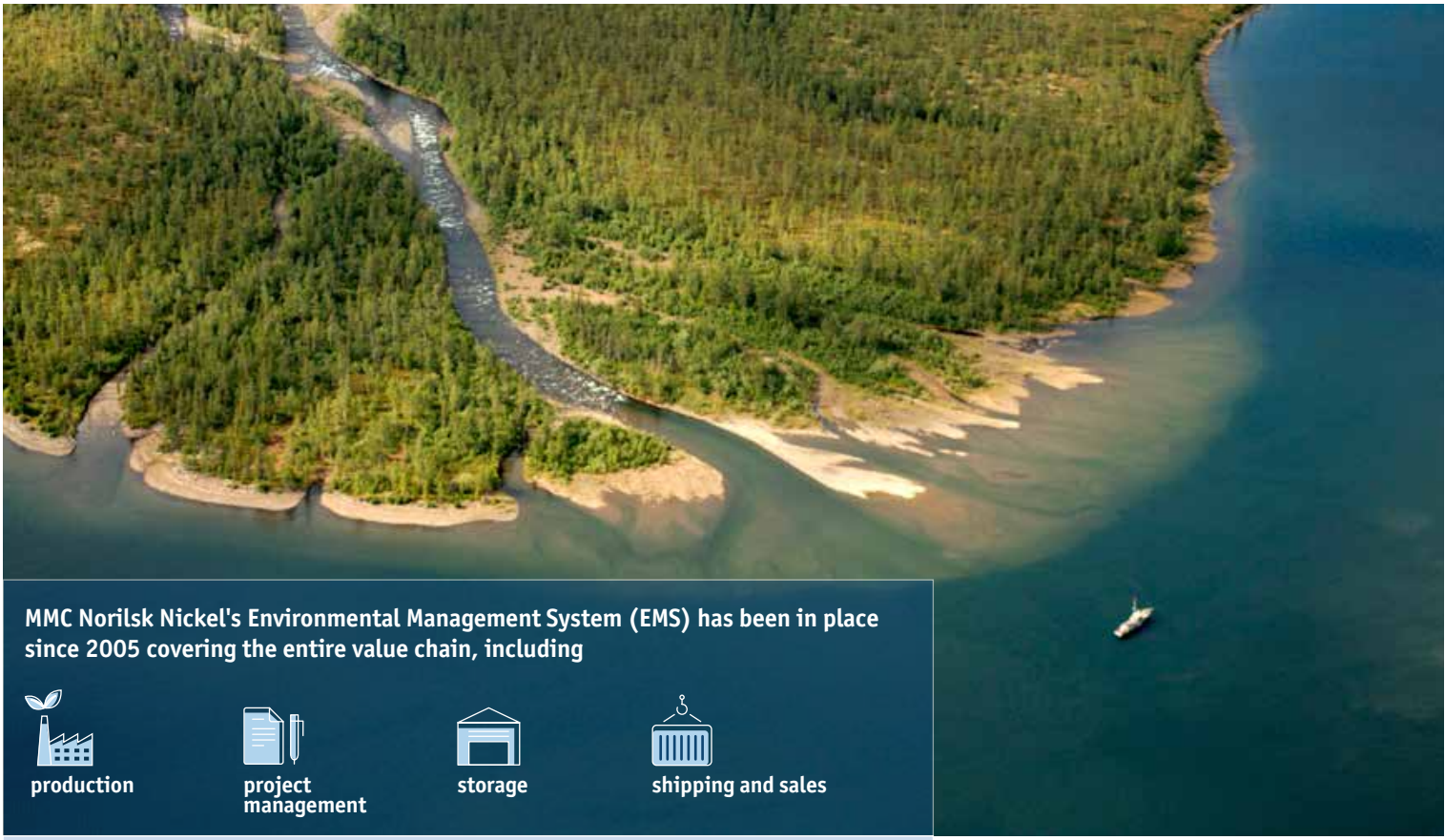
Environmental Responsibility



MMC Norilsk Nickel's Environmental Management System (EMS) has been in place since 2005 covering the entire value chain, including

production | **project management** | **storage** | **shipping and sales**

THE EMS HELPS NORILSK NICKEL

- 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;
- consolidate customer confidence (especially where consumers require the supplier to have an effective EMS);
- identify additional opportunities in the international context and in global markets;
- boost its investment case.

In 2015, the EMS was implemented as part of the Corporate Integrated Quality and Environmental Management System (CIMS), which enabled the Company to harmonise environmental initiatives with the operations of other functions (such as production management, finance, health and safety) and enhance the Company's overall performance. The Company has also put in place an integrated environmental reporting system embracing all of the Group's operations and monitoring the achievement of environmental objectives.

ENVIRONMENTAL MANAGEMENT SYSTEM

Key steps to mitigate environmental impact:

- comply with the applicable laws and international agreements, ISO 14001:2004, industry and corporate regulations;
- gradually reduce pollutant emissions and discharges, and expand the scope and volume of waste recycling;
- ensure sustainable use of natural resources;
- introduce environmentally friendly technologies and reduce production resource intensity;
- conserve biodiversity across the Company's footprint;
- plan operating activity to ensure compliance with the statutory environmental impact requirements.

In accordance with the international standards and the Company's by-laws, internal audits are conducted by professionals with specialised training. The Company has drafted and keeps updating a register of corporate and internal auditors.

EMS surveillance (external) audits

To confirm compliance of the EMS with ISO 14001, the Company engages the Bureau Veritas Certification (BVC) to conduct surveillance audits once a year and recertification audits once every three years.

MMC NORILSK NICKEL

In September and October 2015, an EMS surveillance audit was held at the Company's Head Office in Moscow, Polar Division's production sites in Norilsk, and Polar Transportation Branch in Dudinka.
The audit confirmed that MMC Norilsk Nickel's EMS complied with ISO 14001 (Compliance Certificate No. RU228136QE-U dated 8 December 2011).

KOLA MMC

The EMS complies with ISO 14001 and the Company's by-laws and internal regulations as confirmed by the relevant certificate (Certificate No. RU227729E-U dated 5 May 2013). The audit focused on the production of converter matte, nickel, copper, cobalt, their compounds, precious metal concentrates and sulphuric acid. In 2015, the Integrated Management System (ISM) completed a surveillance audit confirming the compliance of Kola MMC EMS with the ISO 14001 requirements.

NORILSK NICKEL HARJAVALTA

All of the Company's foreign operations are required to comply with both national environmental regulations and Norilsk Nickel Group's corporate standards. Norilsk Nickel Harjavalta Oy has procured all the necessary environmental permits, and applies a certified integrated management system that meets the requirements of ISO 14001.

■ EMS internal audits in 2015

COMPANY	NUMBER
Head Office	18
Polar Division, Polar and Murmansk Transportation Branches	61
Kola MMC	36

■ EMS internal auditor training, **FTEs**

Auditor training	**60**
Head Office	7
Polar Division	41
Murmansk Transportation Branch	12
Training in the applicable environmental and resource management laws, government environmental regulations and environmental safety	**257**

Sustainable Development

EFFICIENT USE OF RESOURCES

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.

In 2015, the Company developed and adopted an energy efficiency improvement programme for industrial facilities in the Norilsk District and the Murmansk Region, under which a project was launched to install an automated electricity metering system for commercial purposes.

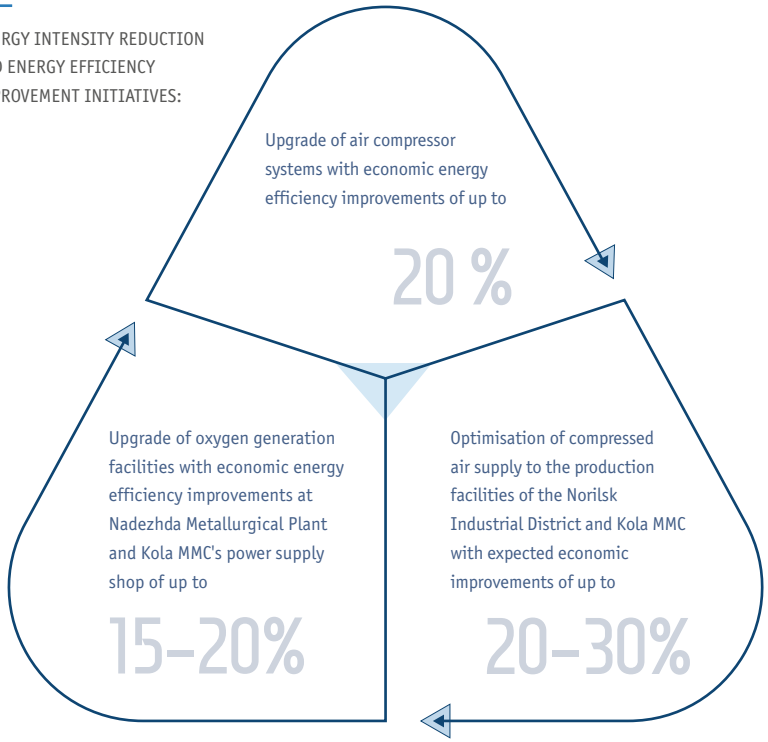
37.5%

Share of renewable energy for the Norilsk Nickel Group

47%

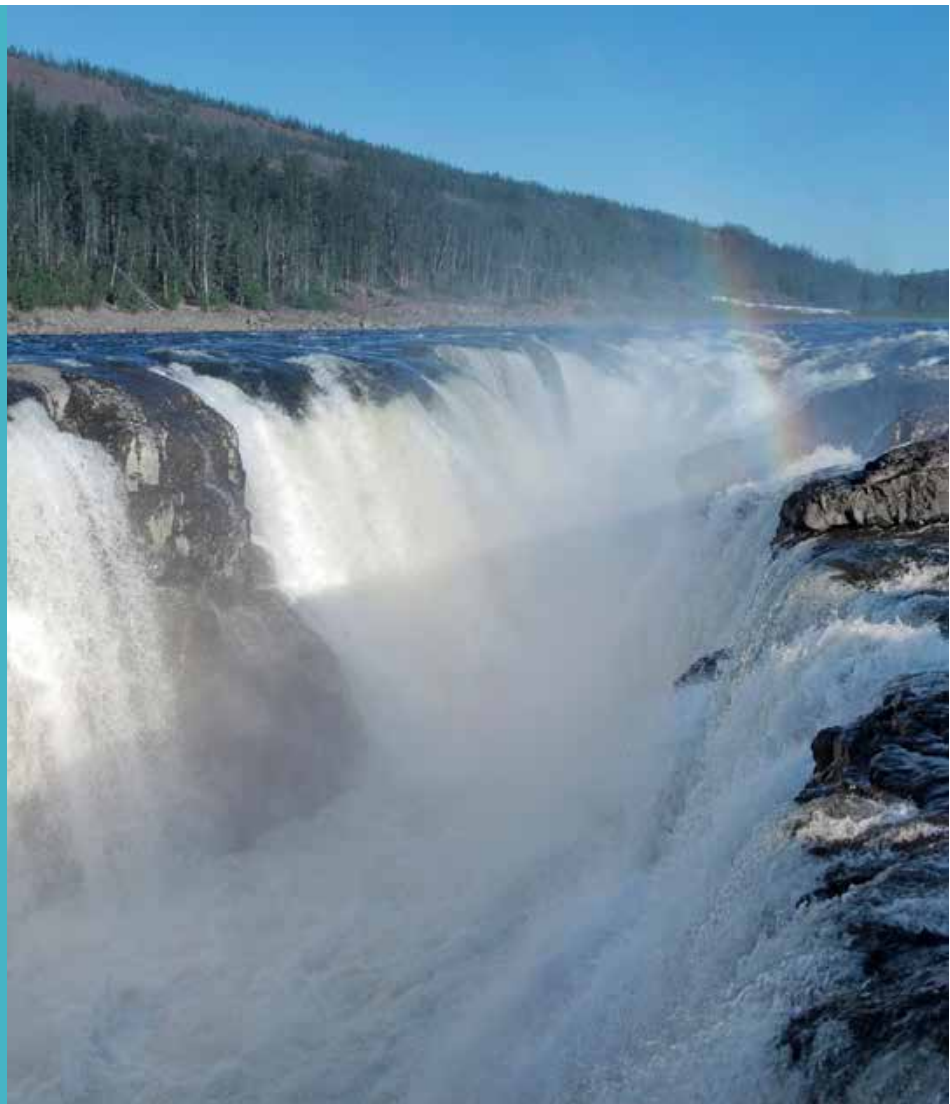
Share of renewable energy for the Norilsk Industrial District's production sites

ENERGY INTENSITY REDUCTION AND ENERGY EFFICIENCY IMPROVEMENT INITIATIVES:



Use of renewable energy

The Company mainly procures its electrical energy from a hydropower plant cascade classified as a renewable energy source. In 2015, the share of renewable energy (generated by the Taimyr HPP Cascade, including Ust-Khantayskaya and Kureyskaya HPPs) stood at 37.5% for the Norilsk Nickel Group and 47% for the Norilsk Industrial District's production sites.



■ Energy consumption by the Russian companies of Norilsk Nickel[1]

TYPE OF ENERGY RESOURCE	2015		2014		2013	
	CONSUMPTION IN VOLUME TERMS	CONSUMPTION, RUB '000	CONSUMPTION IN VOLUME TERMS	CONSUMPTION, RUB '000	CONSUMPTION IN VOLUME TERMS	CONSUMPTION, RUB '000
Heat power, Gcal	8,523,826	6,856,778	8,800,391	6,972,592	8,064,023	6,462,988
Electric power, '000 kWh	10,314,243	12,886,849	10,357,673	11,751,583	9,728,784	10,499,125
Motor fuel, t	2,543	90,760	2,473	90,177	1,239	37,939
Diesel fuel, t	132,696	4,693,653	134,478	4,358,366	81,509	2,512,907
Heating oil, t	245,237	2,422,476	249,146	2,955,766	248,878	2,753,022
Natural gas, '000 cu m	3,225,467	7,619,982	3,772,668	8,374,359	3,831,108	8,100,692
Coal, t	161,945	254,454	171,347	262,397	165,332	287,226
Aviation fuel[2], t	**76,767**	**2,432,656**	**80,580**	**2,560,469**	**138,876**	**4,197,114**

[1] *No other types of energy resources were used besides those specified in the table*
[2] *Includes the subsidiaries, Nordavia and the Moscow Branch of Taimyr Air Company*

ENVIRONMENTAL IMPACTS

In 2015, the Company continued its drive to reduce air pollutant emissions and wastewater discharges.

Wastewater discharges have been consistently reduced on the back of environmental protection initiatives.

There are no underground wastewater discharges. Hence, impact on the surface and underground water bodies is mitigated by following the simple procedures for temporary waste storage and equipment maintenance.

Over 99% of the Company's wastes are hard rock, tailings and metallurgical slag classified as non-hazardous wastes. Approximately 50% of such wastes are reused internally, while the rest is stored at the Company's waste disposal sites subject to the established limits. Hazardous wastes are transferred to the specialist contractors for further disposal, treatment and recycling.

>50%

of wastes are reused internally

■ Environmental impact metrics across Norilsk Nickel's Russian operations[3]

ITEM	2015	2014	2013
Total air pollutant emissions, kt	2,029	1,969	2,053
incl. sulphur dioxide, kt	2,009	1,947	2,033
incl. solids, kt	20	21	20
Wastewater disposal, m cu m[3]	54	62	64
Pollutant discharges, kt[3]	150	140	139
Use and treatment of waste at the Company's own facilities, mt	19	18	19
Waste disposal, mt	15	17	21

[3] *Including Polar Division, Polar and Murmansk Transportation Branches, and Kola MMC*

Sustainable Development

■ Environmental expenditures, **USD m**[1]

ITEM	2015	2014	2013
Polar Division	**331**	**447**	**532**
Current expenditures	238	335	418
Capital expenditures	93	112	114
Kola MMC	**49**	**47**	**26**
Current expenditures	15	22	24
Capital expenditures	34	25	3
Other divisions	**0.6**	**1.2**	**0.5**
Current expenditures	0.1	0.2	0.2
Capital expenditures	0.5	1.0	0.3
TOTAL	**381**	**495**	**559**
Current expenditures	**253**	**358**	**442**
Capital expenditures	**128**	**138**	**117**

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

Polar Division

ITEM	2015	2014	2013
Total air pollutant emissions, kt	1,883	1,828	1,912
incl. sulphur dioxide, kt	1,854	1,798	1,881
incl. solids, kt	9.0	9.7	10.0
Wastewater disposal, million cu m[2]	29.8	36.2	33.1
Pollutant discharges, kt[2]	74.7	67.5	76.9
Use and treatment of waste at the Company's own facilities, mt	13.2	12.1	13.0
Waste disposal, mt	9.0	10.9	13.4

[2] *Figures for 2013 include pollutant discharges of Polar Division, Polar Transportation Branch, and Norilskenergo, branch of MMC Norilsk Nickel; for 2014 – Polar Division and Norilskenergo, branch of MMC Norilsk Nickel; for 2015 – Polar Division only.*

■ Wastewater discharge, '000 cu m

ITEM	2015	2014	2013
Total	**29,779**	**36,029**	**33,092**
Insufficiently treated	6 ,14	5,940	5,812
Contaminated untreated	18,557	25,429	25,223
Treated to standard quality at treatment facilities	5,184	3,957	2,047
Standard clean (without treatment)	24	703	10

In 2015, the Polar Division's air pollutant emissions grew by 3% mainly due to higher sulphur dioxide emissions at Nadezhda Metallurgical Plant, as it had increased its feedstock processing volumes in comparison to 2014.

Solid pollutant emissions at Nadezhda Metallurgical Plant were reduced by

21 tpa

Environmental expenditures amounted to

381 USD m

In 2015, the Company continued its drive to reduce air pollutant emissions by:

- replacing electrostatic precipitators at Nadezhda Metallurgical Plant with newer and more advanced filters, and thus reducing the pollutant emissions by 20.6 tpa;
- upgrading gas-treatment units at the Cement Plant and thus reducing the solid pollutant emissions by 304.6 tpa.

In 2015, total air pollutant emissions did not exceed the statutory limits and met all the applicable requirements.

The Polar Division's waste management line of business seeks to repeatedly use wastes for production purposes and meet statutory waste disposal limits.

In 2015, the Company continued upgrading its Nadezhda Metallurgical Plant's tailings pit and building a new tailings storage facility for Talnakh Concentrator as part of its programme to improve waste disposal facility management. These projects will ensure the environmentally friendly handling of tailings storage and disposal issues.

In 2015, total air pollutant emissions did not exceed the statutory limits and met all the applicable requirements.

Kola MMC

ITEM	2015	2014	2013
Total air pollutant emissions, kt	169.8	165.4	164.6
incl. sulphur dioxide, kt	155.1	150.2	151.6
incl. solids, kt	10.6	11.8	10.0
Wastewater disposal, million cu m	23.5	25.4	24.5
Pollutant discharges, kt	75.6	72.7	61.8
Use and treatment of waste at the Company's own facilities, mt	5.6	6.1	6.4
Waste disposal, mt	5.8	6.0	7.7

For 13 years, Kola MMC's Monchegorsk site has been keeping its emissions within the Maximum Permissible Rates, which were defined and approved in compliance with applicable law. Kola MMC's Zapolyarny and Nickel sites are keeping their emissions in line with the temporarily approved emission permits issued by regulators to the companies that are upgrading their production facilities.

In 2015, sulphur dioxide emissions increased by 3% mainly due to the lengthy repairs of Metallurgical Shop's gas ducting at Monchegorsk site. On the other hand, solid emissions dropped by 10% thanks to briquette processing in Smelting Shop.

Since 1998, Kola MMC has been implementing a number of projects that have enabled it to bring down sulphur dioxide emissions from 188 kt to 118 kt in 2015.

Pollutant discharges increased by 4% due to the commissioning of an electrolysis section and wider use of chlorine reagents driven by the launch of cobalt production with a capacity of 3 ktpa.

In 2015, Kola MMC implemented a number of projects to mitigate its environmental impact and clean wastewaters:

- cleaned the process tank at Monchegorsk site;
- commissioned two new production lines to briquette concentrate at Zapolyarny site, and continued work to bring the briquetting technology up to the required quality standards;
- continued work to achieve Maximum Permissible Emission Rates in Smelting Shop.

Sustainable Development

Norilsk Nickel Harjavalta

ITEM	2015	2014	2013
Industrial wastewater, '000 cu m	728	625	625
Pollutants in industrial wastewater, t			
Ni	0.4	0.4[1]	0.5
SO_4^{2-}	20,051	19,281	19,420
NH^{4+} (converted to nitrogen)	36	45.4	28.3
Total water consumption, m cu m	10.4	10.9	11.5
Total air pollutant emissions, t			
Ni	1.7	1.8	2.0
NH_3	70	50	80
Waste generation , kt	16.5	30.8	22.0
Waste disposal, kt	15.7	29.8	21.3

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

Harjavalta's main environmental impacts are emissions of ammonia and nickel into atmosphere, and discharges of sulphates and ammonia ions into water bodies. In 2015, Norilsk Nickel Harjavalta Oy met all permit requirements for emissions, discharges and waste disposal.

PROJECTS TO REDUCE SULPHUR DIOXIDE EMISSIONS

Polar Division

Comprehensive Nickel Plant shutdown programme

Sulphur project

In 2012, two reconstruction projects were launched at sulphur production sites in Norilsk. The projects aimed to bring sulphur dioxide emissions from Copper Plant's Vanyukov furnaces and Nadezhda Metallurgical Plant's flash smelters down to the Maximum Permissible Emission Rates through the recycling of waste gas sulphur. The projects also envisage long-term sulphur storage.

For more details, see
"Key Investment Projects" on page 84

The Company continues fulfilling its obligations under the Cooperation Agreement[2] on the Comprehensive Nickel Plant Shutdown Programme. Under the Agreement, technologically outdated and physically worn production facilities in Norilsk will be shut down to relocate relevant production functions to the Company's other sites.

The current upgrade and ramp-up of pyrometallurgical capacities at Talnakh Concentrator and Nadezhda Metallurgical Plant will allow the Company to decommission all shop areas of Nickel Plant. Polar Division will then consolidate its nickel concentrate smelting operations at Nadezhda Metallurgical Plant. As the refining capacity upgrade projects in Kola MMC's Monchegorsk site are now underway, Nickel Plant's refining operations may be discontinued as early as in the second half of 2016.

The shutdown of Nickel Plant will help eliminate emissions from Nickel Plant and substantially improve air quality in Norilsk' Central District under southbound winds. Some 600 sources of hazardous air pollutant emissions will be closed upon the completion of the programme. Total Nickel Plant emissions will be cut by 380 ktpa.

Briquetting of copper-nickel concentrate

ENVIRONMENTAL RECOVERY PROGRAMMES

In summer 2015, the Company joined in the Norilsk Municipality's effort to revamp the city's public spaces doing some urban greening and sanitary improvements. The Company also contributed to the roadside clean-up, water body protection, waterfront landscaping and facelift of several camping sites.

Moreover, Polar Division is working on a project to breed valuable fish species and release them into natural water bodies. In 2015, under an agreement signed with the Yenisey Territorial Department of the Federal Fishery Agency, the Company raised and released 18,175 Arctic char fingerlings into the Pyasina River to compensate for damage caused by sand production in the Seredysh Island deposit in 2013–2014.

The Company plans to continue fish breeding and release projects in 2016.

To bolster environmental recovery across Kola MMC's footprint, the Company brought 1,100 t of fertile soil to the Monchegorsk industrial site for reclamation purposes.

[2] *The Agreement was signed in 2014 by the Russian Ministry of Economic Development, Ministry of Industry and Trade, Ministry of Natural Resources and Environment, the Government of the Krasnoyarsk Territory, the Municipality of Norilsk, and MMC Norilsk Nickel.*